



COLLEGE OF DEVELOPMENT STUDIES CENTER FOR REGIONAL AND
LOCAL DEVELOPMENT STUDIES

**Investigating the Importance of Foreign Aid in Poverty
Reduction: The case of Ethiopia
TIME SERIES ANALYSIS**

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**“Investigating the Importance of Foreign Aid in Poverty
Reduction: The case of Ethiopia”**

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Declarations

I, Abeba Kebede, registration number GSR/5891/12, do hereby declare that this thesis is my original work, and that it has not been submitted partially or in full, by any other person for an award of degree in any other university or education institution.

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ACRONYMS

ADF	Augmented Dickey–Fuller
AIC	Akaike Information Criterion
ARDL	Autoregressive Distributed Lags
CUSUM	Cumulative Sum
DAC	Development Assistance Committee
ECM	The Error Correction Model
EPRDF	Ethiopian People’s Revolutionary Democratic Front
FAID	Foreign Aid
FDI	Foreign Direct Investment
FDI	Foreign Direct investment
FREMIT	Foreign Remittances
GDP	Gross Domestic product
IMF	International Monetary Fund
IMF	International Monetary Fund
INF	Inflation
LDCs	Least Developed Countries
MDGs	Millennium Development Goals LPI Lived Poverty Index
NBE	National Bank of Ethiopia
NGOs	Non-Governmental Organizations
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
PASDEP	Accelerated and Sustained Development to End Poverty
POV	Poverty
PPP	Purchasing Power Parity
RESET	Regression Equation Specification Error Test
SDGs	Sustainable Development Goals
SSA	Sub Saharan Africa
TOPN	Trade Openness
UK	United Kingdom
US	United States
VAR	Vector Autoregressive
VEC	Vector Error Correction
WDI	World Development Indicator

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Abstract

Many studies which have been conducted and the intense debates about the effectiveness of foreign aid to reduce poverty resulted three different understandings. which includes proponents of aid, opponents of aid and, groups who believes aid can be effective under certain conditions. Therefore, this study was initiated to examine the impact of foreign aid on poverty reduction in Ethiopia. The study was conducted using the Autoregressive Distributed Lag (ARDL) model for joint integration and error correction was used to examine the long-term and short-term relationship between poverty-dependent and independent variables. Foreign aid, remittance, inflation, trade openness, gross domestic product and foreign direct investment were variables used to analyze secondary data from the period 1991 to 2015. The data were collected from World Development Indicator (WDI) data base. The result obtained revealed that foreign aid, foreign direct investment, remittance, gross domestic product and inflation have statistically significant and reduce Poverty. whereas, trade openness has significantly risen poverty in Ethiopia. Therefore, this study recommends Government should be monitor and evaluate the implementation of aid funds to make sure more effectiveness and appropriate utilization of the aid funds to reduce poverty in Ethiopia.

Key words: *foreign aid, Poverty, ARDL*

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the study

In this era of globalization influx of wealth across the countries of the world cannot be underestimated. Important factors such as existing investment opportunities and better return on the investments facilitate the flow of capital from developed economies to economically developing economies. To bring sustainable growth third world countries usually have lack of capital due to an extensive gap between available money and the required. Hence, foreign inflows play crucial role to bridge these shortages in the domestic economy (Olowookere *et al.*, 2020).

Foreign inflows include: - aid, trade, debt, remittances, and foreign direct investment. Many agree the growth impacts of foreign aid mainly depends on their nature and type. Some scholars reported that aid inflows generally lead to high economic growth and established a positive relationship between aid and growth for specific set of countries. yet, it is a fact that aid inflows don't certainly always lead to higher economic growth or reduce poverty. They may in fact have a waning effect on the economic growth of recipient countries (Askarov en Doucouliagos, 2015).

The Organization for Economic Cooperation and Development (OECD) describes Official Development Assistance (ODA) as government aid intended to promote the economic development and wellbeing of developing countries. Aid may be directly transferred from donor to recipient (bilaterally) or conducted through a multilateral development agency such as the United Nations or the World Bank. Aid can be granted in the form of grants or technical assistance and may be distributed given different titles social, economic and production (Lowder, S.K. and Carisma, B., 2011).

Countries from developed economies, international organizations and private donors are trying to use external aid as a tool to improve living conditions and support growth in developing countries. Nevertheless, the donor countries "officially" claim and people of the recipient countries expect and hope that all these efforts help to reduce poverty and support economic growth. To achieve this 'noble' goal, during the last five decades, donor countries established many bilateral and multilateral aid agencies and regional and global development

organizations, hired thousands of people to run and evaluate the aid projects and transferred billions of dollars to the recipient countries (Kaya and Kaya, 2019). According to World Bank (2018) figures, the total development aid was over US \$ 197 billion in 2016. Nowadays, when we look at the broad picture, despite all these efforts and money that is spent, it is hard to mention great success stories with rare exceptions (Service, Performance and Challenges, 2012).

Ethiopia is one of the developing countries receiving large amounts of aid particularly after the adoption of new policy changes in 1992. However, the argument concerning foreign inflows and their believable impacts on the economic growth and poverty reduction of receiving countries is still an open question (Fissha, 2007).

Many studies which have been conducted and the intense debates about the effectiveness of foreign aid to reduce poverty results the existence of three different wings. The first wing comprised of supporters of foreign aid who argue that aid can contribute towards the eradication of poverty in developing countries, the second group who extremely oppose aid argues that aid prolongs the cycle of poverty and ruins sustainable economic growth, and the third group believes aid can be effective under certain conditions they claim the impact and efficiency of aid can be depends on the method employed by donors to assign aid and the recipient nation's characteristics such as governance, commitment, ownership of projects and institutional capacity (Mahembe en Odhiambo, 2019).

Poverty on the other hand is one of the major concerns of many economies in the developing countries including Ethiopia. World bank describe poverty as a measure of the population and a person's inability to earn \$ 1.90 a day, poor Access to safe drinking water, Poor health services, high levels of illiteracy and mortality (World Bank, 2021). Thus, poverty reduction refers to a group of human and economic measures designed to lift people out of poverty permanently.

Based on the data obtained between 1980-2000 from 39 developing countries (Mosley, Hudson en Verschoor, 2004) reported that aid is most effective in reducing poverty if it is financed on pro-poor projects such as agriculture, education and infrastructure. Moreover, a study conducted Using a panel dataset of 49 aid-recipient developing countries over the period 1981- 2001 Supervised according to donors' interests, population and infant mortality

rate, revealed that foreign aid has a positive impact on poverty reduction among benefited developing countries (Bahmani- Oskooee, M.2009).

Based on these facts it is important to investigate the role of Foreign Aid on Poverty Reduction in the case of Ethiopia for the period from 1991 to 2015 by employing ARDL model.

1.2. Statement of the problem

In recent years, Ethiopia has been receiving \$3.5 billion on average from international donors, which represents between 50 to 60 percent of its national budget. The entities that have provided the most substantial development aid for the last decade are the US (United States), the World Bank Group, and the UK (United Kingdom). Theoretically, foreign aids and any cash transfer to domestic economy is expected to bring economic development and reduce poverty if the capital is properly utilized. In 2006, Ethiopian People's Revolutionary Democratic Front (EPRDF) enacted the Plan for Accelerated and Sustained Development to End Poverty (PASDEP), which began a restructuring of agricultural arrangements to increase exports with the stated purpose of improving food security. However, the plan was highly dependent on the flow of foreign aid (Mousseau en Moore, 2021).

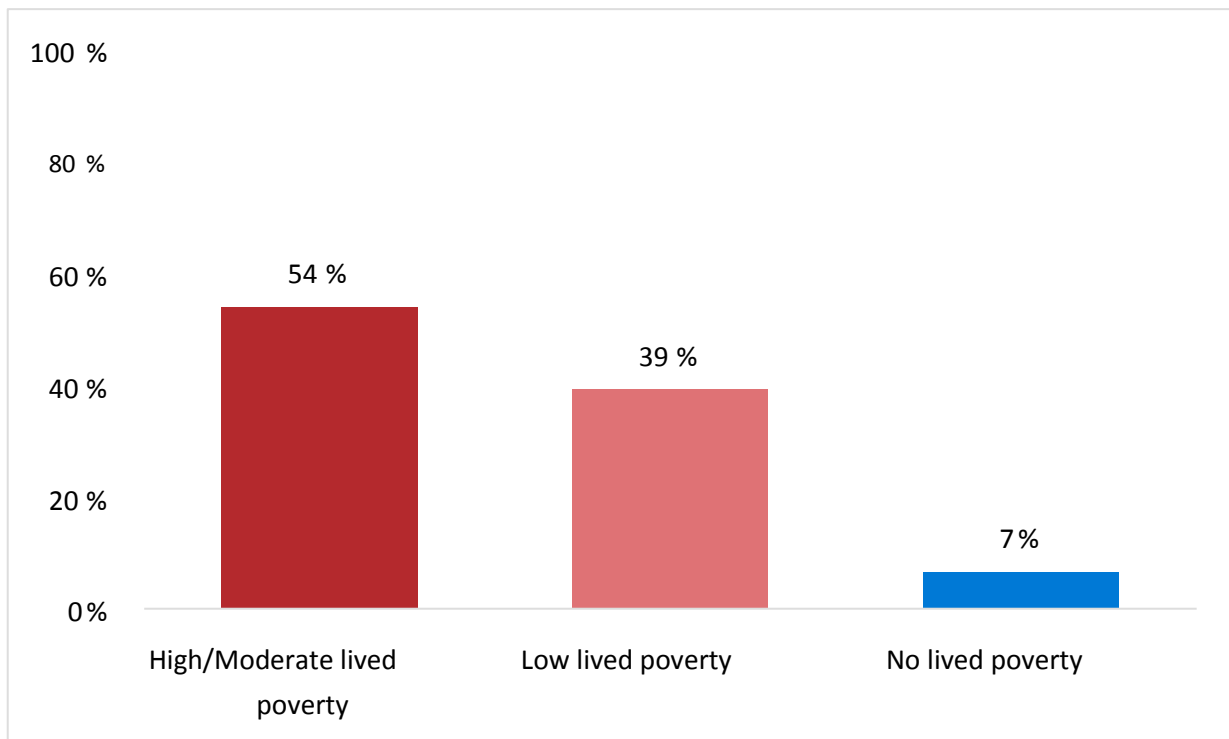
Developing countries continued to receive large amounts of aid from both multilateral and bilateral sources. According to World Bank these financial flows have two broad objectives; encouraging long term growth and poverty reduction in developing countries and promoting short-term political and strategic interests of donor countries. Being one of the developing countries, Ethiopia has received large sum of development assistance and continued to be one of the major recipients of international aid in recent times also (Hana, 2015).

Since 2000, Ethiopian households have experienced a decade of progress in wellbeing. In 2000 Ethiopia had one of the highest poverty rates in the world, with 56% of the population living below US\$1.90 PPP a day and 44% of its population below the national poverty line. In 2011 less than 30% of the population lived below the national poverty line and 31% lived on less than US\$1.25 a day. The average household in Ethiopia also has better health, education and living standards today than in 2000. Life expectancy increased and progress was made towards the attainment of the Millennium Development Goals (MDGs) particularly, in gender parity in primary education, child mortality, and malaria.

However, the level of poverty in Ethiopia is far from highly reducing as a result; many Ethiopians are still not getting well-nourished, deprived access to different infrastructure such as access to clean water, education etc. Moreover, the role of foreign aid in poverty reduction in Ethiopia is not intensively researched and systematically reported.

According to (Teka Mulu, 2021) the recent afrobarometer investigation shows that in Ethiopia significant proportions of the population frequently go without a cash income, enough pure water, medical care, and other basic necessities of life. More than 50 % of experienced moderate or high levels of lived poverty last year; only a little did well, suggest that Ethiopia's lengthy period of continuous GDP growth has yet to reach many citizens. According to the Afrobarometer's Lived Poverty Index (LPI) calculated on the basis of the frequency of these reported shortages, most (54%) Ethiopians have experienced moderate or high levels of poverty in the past year (i.e. recurring basic needs) and four out of 10 (39%) have low levels. Ethiopia's long-term economic growth, only 7 percent were good enough to escape poverty.

Figure 1.1. Lived Poverty Index /Ethiopia 2020/



Source:- (Teka Mulu, 2021)

Regarding the relationship between poverty and foreign aid there are few studies (Mosley, Hudson en Verschoor, 2004) and (mosley & suleman, 2007) reported that aid is most effective in reducing poverty. The Studies such as (Bahmani- Oskooee, M.2009) and (Awojobi, 2019) showed that there is a positive relationship between poverty and foreign aid. On the other hand, some studies found a negative (Girma, 2015) and some others found no relationship Arvin and Barillas(2002). Most of the Prior studies in developing countries have used cross-country panel data and the results are mixed. There are few studies in the context of Ethiopia (Hanna, 2015) and (Girma, 2015). However, those studies included foreign loans, and foreign investment under their definition and which may not give a clear effect of foreign aid on poverty. In addition, most studies in Ethiopia have focused on the impact of foreign aid on economic growth and sustainable development (T. Tadesse, 2011) and (Hana, 2015).

Therefore, this study attempts to investigate the impact of foreign inflows giving particular attention for foreign aids on poverty reduction in Ethiopia. The study will attempt to provide an empirical explanation as to which variables have a positive relationship with poverty reduction and variables which have a negative relationship. The study will also depend on more recent data to study long run and short run impacts of foreign aid in poverty reduction in Ethiopia employing ARDL model.

1.3. Objectives of the study

1.3.1. General Objectives

The overall objective of the study was to examine the impact of foreign aid on poverty reduction in Ethiopia.

1.3.2. Specific Objectives

The Specific objectives of the study were to:

- i. Evaluate the short and long-run effects of foreign aid on poverty reduction in Ethiopia.
- ii. Examine the influence of related macroeconomic variables on poverty reduction.
- iii. Analyze the causal relationship between foreign aid and poverty reduction.

1.4. Research Questions

The above specific issues can be met answering the following research questions.

- i. What is the short and long-run effects of foreign aid on poverty reduction in Ethiopia?
- ii. What is the influence of other macroeconomic variables on poverty reduction in Ethiopia?
- iii. Is there a causal relationship between foreign aid and poverty reduction in Ethiopia?

1.5. Significance of the Study

This study can contribute to the empirical literature of impact of foreign aid on poverty reduction in Ethiopia. It will also assist decision makers to identify problems encountered in utilizing foreign aid for poverty reduction and to take possible corrective measures. Furthermore, understanding the impact of foreign aid is a crucial issue for designing and implementing appropriate policies and strategies, as well as technology interventions on how to generate and use foreign aid. Therefore, the outcome of this study may serve as a source of additional information which may be of significant use to policy makers, planners, governmental and non-governmental organization to design and develop effective utilization and implementation of foreign aid. In addition to this, this piece of work tries to identify determinants of foreign inflows and effective use of the wealth obtained. Therefore, the study was generating information on diverse set of issues related to impact of foreign inflows(aid) for poverty reduction in Ethiopia.

1.6. Scope and Limitation of the Study

The study was delimited to a country level data obtained for 25 years in Ethiopia. It was carried out by using time series data for the period from 1991 to 2015. Due to the absence of longtime data sets on some variables i.e., the shortage of disaggregated data for poverty sector wise and activities and types, the study was limited to assess the impact of foreign aid on Poverty reduction.

1.7. Organization of this paper

The rest of the paper is organized as follows: The second chapter deals with theoretical and practical literature on foreign aid and poverty alleviation. Chapter three covers the methodological aspects of the study, including model specialization, estimation processes, and dynamic interpretation. Chapter 4 contains information analysis and interpretation. Finally, Chapter Five provides a break-in point and policy recommendations

CHAPTER TWO

2. LITERATURE REVIEW

2.1 Theoretical literature review

2.1.1 Concepts of Foreign aid

Foreign aid is the charitable movement of money or other resources from developed to developing countries. A developing nation are mostly characterized by less infrastructure development, lacks a strong manufacturing base and is distinguished by a low value of the Human Development Index (HDI). Foreign aid may be offered as a support or a loan, which can either be a hard or soft loan. (*Foreign Aid - Overview, Purpose, Types and Examples*, no date). Foreign aid consists of all resources- physical goods, skills and technical know-how, financial grants (gifts), or loans (at concessional rates) transferred by donors to recipients. OECD defines foreign aid as Official Development Assistance (ODA) considered to be a type of government aid which is designed mainly to enhance the welfare and economic development of developing countries (da Costa, L.C.R., 2018).

Foreign aid first began as international post-war assistance in the late 1940s with the statement of the Marshall plan in which its purpose was to reconstruct the war- torn economy of Western Europe. The success of the Marshall plan in the post WWII period led to the development of more positive thinking about the role of foreign aid (Woldekidan, 2019).

According to the Development Assistance Committee (DAC), aid qualifies as ODA on three criteria: it has to be undertaken by official agencies; it has to have the promotion of economic development and welfare as its main objectives and it has to have a grant element of twenty-five percent or more. In most cases, foreign aid is provided in form of project aid, humanitarian aid including food aid, technical assistance and programme aid (balance of payments supports and budget support). Also, the Non-Governmental Organizations (NGOs) provide aid in support of poverty reduction activities and emergency relief in aid recipient countries. Moreover, different forms of foreign aid have varied effects on the recipient economy where they influence the macroeconomic variables positively and negatively. Nowadays, high aid inflows are investigated carefully since foreign aid is considered to be a crucial source of economic growth. Furthermore, it accounts for more than two thirds of external finance directed to the Least Developed Countries (LDCs) (Workneh, M.A., 2013).

Since the United Nations Summit in September 2000 at which the Millennium Development Goals (MDGs) were agreed, foreign aid, in particular, Official Development Assistance (ODA) has been continually increasing. For example, in 2015, development aid provided by the donors in the OECD Development Assistance Committee (DAC) was 131.6 billion USD, increased by 6.9% in real terms from 2014, and by 83% from 2000. At the same time, bilateral aid, provided by one country to another, risen by 4% in real terms.

2.1.2 Purpose of Foreign Aid

Foreign aid may require the transfer of professional advice and training or commodities or financial resources. Financial resources can occur in the form of concessional loans or grants ,such as export credits .Official development Assistance (ODA) is the most common form of foreign aid ,which is the help provided to support development and to fight poverty .The main source of ODA is the bilateral grants from one country to another ,while some of the funding is in the form of loans ,and often it is channeled by non-governmental organizations and foreign organizations.

Countries also offer foreign aid in order to improve their own security. economic aid may also be used to discourage friendly countries from coming under the control of unfriendly governments or paying for the right to set up or use military bases on foreign soil.

Foreign aid can be used to accomplish the political aims of a government, allowing it to obtain diplomatic recognition, to gain respect for its role in international institutions, or to improve the accessibility of its diplomats to foreign countries(Zhang *et al.*, 2018).

Foreign aid also seeks to promote the exports of a country and spread its literature , culture or religion .countries often provide aid to relieve the distress caused by manmade or natural disasters like drought ,illness ,and conflict .It helps to promote sustainable prosperity, create or reinforce political institutions ,and address a range of worldwide concerns, including cancer ,terrorism ,and other violations ,and environmental degradation(Tang and Bundhoo, 2017).

There is a diverse interest among donors for aid allocation which includes: - contribution for humanitarian or emergency needs, helping developing counties to achieve development goals, to show harmony, to keep political and strategic interest, commercial interest, reinforce

historical ties, to help fight terrorism and promoting human rights (Mahembe and Odhiambo, 2019).

Furthermore, foreign aid was also considered as an fundamental requirement for the economic advancement of developing countries and pushing the economy out of “low-level equilibrium trap”(Woldekidan, 2019). Aid may be also targeted at multiple sectors or may be given on humanitarian grounds. Few of the alternative views on the effectiveness of aid are as listed: (a) aid has decreasing returns, (b) aid effectiveness is influenced by external and climatic conditions, (c) aid effectiveness is influenced by political conditions, and (d) aid effectiveness depends on institutional quality. Aid effectiveness primarily depends on a sound monetary, fiscal and trade policy, climatic conditions and institutional and political factors (Tang en Bundhoo, 2017).

2.1.3. Types of Foreign Aid

2.1.3.1. Tied Aid

Tied aid is a type of foreign aid that must be invested in a donor country or in a select group of countries. A developed country can lend a bilateral loan or grant to a developing country, but the government is expected to spend the money on goods and services produced in that country.

2.1.3.2. Bilateral Aid

Bilateral aid is given directly by one country's government to that of another country's government. It occurs when money flows from a country with a developed economy to a country with a developing economy. Bilateral aid is directed by strategic, political, and humanitarian interests. This is meant to further foster democracy, economic growth, peace, and sustainability of long-term programs.

2.1.3.3. Multilateral Aid

Multilateral aid is the support offered by several countries that share funds to foreign organizations such as the United Nations, the World Bank, and the International Monetary Fund (IMF). The funds are used to relieve hunger in developing nations. While the sector represents a minority of financial aid to the U.S, the donations provided by the country make up a large proportion of the donor funds obtained by the organizations.

2.1.3.4. Military Aid

Military Aid: Military aid is any type of aid given to strengthen security measures within a country. An estimated 33% of total U.S. foreign aid is dedicated to the military sector. In 2018, \$33.1 billion went toward military aid. Military aid allows for nations to build relationships with allies, improve democracy, establish foreign military bases or potentially support counterterrorism efforts in other countries (*5 Different Types of Foreign Aid - The Borgen Project*, no date).

2.1.3.5. Project Aid

The assistance is known to be project aid when funds are used to support a certain project, such as a hospital or school(*foreign aid | Definition, Examples, History, Purpose, & Facts | Britannica*, no date).

2.1.4. what is poverty and its types

poverty, the state of one who lacks a usual or socially acceptable amount of money or material possessions. Poverty is said to exist when people lack the means to satisfy their basic needs. In this context, the identification of poor people first requires a determination of what constitutes basic needs. These may be defined as narrowly as “those necessary for survival” or as broadly as “those reflecting the prevailing standard of living in the community.” The first criterion would cover only those people near the borderline of starvation or death from exposure; the second would extend to people whose nutrition, housing, and clothing, though adequate to preserve life, do not measure up to those of the population as a whole. The problem of definition is further compounded by the noneconomic connotations that the word poverty has acquired. Poverty has been associated, for example, with poor health, low levels of education or skills, an inability or an unwillingness to work, high rates of disruptive or disorderly behavior, and improvidence. While these attributes have often been found to exist with poverty, their inclusion in a definition of poverty would tend to obscure the relation between them and the inability to provide for one’s basic needs. Whatever definition one uses, authorities and laypersons alike commonly assume that the effects of poverty are harmful to both individuals and society (*poverty | Definition, Causes, Types, & Facts | Britannica*, no date).

2.1.4.1. Absolute poverty and Relative poverty

Absolute poverty is when household income is below a certain level, which makes it impossible for the person or family to meet basic needs of life including food, shelter, safe drinking water, education, healthcare, etc. In this state of poverty, even if the country is growing economically it has no effect on people living below the poverty line. Absolute poverty compares households based on a set income level and this level varies from country to country depending on its overall economic conditions (*Relative vs Absolute Poverty: Defining Different Types of Poverty*, no date).

Poverty has traditionally been understood as a lack of resources necessary to fulfil essential needs, such as healthy nutrition, shelter and clothing, to an adequate standard. In the developed world, it has become common to consider people poor if their resources fall short of the average income in their country of residence by a particular percentage, unrelated to their purchasing power in terms of goods and services. Poverty is defined within a social context, and a relative poverty measure translated this insight into a measurable indicator. Relative poverty indicators have often been criticized for their detachedness from poor people's actual consumption possibilities (Niemi, 2010).

Moreover, previously people have claimed that they feel poor comparing themselves with others in a society. People are living in poverty though they have enough to live on. The source of the argument is that people are not poor until they are exposed to other people who think they have a better life (Dunn and Pressman, 2005). Relative poverty is sometimes described as "relative deprivation" because the people falling under this category are not living in total poverty, but they are not enjoying the same standard of life as everyone else in the country. Relative poverty can also be permanent, meaning that certain families have absolutely no chance of enjoying the same standards of living as other people in the same society currently have access to.

2.1.4.2. Poverty cycle

Corcoran, M., (1995) recognizes certain poverty cycles as inadequate protection or ownership. In countries where the rule of law prevails, they argue that there is little or no incentive to save and invest in areas where one's property is stolen. He argues that such a

frustrating investment situation is the cause of economic growth, job creation and, consequently, low social security. The practice emphasizes the lack of the rule of law and the lack of a reliable judiciary. This shows that individuals will remain in a vicious cycle of poverty because if they do not invest, they will be left behind.

Poverty reduction features most prominently under the Sustainable Development Goals (SDGs) as well as the Millennium Development Goals (MDGs) of the United Nations. The Sustainable Development Goals require countries to halve poverty in all its dimensions by 2020 but the dimensions are nowhere specified (Wan, Hu and Liu, 2021). Poverty is recognized as a multidimensional thought and poverty reduction is global topic. The form of global poverty particularly that of developing countries attracts extensive concern. New geographic pattern shown most of the world's poor live in middle-income countries as they did 20 years ago. International migration, remittances, average income growth, and financial sector development policy have a statistically noticeable impact on reducing poverty in developing countries. It is estimated that about threequarters of the developing world's poor still live in rural areas(Chen *et al.*, 2019).

Poverty reduction strategies and policies have gained considerable popularity in recent policy discourse and international economic relations. Studying poverty reduction program of the countries is very crucial in order to apprehend or revise the policies and strategies if there is a problem (Ahadu and Federalism, 2021).

2.2. Review of Related Literature

2.2.1. Theoretical link between foreign aid and poverty

The study of foreign aid by economists began in It was in the 1950's, although aid was still a fairly new phenomenon, having been officially formalized in 1947. As ancient theorists have pointed out Foreign aid provides the necessary capital for developing countries to support themselves Nurske, 1953; Lewis, 1954. This Section Explains Major Development Economics Theories (Pankaj, A.K., 2005).

Economists started to study the impact of foreign aid for poverty reduction started earlier in 1957, though aid was still a new phenomenon having been officially formalized in 1947. Prior theorists suggested that foreign aid delivers the required capital to enhance developing countries into self-reliant economic growth. However, no empirical research evaluating the impact of foreign aid in the 1950s were observed (MAHEMBE and Odhiambo, 2017).

Numerous theories have been emerged, and a number of empirical studies carried out, on the effectiveness of foreign aid since the early 1950s, but the argument is still continuing. The most of the studies are focused on the impact of foreign aid on economic growth. However, there has been a recent surge of research looking at the effectiveness of foreign aid on poverty reduction. Literature reviewed has shown that there is an economic link between foreign aid, economic growth and poverty. Though results obtained indicated mixed, majority of the literature reviewed showed that (i) foreign aid can reduce poverty, (ii) foreign aid bring about economic growth and (iii) growth as a consequence decreases in poverty. However, we can easily infer from this study there is a gap in literature in showing the causal relationship between poverty, foreign and poverty (Mahembe and Mbaya Odhiambo, 2019).

Arnd et al (2015) found evidence that overall foreign aid growth has had a positive impact on investment and growth. However, the size of the victim varies according to country, region, recipient and recipient policies, and so on. However, there are two major problems with this link. First, it does not directly address the main purpose of aid allocation, which is poverty reduction. The second problem is the misconception that aid affects poverty. While this may be true, sustainable improvements in social outcomes require high and sustainable levels of development. However, if aid was to promote economic growth, it would be narrowly defined. Then there is poverty reduction. This is unsatisfactory because it directly or indirectly affects poverty (Guillaumont and Wagner, 2014).

According to Mahbe and Odiambo (2017), ways foreign aid can alleviate poverty: economic growth, government spending to support the poor (such as education, health and other social programs), macroeconomic stabilization results, infrastructure and other development plans.

2.2.1.1. Vicious and virtuous cycles

Some developmental concepts such as Rosenstein-Rodan (1943), Murphy and others (1993) and Gallor and Zeira (1993) began by examining why some poor countries were failing to grow and why poverty looked to be self-reinforcing. It was argued that underdevelopment and poverty were continued by one or more ‘vicious circles’ which had the effect of averting growth and limiting the economy to a low income or ‘poverty traps’ (Clunies-Ross et al., 2009). In contrast, ‘virtuous circles’ were thought to be opposing forces that promoted growth by promoting Self-sustaining income generating systems operating using ‘circular and cumulative causation’ (Myrdal, 1957).

Such as Clunies-Ross et al. (2009) The Circle refers to the first level of low productivity to reach per capita income puts a very low ceiling on achievable savings levels this eliminates new capital investment needed to advance productivity. The economy is trapped by low productivity and low income. This theory suggests that there are overlapping vicious circles that impede the efforts of the poor to get out of poverty and undermine the country's development. It is also said that the consequences of poverty can be a deterrent. Many developmental economists continue to argue that special efforts are being made to push the economy from one level to another with a steady increase in capital income (Clunies-Ross et al., 2009).

Therefore, an increase in investment volume has been suggested as a solution to motivate Growth and breaking the trap of poverty. It is also argued that developing countries. 'Big push' needed to break down the barriers of low-level traps Efforts to promote it have also been criticized. If simultaneous reduction is accompanied by growth, the growth will be very successful. Improving poverty and income distribution. Foreign aid provides the most needed Increased investment. The main argument is that foreign aid “starts to jump A good cycle of economic growth and investment will begin and therefore promotes economic return to further investment” (Clunies-Ross et al., 2009).

2.2.1.2. Harrod-Domar model and gap models

According to Easterly (1997), the most widely used model for development economists and aid policy makers to repair the amounts of aid to be assigned to development countries is that the Harrod-Domar model. The most assumptions of the model are that there's an excessive supply of labour within the Economy, economic growth is proscribed only by productivity and availability of Capital, and the availability of capital (investment level) depends on the level Savings (McGillivray et al., 2006).

Implications for foreign aid allocation, if savings are too low (i.e. It's been the case for most developing countries) in terms of the chosen economy rate of growth, then there is the 'financial gap' that needs to be filled to get the desired amount of growth rate. Total investment required compared to domestic savings. To determine the required investment gap and the level of foreign assets Filling the financial gap. Foreign aid can be used to alleviate the savings, to increase the level of investment available, thereby increasing growth rate and ultimately poverty Reduction (McGillivray et al., 2006).

2.1.1.3. The Thirlwall-Hussain model

The Thirlwall and Hussain (1982) model, also the balance of payments or constrained growth model is predicated on Thirlwall's law. Thirlwall's Law It states that the growth rate of any open economy is capable to its export volume growth divided by the income elasticity of demand for imports. Thirlwall and Hussein extended this law to the effect of economic growth deriving from initial imbalance in the current account, terms of trade and capital inflows. This An extended model is wont to predict growth, to measure the 'financial gap', to shape it. Provide indicators to assess policy effectiveness and foreign development effectiveness of aid.

Thirlwall and Hussain (1982) stated that the most constraint on open economy growth is that the lack of foreign exchange. It's balanced a country's payment system is may be a major impediment to growth, as supply limits its ability to adapt. It's also said that economic growth can be rapid and sustainable only if it expands more than imports. Therefore, countries' development strategies must be based on "foreign exchange. "Investment Productivity" as Foreign Exchange Income. They argue that foreign aid if possible contributes to greater growth.

2.2.1.4 Channels by which Foreign Aid Affect Poverty

I. Traditional growth channel

This is a cultural channel, which is primarily in the concept of foreign aid and Key facts about the effectiveness of foreign aid. It is an objective analysis Based on the growth models set for savings and investment. It is considered. Increasing foreign aid encourages investment and economic growth leads to poverty reduction. There are two main arguments. This channel asks whether the first aid was effective in promoting growth, and the second Whether growth affects poverty reduction (Mahembe, E. and Odhiambo, N.M., 2017).

II. Pro-poor public expenditure channel

In their aid-growth, Regress, Burnside and Dollar (2000) introduced the importance good policies (including budget deficit, inflation and openness) as a prerequisite Effectiveness of external assistance. A series of studies cover the quality of institutions, corruption, governance and a host of other variables. However, as described by Mosley et al. (2004), these policy-assisted development variables. Gomanee et al. (2003) and Mosley et al. (2004)

argued that foreign aid can affect poverty through what they called pro-poor (public) expenditure (PPE). PPE include government spending on social sectors such as basic Health care, primary education, water and sanitation, rural roads and agriculture Extension services (Mosley et al., 2004). Studies showing the importance of PPE Aid Relief Channel includes Mosley and others (2004) and Gomanee et al. (2005).

III. Macroeconomic stabilizing effect channel

Guillaumont and Wagner (2014) argue that macroeconomic level aid is expected to regulate the recipient's economic growth. The main assumption is that growth in developing countries is particularly variable due to external shocks, such as export instability. Although aid has been accused of instability, unforeseen and 'pro-cyclist'. Guillaumont and Wagner (2014) have shown that aid has a volatile macroeconomic impact. Studies by Collier and Goderis (2009), Guillaumont and Le Goff (2010), and Guillaumont and Kpodar (2012) maintain that aid has a destabilizing macroeconomic impact. In addition, because economic growth is a major cause of poverty reduction, developmental instability has a negative impact on economic income. Collier and Godris (2009) found that aid minimizes the negative impact on growth risk.

Chauvet and Guillaumont (2009) examined the results Aid and aid on income fluctuations will make growth more stable and the high effectiveness of aid in vulnerable countries may be due to the stability of aid Influence. Guillaumont and Kpodar (2012) also discovered, not just stabilize resources for consumption, investment and business finance, but it is also effective in aid-dependent and vulnerable countries. Guillaumont and Korachais (2008) confirmed that income instability affects poverty via growth and also affects poverty through rise in income inequality.

2.2.2. Empirical literature

A key factor in the effectiveness of aid literature is whether foreign aid promotes growth and improves the living conditions of people in recipient countries. Despite widespread doubts about its effectiveness, foreign aid has recently been strengthened and has become the center of global development programs aimed at reducing poverty and achieving the Millennium Development Goals. However, the debate over the effectiveness of aid continues some argues that historical aid has not been effective and that optimism needs to be revived, while others

argues that poor countries are trapped in a poverty trap that cannot be avoided without further foreign intervention (Carter and Barrett, 2006).

There is tangible support for Both parties to the dispute, Proponents argue that foreign aid is an important source of funding for developing countries to grow. A unique perspective here is that aid works in a good policy and institutional environment; in this view aid can work regardless of the policy environment, but only with less effective achievement. Most research documents show that the good association between aid and growth can help reduce poverty by increasing the average income. In consequence, income can be translated into poverty reduction. (Guillaumont, 2009).

On the other hand, some studies examined the effectiveness of for aid from a macroeconomic perspective. They indicated poverty alleviation as a measure of growth efficiency showing different indicators. Their findings also demonstrated that macroeconomic environment and the quality of governance play an important role in poverty reduction but they are not indispensable for the effectiveness of aid. It reminded that the diversity of different developing countries (in terms of policy areas and quality of governance) was later averaged. The results showed limited use of macroeconomic policy and management for policy insights. In addition to these important policy insights should be considered (Asra *et al.*, 2005).

(Yontcheva and Masud, 2005) have studied the effectiveness of foreign aid in reducing poverty by influencing human development indicators through bilateral support and the flow of NGOs. They noted that the support provided by NGOs would significantly reduce child mortality than legal bilateral assistance and had little impact on illiteracy. Experiments have shown that foreign aid can reduce the government's efforts to achieve development goals.

A study conducted in Nigeria on the impact of official assistance on poverty reduction using ARDL and closed trial method from data obtained between 1981-2014 indicated positive impact on poverty reduction (Awojobi, 2019).

(Girma, 2015) explored whether the effectiveness of aid was based on Macroeconomic policy stability, using ARDL for integration using time series data from 1974 - 2011. The results showed that foreign aid was negatively impacted on Economic growth while aid policy found to be a positive contribution to the economic Growth in Ethiopia if implemented in accordance with a stable macroeconomic policy. This finding is consistent with the results

obtained by Woldekidan (2015) using Vector Error Correction Model (VECM) and a series of data from 1975 to 2010.

Contrarily, an empirical study conducted on the influence of foreign aid for poverty reduction in sub-Saharan Africa (SSA) was accomplished using a cross-country data and multiple regression analysis indicated foreign aid is not significant for poverty reduction (Ijaiya en Ijaiya, 2004). Similarly, many studies conveyed it is difficult to expect meaningful poverty reduction relying on only foreign aid. This insignificant impact of foreign aid might be caused by corruption and poor institutions, as well as by misallocation of resources and donor countries' preferences inconsistent with reducing poverty and inequality (Chong, Gradstein en Calderon, 2009).

Veiderpass and Anderson (2007) indicated that certainly very little evidence regarding positive impacts of aid on the economic growth of countries, especially in the case of poor third world countries. Recent finding also reported that aid inflows are inversely linked with economic growth. Consequently, there is no consensus concerning the impact of foreign aid inflows on the economic growth and poverty reduction of recipient countries argued that the research conducted on the growth effects of aid has provided mixed results and therefore further investigation is indeed required (Tahir et al., 2019).

Hana (2015) stated the role of aid in poverty reduction in Ethiopia based on three indicators of poverty used to conduct the empirical analysis; infant mortality rate, gross primary enrollment ratio and real household final consumption expenditure. The result indicated that foreign aid has a positive role in reducing poverty depending on its size and in some cases on the Macroeconomic policy. Furthermore, economic growth found to be a significant factor that reduces poverty while poor quality of governance exacerbates it; and government's expenditure on social sectors is found to be insignificant factor (Hana, 2015).

Other study reported that a one percent increase in foreign aid, holding other things constant, has resulted 0.101 percent decrease in real GDP during the study period. Hence, it is concluded that; there might be possible reason behind the negative impact result of foreign aid on Ethiopian economic growth. This might be that the inflow of foreign aid received in the form of grants and loan spent to use for daily expense on consumption of goods and services

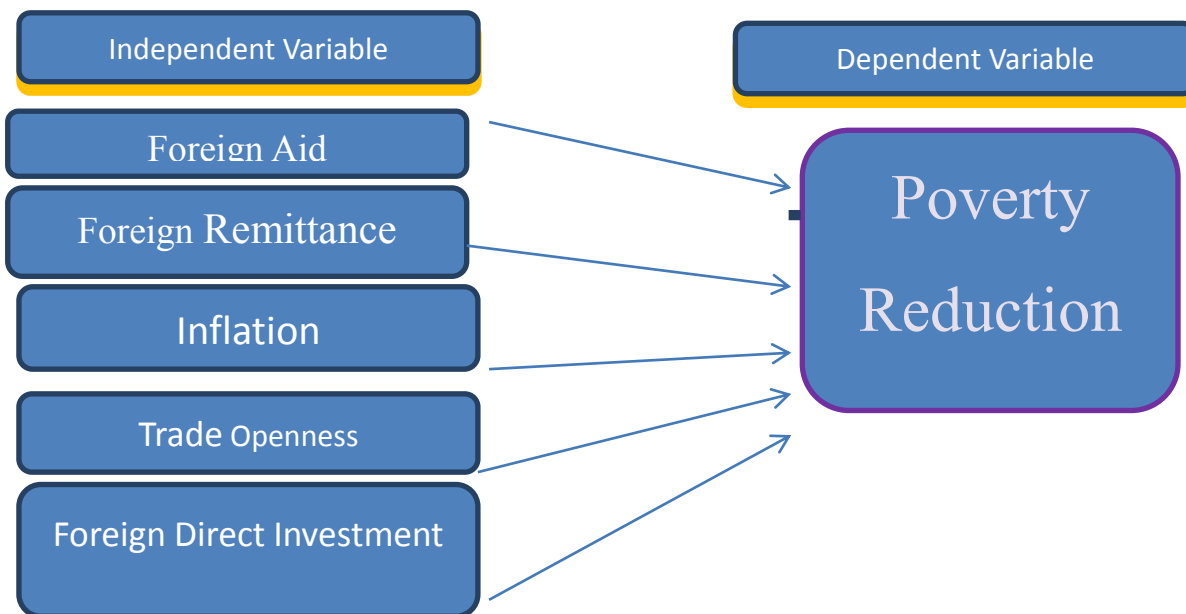
and help the society in reducing poverty rather than building a fixed investment, which is used to accelerating economic growth (Mohammed Seid Hussien en Kye-Woo Lee, 2012).

In general, foreign aid sometimes refers to the total foreign inflows entering the recipient's country, and usually includes foreign aid, foreign loans, and foreign investment. The impact of foreign aid on economic growth and domestic savings in this case is different from foreign loans and foreign investment. Foreign debt does not cause cash flow to pay off debts or return profits and capital.

Different literatures reviewed presented positive results of foreign aid are more convincing than negative results. Overall, the empirical studies reviewed here showed contrasting results. Although the main findings of the paper are undeniable and contradictory effects of aid on poverty, most papers have found to be significant evidence that foreign aid has been successful in reducing poverty. However, some publications have found that foreign aid has had a significant impact on poverty reduction in some developing countries. The case in Ethiopia is not different from other developing countries though it needs to conduct more practical researches about the issue at hand.

2.3. Conceptual framework

Figure 2.1. The role of foreign aid and other independent variables for poverty reduction



Source: created by the researcher based on ideas obtained from literature review

On this research paper, the dependence variable is poverty while foreign aid on the other hand is an independent variable in terms of remittances, inflation, foreign direct investment, and trade openness, although they are independent variables and serve as regulatory variables consistent with similar empirical studies.

(Rashid Talukdar, 2012) reported inflation lowers people's income, real income and purchasing power. According to (United Nations Department of Economic and Social Affairs, 2009) inflation reduces wages, increases labor costs, increases workers' income generation capacity, creates projects for themselves, and reduces poverty. Thus, inflation is expected to have both positive and negative effects on poverty.

According to cited by(Onu, J.I. and Abayomi, Z., 2009.), trade openness has a negative impact on poverty in developing countries. According to the report, trade openings will create new international markets for locally produced goods and services, and will allow new producers and services to enter Domestic market, making it easier for local producers to access foreign inputs used in production processes. Benefiting from many varieties and cheap products will increase national income and reduce poverty. Thus, trade is expected to reduce poverty.

According to (Li, X. and Liu, X., 2005) investigated the role of FDI on economic growth for a large sample of countries that are both developing and developed. The results conclude that FDI directly and positively influences on growth and poverty reduction.

CHAPTER THREE

3. RESEARCH METHOD

3.1 Introduction

The study employs an explanatory design that made uses of quantitative research method to examine the impact of foreign aid on poverty reduction in Ethiopia. Explanatory research design shows the relationship between variables (Types of research, no date).

3.2 Research Design

This study uses explanatory research design to examine the impact of foreign aid on Ethiopia's poverty reduction. An explanatory research design helps to explain and interpret the relationship between two or more situations or events, and in the present study it is used to explain and interpret the relationship between foreign aid and poverty reduction.

3.3 Data source and collection methods

This study was completely depending on secondary data sources obtained from the global data source of World Development Indicator (WDI) data base from the period 1991-2015, 25-year annual chronological data. It is available online at (The World Bank, 2019).

3.4. Method of Data Analysis

There are various approaches used to investigate the impact of FAID on Poverty Reduction. Those methods include using; OLS, VAR, VECM and others. The choice of appropriate model is a very crucial case of a research because of taking them is mainly depending on the nature of information at hand. I.e. OLS needs to be all the data at hand is I (0), VECM and VAR required the time series data should at I (1) but VECM further required there must be cointegration between variables under study but this study used the ARDL bounds testing method as discussed here(Arfaoui, Ziadi and Manai, 2016); ARDL bounds testing method introduced by Pesaran and Shin (1999) and improved by (Odhiambo, 2010) to explore the co-integration relationship between dependent and independent variables . Auto regressive Distributed Lag (ARDL) model plays a vital role to analyze an economic scenario of the change in any economic variables may bring change in another economic variable not reflect immediately, but it distributes over future period. Furthermore, ARDL model addresses the

issue of Collinearity by allowing the lag of dependent variable in the model with other independent variables and their lag (Nkoro, E. and Uko, A.K., 2016).

This test has numerous advantages over Johannsen's technique and earlier co-integration tests, such as: -

- Unlike other co-integration techniques, the ARDL approach does not require the pretesting variables for unit roots and the ARDL bounds testing method do not enforce the limiting assumption that all included variables under study must be stationary of the same order. This method can be applied to prove the existence of a co-integrating relationship among variables. Although the subscribers in the model are purely $I(0)$, purely $I(1)$, or mutual co-integrated (Emeka and Kelvin, 2016).
- According to Pesaran and Shin (1999) conventional co-integration methods estimate the long-run relationships within the context of the equations system; The method uses only one reduced form equation. Therefore, the method yields consistent and robust both for long-run and short-run relationships (Duasa, 2007).
- The ARDL method in general it provides uncomplicated estimates of the long-term model and even accurate T-statistics when some of the regressors are endogenous (Narayan and Smyth 2005).
- The ARDL approach provides a method of evaluating the short-run and the long-run effects of one variable on the other simultaneously. At the same time, the ARDL has an appealing separation of short and long-run effects (Uddin, Alam and Murad, 2011).
- Unlike other co-integration methods, which are sensitive to the size of the sample, the ARDL test is appropriate even when the sample size is small. Thus, the ARDL test has superior small sample properties compared to the Johansen and Juselius (1990).
- (Jarita Duasa, 2007) further stated that with the ARDL, it is possible that different variables have different optimal lags which are impossible with the standard co-integration test.
- The ARDL co-integration "bound" approach is free of residual correlation and hence endogeneity is less of problem (Pesaran and Shin, 1999).

The ARDL model is used in this study to capture all the dynamic responses in the dependent variable due to changes in its own lags and the contemporaneous and lagged values of the other explanatory variables. As a consequence, the method is considered very appropriate for

estimating the causal relationship and it has been more and more applied in empirical research in current years. The study uses cross-sectional analysis (ARDL) approach and the ECM-ARDL model to evaluate the long-term coherence of variables in the model using E-views 9 software.

3.4. Detailed description of the economic model

According to Nkoro, E. and Uko, A.K., (2016) This model follows the first linear model form used to determine whether foreign aid is effective in reducing poverty. As described in the study model

$$PI_{ct} = \alpha_0 + \alpha_1 Y_{ct} + \alpha_2 X_{ct} + \epsilon_{ct} \quad (1)$$

C and t, respectively, indicate country and time, PI_{ct} Poverty Index Logarithm, Y_{ct} is a set of variables in one capital income logarithm and X_{ct} conditioning, and ϵ_{ct} is the error term. Equation (1) is adjusted to capture the variables selected for this task and the study Model Specification

The functional form of the model is specified as follows:

$$POV = \alpha_0 + \alpha_1 FAID + \alpha_2 FREMIT + \alpha_3 INF + \alpha_4 TOPN + \alpha_5 FDI \quad \dots 3.1$$

The economic form of the model is as follows

$$POV = \alpha_0 + \alpha_1 FAID + \alpha_2 FREMIT + \alpha_3 INF + \alpha_4 TOPN \quad \dots 3.2$$

ARDL model is specified as follows:

$$\Delta POV = \alpha_0 + \alpha_1 \Delta POV_{t-1} + \alpha_2 \Delta FAID_{t-1} + \alpha_3 \Delta FREMIT_{t-1} + \alpha_4 \Delta INF_{t-1} + \alpha_5 \Delta TOPN_{t-1} + \alpha_6 \Delta FDI_{t-1} + \alpha_7 \Delta GDP_{t-1} + \alpha_8 \Delta ECMT_{t-1} + \epsilon_t \quad \dots 3.4$$

where:

POV = Poverty

FAID = Foreign Aid (Head count ratio)

REMIT=Foreign Remittances

INF = Inflation

TOPN = Trade Openness

FDI=Foreign Direct investment

GDP = Gross Domestic

Product

3.5. Definition of Variables

Poverty Headcount Ratio

Poverty Headcount Ratio is used as a proxy for poverty reduction used as the dependent variable for model specification. Poverty Headcount Ratio is the Poverty proportional population (s) living below the national poverty line the headcount is calculated by comparing the income of each household to the poverty line z . (The index $i = 1 \dots M$, where M is the total number of households in the sample (Glossary | Databank, no date).

Official Development Assistance (ODA)

According to OECD, Official development assistance (ODA), which includes grants, soft loans and the provision of technical assistance is technical support is government assistance designed to promote economic development and security in developing countries (Official Development Assistance (ODA) - OECD, no date).

Remittance (REM)

According to OECD, Remittance usually understood as the money or goods that migrants send back to families and friends in origin countries, are often the most direct and well-known link between migration and development (Guardian et al., 2013).

Trade Openness (TRO)

Trade openness is measured as exports plus imports divided by GDP, used by a large number of studies that find a positive and substantial relationship with growth. Trade openness refers to the external or internal direction of a country economy. A large number of papers have stated that the economies open to trade have higher per capita GDP and grow a lot faster (Barro, 2001). Openness can have an important influence on economic growth through a multitude of different channels like through technological transfers, competitive advantage and increase in economies of scale (Nations and Development, 2009).

Inflation

Inflation is one of the most commonly used terms in economic discussions, but the concept is misleading in various ways. There are various schools of thought on inflation, but economists agree that inflation is a constant inflation.

Simply put, inflation represents a general economic condition with constant increases in prices of goods and services. It can be interpreted as 'Consumer Price Index (CPI)' or indirectly measured inflation.

Distribution for Gross Domestic Product (GDP). Inflation is described as a state in which “too much money chases too few commodities.” When inflation occurs, it loses its ability to buy currency. When there is inflation in the economy, the purchasing power of a particular becomes less and less. In the definition of inflation, two key words must be kept in mind. First of all, is it a sum or a total, which causes inflation to increase in the price of a commodity? The implication here is that it changes in Individual prices or any combination of prices cannot be considered inflationary. However, changes in individual values can lead to additional costs. This does not mean inflation again unless the sum of the price adjustment in the basket increases the price. Second, inflation must continue for the foreseeable future. The total price should show a steady and steady increase in price over time. This should be differentiated from a one-time departure (Ndorieimpa, Osoro and Kidane, 2016).

Foreign direct investment, net inflows (FDI)

FDI is measured by FDI inflow used as a proxy for foreign capital, which is the amount of equity capital, reinvestment of earnings, and other capital. Direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy. Ownership of 10 percent or more of the ordinary shares of voting stock is the criterion for determining the existence of a direct investment relationship. It has been investigated the role of FDI on economic growth for a large sample of countries that are both developing and developed. The results conclude that FDI directly and positively influences growth(Li and Liu, 2005).

Real Gross domestic product (LGDP)

Real gross domestic product (GDP) is an inflation-adjusted measure that reflects the monetary measure of the market value of all final goods and services produced by an economy in a given year.

3.6. The Error Correction Model (ECM)

The existence of co integration between variables of the specified model above, A short run stretch error correction can be achieved by building a model Error correction model (ECM) is very fundamental in the co-integration test as it drives from the fact that, if macroeconomic variables are integrated of order zero, $I(0)$ i.e., they are co-integrated, they can be model as having been generated by the ECM. The ECM produces better short run forecasts that hold together in an economic meaningful way. Even in the absence of cointegration, the ECM produces good forecasts (James P. LeSage, 1990). The long run model will then be reformulated into an ECM, which integrates short and long- run dynamics of the models. The ECM will take the following form:

$$\Delta Y_t = \alpha + \sum_{i=1}^p \Phi_i \Delta Y_{t-i} + \sum_{i=1}^p \sigma_i \Delta X_{t-i} + \gamma ECT_{t-1} + \varphi_t \quad \text{-----} (7)$$

Where, ECT_{t-1} is a one period lag of the residual term (disequilibrium) from the long run relationship, φ_t is a white noise error term, and $\alpha, \Phi_i, \sigma_i, \gamma$ are parameters. Equation (7) can rewrite in a form of equation (8) as follows;

$$\begin{aligned} \Delta LPOV_t = & \alpha + \sum_{i=1}^a \theta_i \Delta LPOV_{t-i} + \sum_{i=1}^a \theta_i \Delta LFAID_{t-i} + \sum_{i=1}^b \beta_i \Delta LFDI_{t-i} + \\ & \sum_{i=1}^c \beta_i \Delta LREM_{t-i} + \sum_{i=1}^d \beta_i \Delta LTOPN_{t-i} + \sum_{i=1}^e \beta_i \Delta LINF_{t-i} + \sum_{i=1}^a \theta_i \Delta LGDP_{t-i} \\ & \gamma ECT_{t-1} + \varphi_t \quad \text{-----} (8) \end{aligned}$$

Here Δ is the first difference operator; β 's the equilibrium of the model is related to the short-term variability, and γ is the error-correction coefficient and is also called the adjustment coefficient. In fact, γ tells us how much of the adjustment to equilibrium takes place in each period, or how much of the equilibrium error is corrected.

3.7. Unit Root Test

Feature of some of the processes that can cause problems in statistical inference involving the time series models. Due to this characteristic, unit root processes are also called difference stationary. It tests whether a time series variable is non-stationary and possesses a unit root. It is important to test the statistical characteristics of variables when handling chronological data. Time series information does not stop at level forms. Stationary time series is one of statistical properties such as mean, variance, autocorrelation is all constant over time.

Regression involving non-stationary Time series often lead to the problem of spurious regression. This occurs when the effect of the Reformation exposes significant and significant interactions between variables when there is no real relationship. When implementing this model, another important test for unit root testing is to ensure that the variables specified in the RNL model do not enter the regression model (i.e. I (2)). Therefore, it is important to test a series of time variables for some time before performing any type of reference analysis. Non-stationary it can be tested using the Advanced Dick-Fuller test, the Philips Peron test, and the Kwiatkowski-Phillips-Schmidt-Shin test. However, to verify the reliability of the rigorous test, the study uses both the modified Dickey-Fuller test and the Philip-Peron tests. The null hypothesis is generally based on the fact that it is under the same section and the alternative hypothesis is based on static, static or explosive.

The test procedure for the ADF unit is described as follows

$$\Delta Y_t = \alpha + \sigma_t + \gamma Y_{t-1} + \sum_{i=1}^{\varphi} \Phi \Delta Y_{t-i} + \varepsilon_t \text{ ----- (9)}$$

Yt Where is the time series variable considered in this model, t is time trend variable. The first difference is the optimal delay length for each variable selected for the words to have white noise. Therefore, the ADF examines the empty hypothesis of the unit root test.

That is: $H_0: \gamma = 0$; $H_1: \gamma \neq 0$ If the t value or t -statistic is more negative than the critical values, the empty hypothesis (I.e. H_0) is rejected and the conclusion is stationary. Conversely, if T-statistics are less than critical values, the empty hypothesis is valid and the conclusion is stationary.

3.8. Granger Causality Tests

Importance application of the F - statistic in time series forecasting is to test whether the lags of one of the included regressors has useful predictive content, above and beyond the other regressors in the model. The hypothesis is that a variable has no predictive content corresponds to the null hypothesis that the coefficients for all lags of that variable are zero (lagged x-values do not explain the variation in y. In other words, it assumes that x (t) doesn't Granger-cause y (t). The F - statistic testing this null hypothesis is called the Granger causality statistic, and the corresponding test is called the Granger Reason Examination. Granger's reasoning test is a statistical hypothesis attempt to determine whether a series of

tests is useful for predicting another. Often, transitions reflect common bonds, but Clive Granger previously argued that rationality in economics can be tested by determining the ability to predict future futures using another series of values (Devlin and Hansen, 2001) .

The test for Granger causality will be executed by estimating equations of the following form:

$$\Delta Y_t = \alpha_0 + \sum_{i=1}^n \alpha_{1,i} \Delta Y_{t-i} + \sum_{i=0}^n \alpha_{2,i} \Delta X_{t-i} + \sigma \text{ECM}_{t-1} + \varphi_t \text{-----(10)}$$

$$\Delta X_t = \beta_0 + \sum_{i=1}^n \beta_{1,i} \Delta X_{t-i} + \sum_{i=0}^n \beta_{2,i} \Delta Y_{t-i} + \mathcal{V} \text{ECM}_{t-1} + \varepsilon_t \text{-----(11)}$$

Where, φ_t and ε_t are white noise disturbance terms (normally and independently distributed), n is the number of lags necessary to induce white noise in the residuals, and ECM_{t-1} is the error correction term from the long run relationship. X_t is said to Granger-cause Y_t if one or more $\alpha_{2,i}$ ($i = 1, 2, 3, \dots, n$) and σ are statistically different from zero. Similarly, Y_t is said to be Granger cause X_t if one or more $\beta_{2,i}$ ($i = 1, 2, 3, \dots, n$) and $\mathcal{V}$ are statistically different from

zero. Bi-directional Causality is said to exist if at least $\alpha_{2,i}$ and $\beta_{2,i}$ ($i = 1, 2, 3, \dots, n$) or σ and $\mathcal{V}$ are statistically different from zero. If on the other hand $\alpha_{2,0}$ or $\beta_{2,0}$ is statistically significant, then we have an instantaneous Causality between Y_t and X_t .

CHAPTER FOUR

4. DATA ANALYSIS AND INTERPRETATION

In this section of the research report, the data set defined in section three is illustrated and analyzed. Correspondingly, in each sub-part brief interpretation is made to the results achieved. In particular, this section addresses interpretations of basic time series tests of stationarity, co integration, Heteroscedasticity, serial-correlation, functionality or model specification and stability tests. Finally, a detail discussion and interpretation were made based on the regression results.

4.1. The Unit Root Test Analysis

Most essential issue in the analysis of time series data is test of Stationarity and knowing the order of integration also important to apply the appropriate model to analyze the data. In addition, all variables that have been reversed by implementing the ARDL model should not be integrated with order two. To check these conditions, unit root test is conducted using the standard Augmented Dickey-Fuller (ADF) and Phillips-Peron test statistic test. Based on the results under the unit root test, we could convenience us whether or not the ARDL model should be used.

As we have seen from table 4.1, The ADF test shows that there is a combination of integration order zero and order one. That is, Foreign aid, Remittance, Gross Domestic Product and Trade openness are stationary at first difference with both events. (Case I, with intercept and case II, with intercept and trend). On the other hand, Foreign Direct Investment and Inflation are stationary at level in both cases. Exceptionally, poverty (headcount ratio) is stationary at level with intercept and trend (case-II) but stationary at first difference with intercept (case-I).

Table 4.1: Unit root test (Augmented Dickey-Fuller test)

Variables	With intercept			Trend and Intercept		
	At Level	At First Difference	Order of []	At Level	At First Difference	Order of []
POV	0.458	-4.945*	[1]	-5.292*	-4.642	[0]

LFAID	-0.305	-3.295**	[1]	-2.625	-3.359***	[1]
LFDI	-3.437**	-4.676	[0]	-3.275***	-4.625	[0]
LREM	-0.648	-4.469*	[1]	-2.789	-4.698*	[1]
LTOPN	-0.775	-6.515*	[1]	-2.300	-6.442*	[1]
INF	-4.041*	-6.689	[0]	-4.622*	-0.909	[0]
LGDP	0.321	-2.857***	[1]	-2.944	-3.424***	[1]
Critical Values:						
1% level	-3.699	-3.711		-4.339	-4.356	
5% level	-2.976	-2.981		-3.587	-3.595	
10% level	-2.627	-2.629		-3.229	-3.233	

*significant at 1 percent, **significant at 5 percent & *** significant at 10 percent

Source: Own computation using Eviews 9

The PP test shows that there is a combination of integration order zero and order one. That is, Foreign aid, Remittance, Gross Domestic Product and Trade Openness are stationary at first difference with both events. (Case I, with intercept and case II, with intercept and trend). On the other hand, Foreign Direct Investment and inflation are stationary at level in both cases. Exceptionally, poverty (headcount ratio) is stationary at level with intercept and trend (case-II) but stationary at first difference with intercept (case-I).

Table 4.2: unit root test (Phillips-Perron test statistic test)

Variables	With intercept			Trend and Intercept		
	At Level	At First Difference	Order of []	At Level	At First Difference	Order of []
POV	-1.348	-7.644*	[1]	-3.552***	-7.997	[0]

LFAID	-0.548	-3.346**	[1]	-1.878	-3.309***	[1]
LFDI	-5.994*	-4.327	[0]	-6.703*	-4.622	[0]
LREM	-0.522	-6.290*	[1]	-2.789	-6.495*	[1]
TOPN	-0.673	-6.558*	[1]	-2.214	-6.409*	[1]
INF	-4.051*	-9.454	[0]	-4.669*	-9.153	[0]
LGDP	1.001	-2.789***	[1]	-2.826	-3.289***	[1]
Critical Values:						
1% level	-3.699	-3.711		-4.339	-4.356	
5% level	-2.976	-2.981		-3.587	-3.595	
10% level	-2.627	-2.629		-3.229	-3.233	

*significant at 1 percent, **significant at 5 percent & *** significant at 10 percent

Source: Own computation using Eviews 9

From the result of unit root tests shown in table 4.1 and table 4.2 above, we have concluded that none of the variables considered in the regression are order two, which are not desired in applying ARDL model. So Bound test and ARDL co-integration technique proposed by Pesaran et al. (2001) most appropriate method for estimation or to check the long run relationship among the variables.

4.2. Long Run ARDL Bounds Tests for Co-integration

ARDL boundary tests are being conducted under the assumption that they are variable I [0], I [1] or a mix of them. So, based on the result we found from The ADF and the PP Unit Root as shown from table 4.1 and 4.2 above, we can proceed to the next task of estimating the ARDL model it was specified in equation (3.4) based on bounds test approach of co-integration.

According to Narayan, P., and Smyth, R. (2005) for the annual data are recommended to choose a maximum of two lag lengths. From this, a lag length that minimizes AIC is 2. In addition to this, we have also used AIC to determine the optimal lag because it is a better choice for smaller sample size data (60 observations and below), in the manners that they minimize the chance of under estimation while maximizing the chance of recovering the true lag length (Liew, 2004).

Table 4.3: Lag Order Selection Criterion

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-47.79117	NA*	6.372290	4.677493	4.973709	4.751990
1	-45.85867	2.688691	5.920624	4.596406	4.941991*	4.683320
2	-44.29290	2.042307	5.695159*	4.547209*	4.942163	4.646539*

After we decide on the lag length selection, we have to check the joint significance of the coefficients specified in equation (3.4), we were conducted ARDL bound test.

Table 4.4: F- Bounds Test.

Test statistic	Value	K	Significance	Lower Bound value (I ₀)	Upper Bound value (I ₁)
F-statistic	3.942	6	10%	2.12	3.23
			5%	2.45	3.61
			2.5%	2.75	3.99
			1%	3.15	4.43

Source: own computation using Eviews 9

The result of bound test computed using Eviews 9 (table 4.4 above) showed that the calculated F- statistic (3.942) is higher than the Upper bound critical value at 5% level of significance. This implies that the null hypothesis that stated at the first section of this paper, “no long-run relationship between variables” is rejected; rather accept the alternative hypothesis (there is long-run relationship between variables) based on the upper bound critical value of 5% level of significance. Therefore, POV, FAID, FDI, REM, Trade Openness, GDP and Inflation have a long run association.

4.3. Long Run ARDL Model Estimation

Table 4.5: Estimated Long Run Coefficients using the ARDL Approach ARDL (2, 0, 2, 0, 0, 2) selected based on Akaike Information Criterion (AIC).

Dependent variable is POV				
Regressors	Coefficient	Standard Error	T-Ratio	Prob
LFAID	-0.112461**	0.025477	-4.414236	0.0477
LFDI	-0.083954**	0.009892	-8.486903	0.0136
LREM	-0.110219**	0.024848	-4.435618	0.047253
TOPN	0.511420**	0.073345	6.972746	0.019954
INF	-0.00466**	0.000775	-6.011684	0.026571
GDP	-0.109154**	0.023205	-4.703736	0.042347
Cons	4.527701	0.173993	26.022299	0.001473

Note: ** denotes significance of variables at 5% level of significance respectively.

Source: Own computation using EViews 9

As we have seen from the result of Table 4.5, in the long run all independent variables are significant at the 5 % level of significance and the direction of the variables except trade openness, included in the regression have the expected signs. Thus, trade openness has a direct relationship with poverty of Ethiopia in long run. Besides, foreign aid, remittance, foreign direct investment, Gross Domestic Product and inflation have an inverse relation with poverty reduction of Ethiopia in the long run. Despite the fact that, the result implies, trade openness leads to an increasing poverty of Ethiopian in the long run.

The long run estimated model presented as follows

$$POV = 4.5277 - 0.1124 * LogFAID - 0.0839 * LogFDI - 0.1102 * LogREM + 0.5114 * TOPN - 0.0046 * INF - 0.1091 * LogGDP \dots \dots \dots (4.1)$$

4.4. Short Run Error Correction Model

After the approval of long-run coefficients of the ARDL model, the short-run ECM model is estimated. Theoretically, the error correction mechanism ECM term indicates the speed of adjustment to restore equilibrium in the dynamic model and the coefficient of the ECM which should be both negative and statistically significant, shows how quickly the dependent variable converges to equilibrium. It is a one lagged period residual found from the estimated dynamic long run model. The coefficient of the error correction term indicates how rapidly variables converge to equilibrium. Moreover, it should have a negative sign and statistically significant at a standard significant level (i.e. The P - value should be less than 0.05).

Table 4.6: Error Correction Representation for the Selected ARDL (2,0,2,0,0,2) Model selected based on AIC

Regressors	Coefficient	St. Error]	T-Ratio	Prob
<i>d</i> LOPOV1	0.202160	0.220894	0.915188	0.456702
<i>d</i> LOGFAID	0.005711	0.007607	0.750753	0.531111
<i>d</i> LOGFAID1	0.054826**	0.009578	5.723728	0.029193
<i>d</i> LOGFDI	-0.012236	0.004636	-2.639089	0.118577
<i>d</i> LOGFDI1	0.004822	0.002322	2.076020	0.173540
<i>d</i> LOGREM	-0.001546	0.002159	-0.716382	0.548111
<i>d</i> LOGREM1	0.028635**	0.003632	7.882672	0.015715
<i>d</i> LOGTOPN	0.133537	0.034607	3.858621	0.061075
<i>d</i> LOGTOPN1	-0.038462	0.011022	-3.489311	0.073226
<i>d</i> INF	-0.000785**	0.000180	-4.345405	0.049091
<i>d</i> INF1	0.000708**	0.000133	5.310156	0.033682
<i>d</i> LOGGDP	0.009684	0.022700	0.426634	0.711180
<i>d</i> LOGGDP1	0.091589**	0.013208	6.934259	0.020169
ecm (-1)	-0.488551	0.073995	-6.602423	0.022179
<i>R-squared</i> = 0.999989			<i>F-stat</i> =	
8729.074[0.000115]				
<i>R-Bar-Squared</i> = 0.999874			<i>DW-statistic</i> = 3.078044	

** indicates statistically significant at 5%.

Source: own computation using EViews 9

Table 4.6 indicates that, the error correction coefficient ECM (-1) has a negative sign and statistically significant indicating that there is evidence of Cointegration. The estimated coefficient of the error correction term is -0.488551 indicating that 48.85% of the disequilibrium caused by shocks in the previous period converges to the long run equilibrium. The short-run dynamics in table 4.6 shows that INF has a significant and inverse relation with POV measured by headcount ratio. But LFDI (-1), LREM (-1), INF (-1) and LGDP (-1) have a significant and a direct relation with POV measured by headcount ratio.

4.5. Model Stability and Diagnostic Test

To check the feasibility of the estimated long run model, some diagnostic test is undertaken. The first and most activity in doing any analysis, we required to check the standard property of the model. In this study, we are conducting a number of model stability and diagnostic tests, which includes Serial correlation test (Brush and Godfray LM test), Functional form (Ramsey's RESET) test, Normality (Jaque-Bera test), and Heteroscedasticity (Breusch-Pagan-Godfrey test). In addition to the above diagnostic tests, as Hansen (1992) notified that the estimated parameters of a time series data may vary over time. As a result, it is essential that we conduct parameters stability tests. In order to reject or accept the null hypothesis of diagnostic tests, 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 4.7: Diagnostic test for the long run ARDL (2, 0, 2, 0, 0, 2)

Test Statistics	LM-version	F- Version
A: Serial correlation (Breusch-Godfrey Serial Corr. LM Test)	CHSQ (2) = 20.77800 [0.0000] ²	F (1,1) = 9.351052 [0.2012]
B: Functional Form	t- stat (1) = 0.570045 [0.6702]	F (1,1) = 0.324951[0.6702]
C: Normality	J-B = 1.898581[0.387015]	Not applicable
D: Heteroscedasticity Test: (Breusch-pagan-Godefry)	CHSQ (20) =17.81376 [0.5997]	F (20, 2) = 0.343481 [0.9223]

$R\text{-squared} = 0.999989$

$F\text{-stat} = 8729.074[0.000115]$

$R\text{-Bar-Squared} = 0.999874$

$DW\text{-statistic} = 3.078044$

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

Source: Own computation using Eviews 9

As shown from the table above, the p-value associated with both the LM version and the F version of the statistic was unable to reject the null hypothesis specified for each test.

Therefore, based on the result of the test:

(A) The test conducted for serial correlation (Breusch-Godfrey Serial Correlation LM Test) based on the null hypothesis of no serial correlation implied that; the result is failed to reject for the reason that the p-values corresponding to the test statistic are greater than the standard significant level (i.e. $0.2012 > 0.05$). This means, there is no problem of association between variable and lagged versions of itself over the study period. So, we can conclude that the variables included in the study have not a pattern or the variables are random. Here the LM test for testing serial correlation is applied because it solves the problem of the traditional Durbin Watson test statistic which is totally inappropriate when the lagged dependent variable appears as a regressors and the auto correlation is assumed to be of first order only.

(B) We could not reject the null hypothesis test for Ramsey's RESET test, which tests whether the model suffers from omitted variable bias or not. As the test result indicates that we can't reject the Ramsey's test, which means that the model is correctly specified. (p-value = $0.6702 > 0.05$).

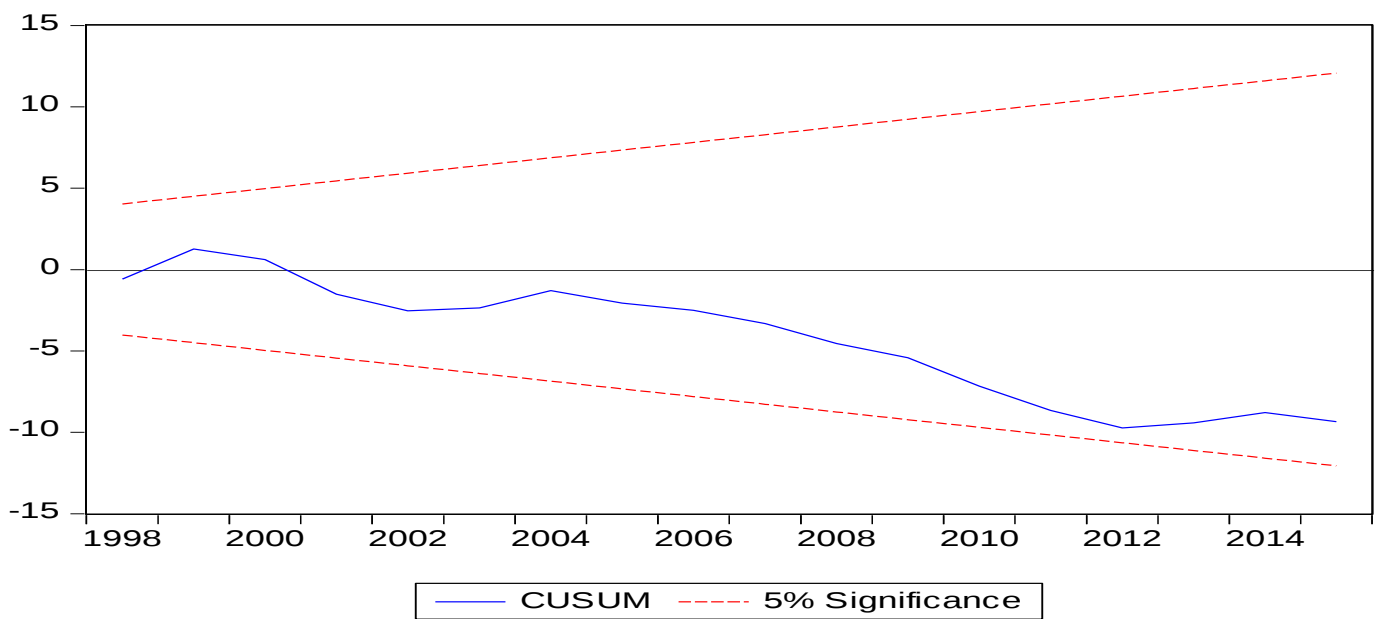
C) Another conducted test is about the normality of the distribution of residuals. As the result indicates that we failed to reject the null hypothesis which says that the residuals are normally distributed, for the reason that the p-value associated with the Jaque-Berra normality test is larger than the standard significance level (I.e. $0.387 > 0.05$). This means, the data come from a normal distribution.

D) One of the diagnostic tests for time series modeling is a Heteroscedasticity test. Which is used to test one of the assumptions of the classical linear regression model is that the error term should be homogeneous in nature. As we have seen from the result, we could not reject the null hypothesis that there is no Heteroscedasticity problem at 5% significance level due to its p-value associated with the test statistics is greater than the standard significance level (I.e. $0.9223 > 0.05$).

Therefore, from these test results we can conclude that the long run ARDL model estimated in this study passes all the diagnostic tests. Furthermore, estimated parameters of a time series data might be varied overtime against the assumption of regression analysis of time series data is usually based on the assumption that the regression relationship is constant over time. As a result, it is important that we conduct parameters, stability tests since model misspecification may arise as a result of unstable parameters. Hence, Pesaran (1997) advises that we always employ the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares of recursive residuals (CUSUMQ) tests based on their graphs. These tests were proposed by Brown, Durbin and Evans (1975).

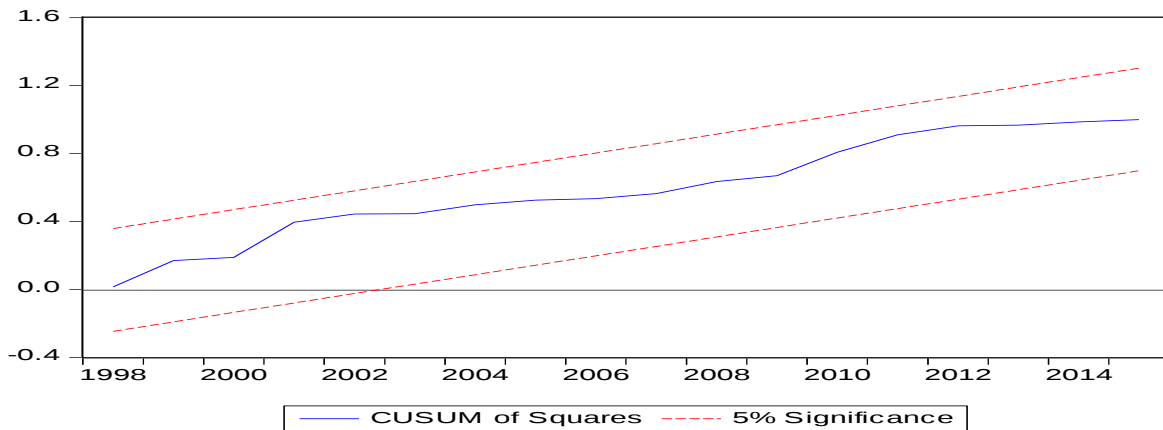
If the plot of the CUSUM and CUSUMQ statistics stays within the 5% range of significance (within the two straight lines), the null hypothesis states that all coefficient in the error correction model is stable and cannot be rejected (Bahmani Oskooee and Ng, 2002). If either of the lines is crossed, the null hypothesis of the coefficient consistency can be rejected at the 5 % level of significance.

Figure 4.1: Plot of Cumulative Sum of Recursive Residual



Source: Eviews 9 result

Figure 4.2: Plot of Cumulative Sum of square of Recursive Residual



Source: Eviews 9 result

Figure 4.1 and 4.2 above shows that the plot of CUSUM and CUSUMQ statistics stays within the critical boundaries. As a result, we are confident to say that the long run estimated parameters are stable.

4.6 Granger Causality Test

Table 4.8 Granger Causality Test

Date: 02/19/22 Time: 10:02
Sample: 1991 2015

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
LOGFAID does not Granger Cause LOGPOV	23	3.58508	0.0489
LOGPOV does not Granger Cause LOGFAID		0.84126	0.4474
LOGFDI does not Granger Cause LOGPOV	23	0.77574	0.4752
LOGPOV does not Granger Cause LOGFDI		6.21334	0.0089
LOGREM does not Granger Cause LOGPOV	23	2.49606	0.1105
LOGPOV does not Granger Cause LOGREM		1.50535	0.2486
LOGTOPN does not Granger Cause LOGPOV	23	0.92504	0.4146
LOGPOV does not Granger Cause LOGTOPN		0.40920	0.6702
INF does not Granger Cause LOGPOV	23	0.81051	0.4602
LOGPOV does not Granger Cause INF		1.61664	0.2261
LOGGDP does not Granger Cause LOGPOV	23	1.75110	0.2019
LOGPOV does not Granger Cause LOGGDP		6.73528	0.0066

Source: own computation using EViews 9

The decision-making process for Granger Causality analysis follows F-distribution. Granger Causality Test conducted to determine the Causality relationship between foreign aid and poverty reduction is presented in Table 4.8 above. The results show that, there is Unidirectional causality between foreign aid and poverty reduction that runs from foreign aid to poverty reduction as indicated by their probability values.

CHAPTER 5

5. Summary, conclusion and Recommendation

5.1. Summary

The work explores the link between foreign aid and poverty reduction in Ethiopia. Its specific objectives are to determine the impact of foreign aid on poverty reduction in Ethiopia from 1991 to 2015, and to determine the causal link between foreign aid and poverty reduction in Ethiopia during the study period. The Autoregressive Distributed Lag model (ARDL) range was used to analyze the bounds test technique, Error correction model, and Granger causality approaches.

The ARDL Error Correction Regression result revealed that one period lag foreign aid has positive and significant impact on poverty reduction in Ethiopia in the short run as indicated by its probability value of 0.0292. one period lag of Remittance, Gross domestic product and inflation are found to exert positive and significant impact on poverty reduction in Ethiopia over the period as shown by their probability values 0.0157, 0.0202 and 0.0337 respectively in Ethiopia over the period.

The ARDL Error Correction Regression result indicated that the sign of the short-run dynamic impact of foreign aid, gross domestic product and remittances is positive but Foreign Direct investment, inflation and on poverty reduction is negative, fractional and statistically significant as required. The coefficient of error correction mechanism (ECM) is -0.488551 with probability value of 0.0222. This shows that approximately 48.9% of any movement into disequilibrium is corrected for back to the long run equilibrium within one period.

However, 48.9% indicates moderate speed of adjustment process; This means that the whole system returns to its long run equilibrium at the speed of 48.9% annually.

The results of ARDL's long run model indicate that foreign aid, foreign direct investment, inflation and Gross domestic product have significant and reduction impact on poverty in the long run. However, trade openness rises poverty.

The ARDL bound test results show long-term correlation between variables in the model. In addition, the Granger casualty test shows that there is unidirectional causality between foreign aid and poverty reduction.

5.2. Conclusion

Whether foreign aid has a role in the poverty reduction of a country or not is, a debatable issue. Given the fact that, this study has attempted to investigate the impacts of foreign aid on poverty reduction of Ethiopia using time series data from 1991-2015. The paper used econometric tools of analysis. Autoregressive Distributed Lag (ARDL) Bound testing approach is used to estimate the relationship between foreign aid and poverty reduction. The augmented dickey fuller and Phillips-Perron tests were undertaken to stationary test and found that some variables are stationary at the level I [0] and some others are stationary at first order I [1]. The result of bounds testing also shows that there is a long run co-integration between variables. Also based on the ECM, the system returns into its equilibrium with the speed of 48.9 percent. In addition, the granger causality test result shows that unidirectional causality between foreign aid on poverty reduction of Ethiopia. Furthermore, diagnostic tests such as serial correlation, functional model misspecification, test of normality, stability tests and heteroscedasticity test are conducted. The result revealed that no evidence of serial correlation, no functional form problem, the residual is normally distributed, the model is static and no evidence of Heteroscedasticity problem is found.

Based on the results, we can conclude that foreign aid will have a significant and reduction impact on poverty in Ethiopia. Similarly, Foreign direct investment, remittance, inflation and gross domestic product have significant and reduction impact on poverty in Ethiopia. On the other hand, Trade openness appreciates poverty in the country significantly over the studied period.

5.3 Recommendations

Based on the conclusions, the study suggests that foreign aid flow should be directed more to the poor and the middle class in Ethiopia by the government.

Aid donors and International aid agencies must identify areas of assistance and demonstrate their commitment to the purpose for which they are being used and the government must ensure that they are in the right place. Moreover, the government must be implemented appropriate Accountability and transparency in the administration of different types of foreign aid. Aids To make a greater impact, it must be integrated into social sectors such as education and health on poverty reduction. To sum up, the governments of Ethiopia need to be institutionalized Frameworks in various sectors of the economy for further efficiency and both recipients and donors should consider best alternatives and procedures to overcome problems related to foreign aids and methodologies which can enhance its effectiveness to reduce poverty in Ethiopia. The government must develop policies that support remittances and foreign direct investment. In other hand, the government should develop policies on trade openness that appreciates import substitution products and shall be export oriented.

Government should be monitor and evaluate the implementation of aid funds to make sure more effectiveness and appropriate utilization of the aid funds in the country.

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