

**Mendel University in Brno**  
**Faculty of Business and Economics**

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**The Nexus of Foreign Capital Inflows and  
Economic Growth in Ethiopia**

**Diploma Thesis**

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## ***Abstract***

*ABERA, A.(2016). The Nexus of Foreign Capital Inflows and Economic Growth in Ethiopia. Diploma thesis, Mendel University in Brno, Brno.*

*This thesis examines the relationship between foreign capital inflows and economic growth in Ethiopia over the period 1981–2014. In particular, the real GDP per capita as a function of foreign aid, foreign direct investment and other foreign capital inflows (remittances and external debt) were investigated. The ARDL approach was applied to explain the long run and short run effect of explanatory variables on the dependent variable. The result reveals that the flow of foreign aid has a negative effect on economic growth both in long run and short run. This is mainly because the existence of poor institutional arrangement and the funds are not always connected to the productive sectors. Similarly, the long run relationship between the flow of foreign direct investment and the economic growth is negative. The possible explanation for this negative effect is due to inadequate basic infrastructures and poor institutional quality in the country. However, the long run and short run effect of other foreign capital inflows and the short run effect of foreign direct investment are found to be insignificant in affecting real GDP per capita. In addition, the causality test result indicates that there is a uni-directional causal relationship from official foreign aid to real GDP per capita and bi-directional causal relationship between foreign direct investment and real GDP per capita, but there is no any causal relationship between other foreign capital inflows and real GDP per capita in Ethiopia. Thus, the study suggests that the government has to ensure that the capital inflows are linked to the productive sectors to optimize the benefits of capital inflows. Moreover, the government has to pursue policy device to mobilize domestic resources and to reduce over-reliance on capital inflows.*

*Key Words: ARDL Approach, Economic Growth, Ethiopia, Foreign Capital Inflows*

## ***Abstrakt***

*ABERA, A. (2016). Vztah mezi zahraničními kapitálovými přílivy a ekonomickým růstem v Etiopie. Diplomová práce, Mendelova univerzita v Brně, Brno.*

*Tato diplomová práce zkoumá vztahy mezi přílivem zahraničního kapitálu a ekonomickým růstem v Etiopii v období let 1981–2014. Konkrétně se zaměřuje na reálný HDP na osobu, které vysvětluje jako funkci finanční pomoci ze zahraničí, přímých zahraničních investic a jiných zahraničních kapitálových toků (remitence a externí dluh). K indikaci krátkodobého a dlouhodobého efektu vysvětlujících proměnných na závislé*

*proměnné byl využit přístup ARDL. Výsledky vypovídají o tom, že tok zahraniční pomoci má negativní vliv na ekonomický růst jak v krátkodobém, tak dlouhodobém horizontu. Je to především z důvodů, že fondy nejsou vždy spojeny s produktivními sektory, dále kvůli korupci a špatnému institucionálnímu řízení. Podobně v dlouhém období vztah mezi tokem reálných zahraničních investic a ekonomickým růstem je negativní. Možným vysvětlením může být neadekvátní infrastruktura, špatné řízení a nekvalifikovaná lidská síla. Dlouhodobý i krátkodobý efekt na ostatní zahraniční kapitálové toky byly shledány nevýznamnými z hlediska vlivu na reálný HDP na osobu. Test kauzality navíc indikoval, že existuje jednosměrný kauzální vztah mezi oficiální zahraniční pomocí a reálným HDP na osobu, a obousměrný kauzální vztah mezi přímými zahraničními investicemi a reálným HDP na osobu, ale neexistuje žádný kauzální vztah mezi dalšími zahraničními kapitálovými přílivy a reálným HDP v Etiopii. Tato studie navrhuje, aby vláda zajistila nasměrování kapitálových toků ze zahraničí do produktivních odvětví. Navíc by vláda měla sledovat politiku, která snižuje závislost na přílivu kapitálu ze zahraničí.*

*Klíčová slova: metoda ARDL, ekonomický růst, Etiopie, příliv zahraničního kapitálu*

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## Acronyms

A	Technology
ADF	Augmented Dicky-Fuller
AID	Flow of Foreign Aid
ARDL	Autoregressive Distributed Lag Model
CV	Critical values
D	Dummy variable for regime change
DAC	Development Assistance Committee
ECM	Error Correction Model
EPRDF	Ethiopian People's Revolutionary Democratic Front
FCIs	Foreign Capital Inflows
FDI	Foreign Domestic Investment
GDK	Gross domestic capital formation
GDP	Gross domestic Product
GDPpc	Real GDP per capita
GMM	Generalized Method of Moments
HK	Human capital
K	Capital stock
LF	Labor force
LM	Lagrange multiplier
NBE	National Bank of Ethiopia
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
OFI	Other Foreign Capital Inflows
OLS	Ordinary least squares
PP	Philips- Perron
REM	Remittances
VAR	Vector Autoregressive Model
WDI	World Development Indicators

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## 1. INTRODUCTION

In most developing countries, capital inflows are becoming increasingly important particularly in their early development process to enhance their economies. This is because the domestic financial market and financial sources are not sufficient to finance the existing and increasing demand for different development programs and projects (Sawalha *et al.*, 2016). Similarly, international capital can supplement domestic resources in developing economies, in view of the growing mismatch needs between their capital stock and capital requirements (Orji *et al.*, 2014; Fosu and Magnus, 2006).

Foreign capital inflows (FCIs) can play a crucial role in determining the growth of developing countries through increasing the pace of investment and other productive sources (Sethi, 2013). This requires well-functioning institutional arrangement and financial systems that offer better intermediation, basic infrastructure and good governance in host countries (Adeniyi *et al.*, 2015). The argument of favoring capital inflows, FDI in particular is based on the argument that developing economies lack capital while developed economies have abundant capital. Moving capital flows from developed to developing countries would create employment opportunities and promote economic growth (Siddiqui, 2014).

Despite an increasing capital flows, most developing countries' economic performance is poor (Osinubi & Amaghionyeodiwe, 2010). Ikechi (2015) argued that most of the capital inflows into SSA were based on speculations and no priority sectors are identified in the host economies. Consequently, the host countries are not benefiting from the capital inflows.

Nowadays, Ethiopia is receiving a significant amount of FCIs through different entities to meet their domestic demand. The question that arises here is how capital inflows contribute to the growth of Ethiopia's economy. So researching on this area is still required to understand the relationship between FCIs and the economic growth in Ethiopia.

## 1.1. Problem Statement

The magnitude and composition of capital flows to developing countries are increasing and changing from time to time (Lusinyan, 2002). The effect of capital inflows on economic growth in developing countries are extensively explained in empirical literature, e.g., Malik (2008), Mohapatra *et al.*, (2016), Sahoo & Sethi (2013), Agbola (2013), Adelegan (2000), Baharumshah & Almasaied (2009), Nwaog & Ryan (2015), Daud *et al.*, (2013), Mbah *et al.*, (2016), Ramzan & Ahmad (2014), Bettin & Zazzaro (2011), Feeny *et al.*, (2014) and Nsiah & Fayissa (2013). The contributions of these authors aimed at developing countries are very important and can be used as a steppingstone. These studies were conducted in other developing countries and their findings may not be applied in the context of Ethiopia due to a variety of reasons<sup>1</sup>.

In Ethiopia, various studies were conducted in the area of FCIs and economic growth using different econometric approaches, e.g., aid (Tasew, 2011; Siraj, 2012; Fentaye, 2015), FDI (Selamawit, 2015), remittances (Ghosal, 2015) and external debt (Kassa, 2014; Mulugeta (2014). However, most of these studies lacked the following two aspects. *First*, the existing studies did not aggregate capital inflows as FCIs. In other words, the results from these studies were inconclusive largely because of separate investigation of the FCI components. For instance, they investigated foreign aid and economic growth, FDI and economic growth, external debt flow and economic growth, remittance and economic growth. Thus, the current study has an aim to examine the relationship between FCIs and economic growth. *Second*, most of previous studies were faced with methodological limitations. That is, in most cases Johnson Co-integration method was used in their method of analysis. However, the outcome of this technique could not be reliable for sample size less than eighty years (Narayan, 2005). Therefore, in order to narrow this gap the study aims to utilize the ARDL approach to explain the relationship between FCIs and economic growth in Ethiopia.

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<sup>1</sup> For instance, policy environment of the regime (see section two of this thesis)

In recent years, Ethiopia has been receiving a significant amount of foreign aid. The World Bank Group, the UK and USA (through USAID and the State Department) are the main entities that have provided the substantial aid (OECD, as cited in Frederic and Melissa, 2013). Similarly, Ethiopia has continued to attract FDI for the expanding textile sectors (*e.g.*, the flow of FDI increased by 26 percent from 2013 to 2014) (United Nations, 2015). Other evidence also confirms that the flow of FDI in East Africa has been increasing<sup>2</sup> (United Nations, 2014). Similarly, total external debt of Ethiopia has been increasing (with the exception of 2008 due to world financial crisis) as explained by Garedeu (2016). Concerning the remittances, the official figure reported by NBE is around \$600 million; however, the actual volume (through both formal and informal channels) could be in the range of \$1 billion to \$2 billion yearly. Even though the amount is increasing from time to time, it is difficult to know the actual figure since there are informal channels through which money is transferred (Alemayehu and Jacqueline, 2011).

The above factors motivated the author to undertake this research and attempts were made to examine how capital inflows contribute to the economic growth in Ethiopia. In other words, investigating FCIs is vital to recognize the important variables that determine economic growth in Ethiopia. For this purpose, the following research questions have been addressed:

- What is the relationship between foreign aid and economic growth in Ethiopia?
- What is the degree of FDI in determining economic growth in Ethiopia?
- How do the other capital inflows (remittances and external debt) affect the economic growth of Ethiopia?

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<sup>2</sup> The flow of FDI increased by 15 percent to \$6.2 billion mainly because of rising inflows to Kenya and Ethiopia

## 1.2. Objectives

The proponents of FCIs argue that, FCIs can supplement the production process of host countries and thus lead to higher growth of the economy. For instance, Siddiqui (2014) and Baharumshah *et al.*, (2015) argued that capital inflows contribute to the technological transfer and it can raise the productivity in the host economy. As discussed in the problem statement, capital inflows have been increasing from time to time. Keeping this discussion in mind, this study seeks to examine the relationship between FCIs and economic growth in Ethiopia over the period 1981 to 2014. Specifically, the study has the following objectives.

- To analyze the relationship between foreign aid and economic growth in Ethiopia
- To examine the role of FDI in determining economic growth in Ethiopia
- To explore the impact of other FCIs on economic growth in Ethiopia

## 1.3. Significance of the Study

The significance of this research lies in the following three areas: *First*, as it is explained in the statement of problem section, studies made so far in Ethiopia were focused on Johnson co-integration method. As a result, this study makes a number of contributions towards extended research in the area of FCI and economic growth in Ethiopia using ARDL approach. *Second*, other researchers can use this study as a reference point for further study. *Third*, findings will provide valuable information to concerned bodies such as government policy makers and other institutions.

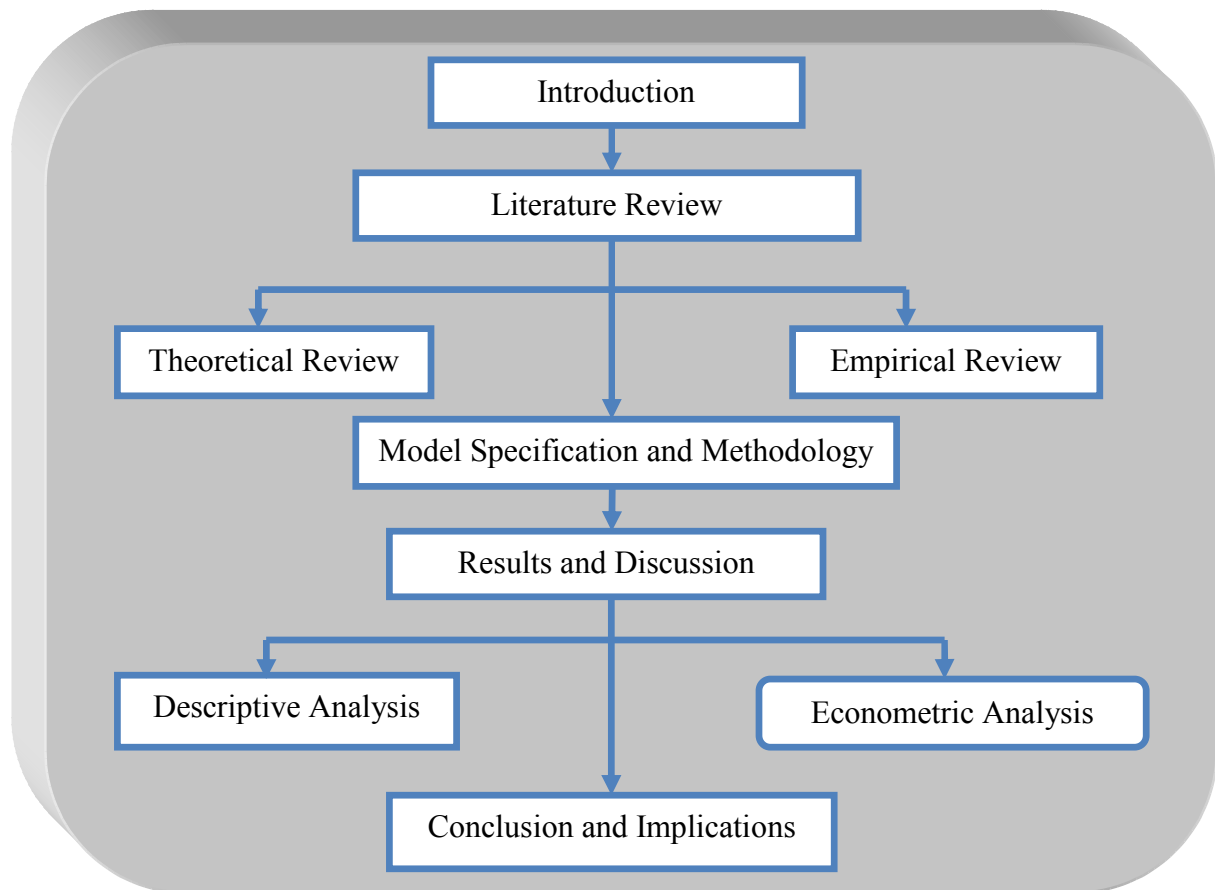
## 1.4. Scope of the study

The scope of the study is delimited to the nexus between FCIs and economic growth in Ethiopia over the period 1981-2014. To this end, the study's dependent variable is economic growth and independent variables are FDI, foreign aid and OFIs.

## 1.5. Organization of the Thesis

The study has been organized into five sections. The first section presents the introduction of the study. The second section reviews both theoretical and empirical studies. The third section explains the model specification and methodology. The fourth section analyzes the result and discussion of the result. The final section presents conclusions and implications of the study. In general, the figure below shows the structure of this thesis.

**Figure 1.1:** The Structure of the Thesis



Source: Author's Structure, 2017



## **2. LITERATURE REVIEW**

In recent years, there have been large numbers of theoretical and empirical studies in the area of FCIs and economic growth. The relationship between FCIs and economic growth is a debatable issue. That is, some studies have empirically proven that FCIs have a positive impact on economic growth while other studies have showed differently. Therefore, this section discusses the economic growth theories and the empirical studies in the area under consideration.

### **2.1 Theories of Economic Growth**

Economists, e.g., Smith (1776), Malthus (1798) and David (1817) contributed to the economic growth in the classical theory. Besides, Ramsey (1928) and Schumpeter (1934) provided basic ingredients for economic growth theories. Regarding modern growth theory, Ramesy (1928) considered as the starting point in terms of a chronological perspective. These theories were also briefly described in the book of Barro & Sala-i-Martin (2004). Domar (1946) and Harrod (1939) attempted to integrate Keynesian analysis with components of economic growth (cited in Barro & Sala-i-Martin, 2004). Others, e.g., Solow (1956) and Swan (1956) made the most important contributions to the economic growth and the neoclassical form of the production function was the major aspects of their model. This form assume that there is diminishing returns to each input, constant returns to scale and some positive and smooth elasticity of substitution between the inputs.

Around the second half of the 20<sup>th</sup> century, the neoclassical theory explained economic growth theory mainly developed by Solow (1956) and Swan (1956). During this period, the differences in living standards among countries were analyzed by the neoclassical growth theory. This concept is known as convergence theory – states that countries with low GDP per capita level grow faster and reach the growth level of rich countries, while the growth of rich countries is slower (Barro, 1996; Barro & Sala-i-Martin, 2010).

The neoclassical model explains that the growth of economic discontinues without technological advancements (Barro, 1996). The productivity decline during the second half of 20<sup>th</sup> century implies that changes in the pace of technological progress are tremendously important. Thus, it is required to go beyond the Solow model and include the technological advancement in the growth model. The model that explains this theory is the endogenous growth theory. However, the Solow model considers technological change as an exogenous variable (Mankiw, 2010).

## **2.2 Empirical Review**

The forthcoming section reviews the work of other studies in the area under consideration. Accordingly, the section is sub-divided into five parts – *first*, foreign aid and economic growth; *second*, FDI and economic growth; *third*, OFIs and economic growth; *fourth*, reviews on the previous empirical studies in Ethiopia and the final section presents Ethiopia's policy environment.

### **2.2.1 Foreign Aid and Economic Growth**

Investigating the impact of foreign aid on economic growth is one of the interesting research areas. The finding from some empirical studies revealed that the flow of foreign aid has positive effect on the real per capita income, e.g., Feeny & McGillivray (2010), Kaya *et al.*, (2012) and Sahoo & Sethi (2013). Foreign aid is effective at promoting economic growth but at a decreasing rate (Feeny & McGillivray, 2010). They further argued that foreign aid is less effective mainly in fragile countries. Kaya *et al.*, (2012) classified foreign aid into different categories – agricultural, investment, social infrastructure and non-investment aid. The result revealed that there is a positive contribution of agricultural aid to economic growth. A study by Sahoo & Sethi (2013) shows that, the flow foreign aid is a positive and significant factor that determines the economic growth and development. However, the impact of foreign aid on economic growth is higher, which indicates that aid contributes to growth but the growth does not bring meaningful development. This is because there is a poor economic policy,

corruption and institutional inefficiency among others. The authors suggested that foreign aid policy has to be formulated and implemented in a productive way to maximize the welfare of the citizens. Other existing empirical studies also corroborate this finding, e.g., Asteriou (2009), Nwaog & Ryan (2015), Karras (2006) and Fayissa & El-Kaissy (1999).

The contributions of Alvi *et al.*, (2008) and Tashrifov (2012) are aimed at the relationships between aid, policies and economic growth. The findings from both studies show different results. Alvi *et al.*, (2008) found that effectiveness of aid depends on the recipient government policies. That is, aid is effective only if the recipient governments have good policies. Put differently, aid does not work unless the recipient government has no good policy. This implies that the recipient country should have a reasonably good policy in order to make foreign aid effective. Tashrifov (2012) refute this argument and confirms that aid enhances economic growth regardless of policies. He also associated the result with the volume of aid and argued that the policy environment appears to be a relevant determinant only if such aid is large in amounts.

Others found that foreign aid has negative effect on the economic growth of host countries, e.g., Tiwari (2011), Ndambiri *et al.*, (2012), Mallik (2008) and Javid & Qayyum (2011). According to Tiwari (2011) the overall and immediate impact of aid on the economic growth rate is both negligible and differs in terms of magnitude and direction. Ndambiri *et al.*, (2012) said that there is a negative effect due to mismatch between technology transfers especially in SSA. Others argued that aid would work differently for different countries because of differences in institutional arrangement and levels of human capital. Put differently, the contribution of aid to economic growth depends on the quality of institutional arrangement in the host country (Javid & Qayyum, 2011; Mallik, 2008). In some cases, the government of recipient countries lack fiscal discipline and use capital flows for their own domestic expenditures (Mallik, 2008). Likewise, high non-developing expenditure causes high budget deficit and in turn, foreign aid may be used for government consumption instead of investment purpose (Javid & Qayyum, 2011).

## 2.2.2 Foreign Direct Investment and Economic Growth

In general, the FDI is crucial for low-income countries and contributes to the economic growth. However, most of the developing countries have characteristics of market imperfections and other institutional problems. In this case, the contribution of FDI to the growth of an economy is quite questionable (Chaudhuri & Mukhopadhyay, 2014). The empirical studies about FDI and economic growth are discussed as follows.

The positive effect of the FDI on economic growth is described by Baharumsha & Almasaied (2009), Shen *et al.*, (2010), Sen *et al.*, (2014), Adeniyi *et al.*, (2015), Almfraji & Almsafir (2014) and Sharma & Abekah (2008). Their implications are different based on the case study and the model they used. For instance, Khawar (2005) examined FDI and economic growth at the aggregate level of cross-country growth analysis. He found that there is a significant and positive relationship with real income per capita, irrespective of any human capital requirements. He further implies that, FDI plays a considerable and larger role than domestic investment in determining the economic growth. On the contrary, Baharumsha & Almasaied (2009) explores the role of FDI in economic growth in Malaysia by controlling other drivers of economic growth. Their result shows that FDI has a positive and significant effect on economic growth, but its effect has lesser magnitude than domestic investment. Similarly, a review of the literature on the effect of FDI on economic growth from 1994 to 2012 shows a positive and significant result, but not always (Almfraji & Almsafir, 2014). Moreover, Sharma & Abekah (2008) argued that improving the development of the domestic financial system is the best instrument to reap the benefits of FDI. The policy needs to be devised in line with national priorities in this regard. This also suggested by Choong (2012).

Authors like El-Wassal (2012), Raičević, *et al.*, (2016) and Borensztein *et al.*, (1998) provided negative results. This is because the pre-requisites for FDI are not fulfilled in the host country, e.g., highly educated population, cooperation with domestic companies and fast acceptance of new technologies (Borensztein *et al.*, 1998; El-Wassal, 2012). Put

differently, the benefit of FDI achieved only through fulfilling these prerequisites. El-Wassal (2012) provided a reason such as poor infrastructural quality in the host country. In this regard, the interesting conclusion and implications given by Herzer (2012) is that economic reforms aimed at improving resource allocation by eliminating market-distorting policies and minimizing the regulatory burden attracts FDI and in turn, enhances economic growth.

### **2.2.3 Other Foreign Capital Inflows and Economic Growth**

Remittances and external debt flows are aggregated to OFIs. Reviewing the empirical studies regarding the OFIs and economic growth are important. Some previous studies argued that remittance has a positive impact on economic growth, e.g., Oshota & Badejo (2014), Marwan *et al.*, (2013) and Tahir *et al.*, (2015). As stated by Oshota & Badejo (2014) remittances positively influence the economic growth in the long run. However, there is negative relationship in the short run. This implies that the impact of remittances on economic growth cannot be affirmed to be greater than the impact of other sources of external finance like foreign aid, FDI and openness to trade.

Other studies investigated remittances and economic growth considering credit availability in a host country. For instance, Giuliano & Ruiz-Arranz (2009) studied the link between remittances and growth and its interaction with the financial development in the recipient country. The result confirmed that remittances boost growth by providing an alternative way to finance investment and helping overcome liquidity constraints especially in the country where there is less developed financial systems. Put differently, remittance could be an investment channel through, which can promote growth especially when the financial sector does not meet the credit needs of the domestic sector. Thus, remittance flow can relax liquidity constraints and guarantee access to credit.

Bettin & Zazzaro (2011) has introduced a new quality based indicator of financial development to measure the domestic banking efficiency and remittances in economic growth. The result shows remittances have an ambiguous effect on economic growth and

that only the small groups of countries with an efficient domestic banking sector are able to benefit from the flow of remittances. Put differently, remittance flows can also contribute, when efficiently intermediated by banks, to funding growth-enhancing projects. The conclusion here is that the role of remittances depends on the size and efficiency of the domestic financial sector. Thus, sound financial system has a key role in encouraging saving from remittances (Ratha, 2007 cited in Bettin & Zazzaro, 2011).

Uddin & Sjö (2013) argued that the inflow of remittances along with the expansion of the financial sector drive the growth of GDP in the long run, whereas in the short run, remittances act as a shock absorber to income changes. In addition, many authors (*e.g.* Agbola, 2013; Nsiah & Fayissa, 2013; Mundaca, 2009) have supported the positive relationship between remittances and economic growth. On the other hand, remittance inflows have negative impact on economic growth of some countries, *e.g.*, Feeny *et al.*, (2014) provided a result of 136 developing countries. The study revealed that there is no evidence that per capita income growth would lower in the absence of remittances in some selected countries.

Regarding external debt, three different empirical results exist– negative and significant, positive and significant, and insignificant relationship between external debt and economic growth. Many empirical studies revealed that external debt has a negative and significant effect on economic growth, *e.g.*, Babu *et al.*, (2014), Lin & Sosin (2001), Mbah *et al.*, (2016) and Mohd Daud & Podivinsky (2012). Babu *et al.*, (2014) explained the reason for the negative link between external debt and economic growth. That is, the larger external debt-service repayments can hinder growth by draining the public resources. These resources could be used for development of human capital and infrastructure. They suggested that country with indebted heavily need to adopt debt reduction strategies so that the large stock of external debt can be avoided. These countries also use debt relief strategies such as debt rescheduling, reduced debt servicing and debt restructuring. This implication is also consistent with that of Lin & Sosin (2001). Many other studies confirmed the inverse relationship between external debt and

economic growth (Shahzad *et al.*, 2014; Okonkwo & Odularu, 2013; Ramzan & Ahmad, 2014; Soydan & Bedir, 2015; Ali & Mustafa, 2012)

Moreover, previous result shows the positive and significant impact of external debt on economic growth. According to Fincke and Greiner (2015), the reason behind positive impact is that those host countries are characterized by expanding public sector that invests a lot in growth enhancing infrastructures. Others also corroborate this finding (*e.g.* Paudel & Perera, 2009; Daud *et al.*, 2013). However, Daud *et al.*, (2013) contend that the positive impact is up to an optimum level. That is, beyond that level, additional increases of external debt increase indebtedness that negatively affects the economy. Note that the author did not explain the optimum level.

Other empirical studies result shows that there is insignificant relationship between external debt and economic growth in different country, *e.g.* Tchereni *et al.*, (2013), Egbe & Alfred (2015), Winifred (2014) and Genc and Tandogan (2015).

#### **2.2.4 Review of Previous Studies on Ethiopia**

In the preceding section, we reviewed the work of different countries in the subject under study. Now, this section discusses the empirical review of similar studies in the context of Ethiopia. A study by Tasew (2011) shows that aid has a positive impact on the economy. However, the aid policy interactive term has a significant negative impact, which makes the overall impact negative. The implication of negative effect is due the presence of poor policy environment in the country. Put differently, inefficient policy devices diminish the positive effect of aid on economic growth. However, Fentaye (2015) found that aid and aid policy interaction term have a significant and positive impact on growth in the long run. The author argued that the aid effectiveness would have been higher if a favorable macroeconomic policy environment supported it. Conversely, Haile (2015) confirms that foreign aid has negative coefficient, but foreign aid interacted with policy index has positive coefficient implying that aid effectiveness depends the policy environment. A study by Wondwesen (2011) shows that foreign aid has a significant and positive effect

on economic growth both in the long run and short run. Despite its short run relationship, the result is similar to the findings of Tesfahun (2014).

Others examined the nexus of FDI and economic growth in Ethiopia, e.g., Selamawit (2015), Dejene (2015) and Getinet & Hirut (2006). Selamawit (2015) empirically confirmed positive and significant relationship between FDI and real GDP growth. Similarly, Dejene (2015) argues a stable and long-run relationship between them. The result further shows a unidirectional causality that runs from FDI to economic growth of Ethiopia. Getinet and Hirut (2006) studied the nature and determinants of FDI. The finding revealed that FDI is affected positively by real GDP growth rate, export orientation, and liberalization. On the other hand, macro economic instability and poor infrastructure have negative impact on the FDI. The implication is that the stable macroeconomic and political environments together with basic infrastructure are essential to reap the benefits of FDI. However, others have confirmed that there is a negative relationship between FDI and economic growth in Ethiopia both in the long run and short run (Wondwesen (2011).

Like any other inflows, scholars are paying attention to investigate the impact of remittance and economic growth, for instance, Mikias (2014) and Ghosal (2015). There is positive and significant impact of remittance on economic growth in the long run (Mikias, 2014). However, the short run effect is found to be negative and significant. The reason is that, in the short run, remittance play smoothing role in consumption. The result of long run effect of remittance on economic growth is consistent with the finding of Ghosal (2015). To sustain the long run role of remittances, modernizing and expanding financial sectors are important in addressing wide range of customers (Mikias, 2014). Moreover, banks and other remittance service providers should work collaboratively in diverting the remittance flow through the informal channel to the formal one. This can be done through reducing the cost of sending. As explained by Ghosal (2015), the effectiveness of remittances depends on the ability of the formal banking networks to compete with the informal networks. In this regard, Alemayehu *et al.*, (2011) pointed out



that the informal operators being unregistered will have no obligation of tax and associated costs, which gave them an unfair competitive edge over the formal ones.

Apropos to external debt, Mulugeta (2014) and Genet (2016) empirically examined the impact of external debt on economic growth in Ethiopia. Mulugeta (2014) confirmed the existence of long run relationship between real GDP and external debt. Moreover, the current external debt flow influenced the real GDP positively. The result supported the finding of Hanna (2013). On the other hand, past stock of external debt and debt servicing has a negative influence on the real GDP. This confirms the existence of debt overhang problem in Ethiopia's Economy. This implies the inverse relationship between external debt servicing and GDP growth. Thus, there is evidence of the existence of 'crowding out effect' in Ethiopia. Concerning debt servicing, the result is consistent with the finding of Genet (2016). The implication is that the country should introduce effective debt management as a major policy concern to achieve the benefits of external finance (Mulugeta, 2014; Genet, 2016).

Other authors examined the relationship between public external debt and economic growth, e.g., Garedeew (2016), Hanna (2013) and Teklu *et al.*, (2014). Garedeew (2016) studied the effect of public external debt on economic growth. Using ARDL, the result confirmed that in the long run the high level of stock of public external debt has a negative and significant effect on economic growth. Therefore, there is an evidence for the debt overhang and conventional view of public debt. On the other hand, public external debt servicing has a negative coefficient but insignificant in affecting economic growth. Thus, there is no evidence for the crowding out effect in the country. This result is similar to the finding of Hanna (2013). This implies that the government policy makers should pay more attention to the debt management profile particularly in its expenditure (Garedeew, 2016). He further suggests that linking the funds to productive ventures and investing in self-liquidating development projects are essential. Put differently, the borrow funds should be invested in basic infrastructural developments that facilitate the

productivity of other sectors of the economy rather than for social consumption. This result is consistent with that of Teklu *et al.*, (2014).

### **2.3 Ethiopia's Policy Environment**

This section briefly discusses the macroeconomic environment of Ethiopia since the focus of the study is two regimes (the *Derg* and post-*Derg*). According to Alemayehu (2002), the drastic policy changes and conflicts are the main factors that affect the performance of Ethiopia's economy.

The *Derg* regime (1974 - 1991) was mainly characterized by a centralized economic system. That is, the state played a significant role in all spheres of economic activities. The regime was characterized by socialist ideology and there was no room for the private sector. During this period, the policies had discouraging activities related to private investment and created less willingness of big international institutions to work with (Tesfaye, 2013). In addition, the growth rate of GDP during the *Derg* regime was fluctuating and showed poor performance due to instability and war with Somalia (Alemayehu, 2001). Generally, this period was considered as the irregular economic situation and gloomy growth performance.

The EPRDF regime (1991 – present) mainly characterized by stimulating private sector development and the government made an attempt to attract FDI. The growth rate of GDP and economic performance is promising compared to *Derg* regime (Alemayehu, 2011). Thus, there is indication that economic growth is largely dependent on macroeconomic policy environment (Mohapatra *et al.*, 2016).

### 3. MODEL SPECIFICATION AND METHODOLOGY

#### 3.1. Model Specification

The study model specification is based on theoretical foundation of the augmented Solow and endogenous growth models for economic growth equation. The Solow growth model is used since it is designed to show how growth in the capital stock, labor force and advances in technology interact in an economy (Mankiw, 2010). Thus, the growth function is expressed as:

$$Y = f(K, HK, LF, A) \dots \dots \dots (1)$$

Where,

Y denotes is a proxy for economic growth

K denotes capital stock

HK denotes human capital

LF denotes labor force

A denotes technology.

Rana & Dowling (1988) examined the impact of capital inflows on economic growth by incorporating them in the growth model. Based on their model, the components of the FCI are included in the following growth model.

$$Y = f(K, HK, LF, FCI, A) \dots \dots \dots (2)$$

Where,

FCI denotes foreign capital inflow

Now, we disaggregate capital inflows into foreign aid, FDI and other capital inflows that include remittances and external debt as recommended by Papanek (1972). This disaggregation of capital inflow helps to compare their level of effect on the economic growth. Then, the economic growth function can be expressed as:

$$Y = f(K, HK, LF, AID, FDI, OFI) \dots \dots \dots (3)$$

Where,

AID denotes foreign official aid/official development assistance

FDI denotes foreign direct investment

OFI denotes other foreign capital inflows

In most economic growth literature, real GDP per capita is taken as the best proxy for economic growth since it takes into account the standard of living of the society (Mankiw *et al.*, 1992; Barro & Sala-i-Martin, 2004). Others also used similar proxy measure for economic growth e.g. Levine and Renelt (1992), Shen *et al.*, (2010), Khawar (2005) and Garedew (2016). From the model, total physical capital is reduced to gross domestic capital; this is done to remove multicollinearity problem and double counting of the data in the model. Garedew (2016) describes the same procedure. Then, Gross Domestic Capital (GDK) is considered as a proxy for capital formation. Consequently, the model is modified as:

$$GDPpc = f(GDK, HK, LF, AID, FDI, OFI) \dots \dots \dots (4)$$

Where,

GDPpc denotes real GDP per capita

GDK denotes gross domestic capital formation

The government policy (fiscal structure) has a strong association between the economic performances of a particular country. This is because the economic growth is contingent on government policy environment through investment in transport and communication, institutional arrangement, good governance, basic infrastructure and so on (Easterly & Rebelo, 1993; Mohapatra *et al.*, 2016). Now, the dummy variable (D=1) is introduced to show regime change (from *Derg* to EPRDF<sup>3</sup>). Then, the growth model is expressed as:

$$GDPpc = f(GDK, HK, LF, AID, FDI, OFI, D) \dots \dots \dots (5)$$

Where,

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<sup>3</sup>Ethiopian People's Revolutionary Democratic Front

D denotes variable for regime change

The next step is expressing the variables in natural logarithmic form as recommended by Benoit (2011). There are two reasons to transform variables into logarithmic form in a regression model. *First*, it helps to handle situations where a non-linear relationship exists between variables. *Second*, it is convenient to transform a highly skewed variable into more approximately normal distribution. *Third*, it enables us to interpret the coefficient of the explained variable directly as elasticity with respect to the explanatory variables (Sarmad, 1988). Likewise, Mádr and Kouba (2015) used the same procedure of functional form. By doing so, the study attempts to look at the relative contribution and/or elasticity of each variable to the growth process. Accordingly, the final model of regression is the following:

$$\ln GDPpc_t = \beta_0 + \beta_1 \ln GDK_t + \beta_2 \ln LF_t + \beta_3 \ln HK_t + \beta_4 \ln AID_t + \beta_5 \ln FDI_t + \beta_6 \ln OFI_t + D + U_t \dots \dots \dots (6)$$

Where,

$\beta_0, \beta_1, \beta_2 \dots \beta_6$  denote parameters in the model

$GDPpc_t$  denotes real GDP per capita at time t

$GDK_t$  denotes gross domestic capital formation as a share of GDP

$LF_t$  denotes the sum of employed and unemployed labor at time t

$HK_t$  denotes human capital proxied by secondary, tertiary and vocational school enrollment as a share of population

$AID_t$  denotes flow of foreign aid as a percentage GDP at time t

$FDI_t$  denotes FDI as a percentage of GDP at time t

$OFI_t$  denotes OFIs as a percentage of GDP at time t

$D$  denotes dummy variable regime change<sup>4</sup>

$U_t$  denotes error term

$\ln$  denotes natural logarithm

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<sup>4</sup> See section two of this thesis

### 3.2 Research Hypotheses

The impact of capital inflows on developing countries has been extensively examined in empirical literature. In general, capital inflows are believed to have positive contribution on economic performance. However, empirical study shows its contribution to economic growth has always been the subject of controversy. The following table provides summary of the selected empirical studies.

**Table 3.1:** Summary of Main Findings of the Selected Empirical Studies

Author/s (year)	Methods used	Study area and Sample	Results
<b>Foreign aid and economic growth</b>			
Nwaog & Ryan (2015)	GMM and OLS	53 African countries, 1970 – 2009	Foreign aid and economic growth has positive relationship
Fentaye (2015)	Cointegration analysis	Ethiopia, 1974 to 2013	Aid is effective in promoting growth, but its effectiveness would have been higher if there is a sound macroeconomic policy environment
Haile (2015)	ARDL approach	Ethiopia, 1974 to 2011	Aid has negative impact on economic growth, but aid interacted with policy index has positive showing that the effectiveness of aid depends macroeconomic policy
Sahoo & Sethi (2013)	OLS	India, 1975/6 –2009/10	Aid has positive impact on both economic growth and development
Tashrifov (2012)	OLS	56 aid receiving countries, 1974-1993	Aid has a positive impact on real growth per capita, but this effect is not contingent upon the type of

			economic policies of host countries
Ndambiri <i>et al.</i> , (2012)	Panel data approach	SSA, 1982 to 2000	Aid has a negative contribution to economic growth in SSA
Javid & Qayyum (2011)	ARDL approach	Pakistan, 1960 to 2008	Foreign aid in aggregate form does not contribute in economic growth
Tiwari (2011)	GMM	28 Asian countries, 1998 to 2007	Foreign aid has a negative effect on economic growth
Tasew (2011)	Cointegration approach	Ethiopia, 1970 to 2009	Aid contributes positively to economic growth, but negative impact of the aid interactive policy
Feeny & McGillivray (2010)	GMM	SIDS, 1980 – 2004	Aid is effective at spurring economic growth but with diminishing returns
Asteriou (2009)	Dynamic panel	Five South Asian countries, 23 years	Aid has a positive contribution to GDP growth
Alvi <i>et al.</i> , (2008)	GMM	Developing countries, 1970-2001	Aid is effective only if host country have good policies
Karras (2006)	OLS	71 developing economies, 1960-1997	Aid has positive and significant effect on economic growth
Feeny (2005)	ARDL approach	Papua New Guinea, 1965 to 1999	No evidence that total aid contribute to economic growth
Fayissa & El-Kaissy (1999)	OLS	Eighty countries, 1971 - 1990	Aid has positive effect on economic growth in developing countries
<b>FDI and economic growth</b>			

Yaya (2015)		Ghana, 1971 – 2010	Strong evidence of bidirectional causality between FDI and GDP
Tahir <i>et al.</i> , (2015)	Cointegration	Pakistan, 1977 to 2013	FDI has positive role in the growth of economy over the study period.
Nwaog & Ryan (2015)	GMM and OLS	53 African countries, 1970 – 2009	FDI has a positive contribution to economic growth
Selamawit (2015)	Causality test	Ethiopia, 1980-2015	Positive relationship between FDI and real GDP growth
Almfraji & Almsafir, 2014	Review	Review, 1994 to 2012	FDI and economic growth relation is significantly positive, but not always
Sen <i>et al.</i> , (2014)	Panel cointegration	Argentina, Brazil, Thailand and Turkey, 1980 to 2011	FDI has direct relationship between inflows and GDP growth
El-Wassal (2012)	Dynamic panel	16 Arab countries, 1970 to 2008	There is limited or negligible impact of FDI on economic growth
Shen <i>et al.</i> , (2010)	OLS	80 countries, 1976 to 2007	FDI has positive effect on economic growth
<b>Remittances and economic growth</b>			
Oshota & Badejo (2014)	ECM	Nigeria, 1981 to 2011	Remittance has positive influence the economic growth in the long run
Marwan <i>et al.</i> , (2013)	Johansen Cointegration	Sudan, 1977 to 2010	Remittances found to have significant positive impacts on GDP growth
Tahir <i>et al.</i> , (2015)	Cointegration	Pakistan, 1977 to 2013	Remittances has positive contribution to the economic growth
Giuliano &	OLS	100 developing	Remittances promote growth in



Ruiz-Arranz (2009)		countries, 1975 to 2002	countries with less developed financial systems
Bettin & Zazzaro (2011)	OLS and GMM	66 developing countries, 1991-2005	Remittances benefits small group of countries with an efficient domestic banking sector
Uddin & Sjö (2013)	Johansen approach	Bangladesh, 1976 to 2011	Remittances together with the expansion of the financial sector drive the growth in GDP in long run, whereas in the short run, remittances act as a shock absorber to income changes
Feeny <i>et al.</i> , (2014)	GMM	Selected smaller countries, 1971 to 2010	No evidence that per capita income growth would lower in the absence of remittances
Mikias (2014)	ARDL approach	Ethiopia, 1981 to 2012	There is positive and significant impact of international remittance on economic growth in the long run only
<b>External debt and economic growth</b>			
Babu <i>et al.</i> , (2014)	Co-integration test	EAC, 1970 to 2010	External debt expansion has a negative effect on economic growth
Mbah <i>et al.</i> , 2016	ARDL approach	Nigeria, 1970 to 2013	External debt has negative impact on output.
Genc and Tandogan (2015)	ARDL approach	Turkey, 1971 to 2011	External debt has negative effect but insignificant
Mohd Daud & Podivinsky	GMM	31 developing countries, 1991 –	Increase in external debt stock declines the growth rate of per

(2012)		2009	capita
Mulugeta (2014)	VECM	Ethiopia, 1983/84 to 2012/13	The external debt and real GDP has positive relationship
Genet (2016)	VAR	Ethiopia, 1981/82 – 2013/14	Debt servicing negative impact on economic growth in the long-run and short-run

Source: Author's Compilation, 2017

One can understand that the relationship between capital inflows and economic growth have mixed results. Based on the empirical review, the following research hypotheses have been formulated:

***Hypothesis 1:*** Foreign official aid has positive contribution to economic growth in Ethiopia

***Hypothesis 2:*** Foreign direct investment has positive contribution to economic growth in Ethiopia

***Hypothesis 3:*** Other foreign capital inflows has positive contribution to economic growth in Ethiopia

### 3.3 Data Sources and Measurement of Variables

The database of the World Bank (World Development Indicators, 2015), National Bank of Ethiopia (NBE) and UNCTAD are sources for economic variables. The study covers the period 1981 – 2014 (34 years) due to data availability and mainly includes the two regimes (*Derg* and *EPRDF*). In addition, the year 1991 is a break year due to a regime change. The following table describes the summary of variables and their respective sources.

**Table 3.2:** Summary of Description of Variables

Category of variable	Variable name	Description and/or proxy	Source
Dependent	Economic growth	Real GDP divided by the total population. Real GDP per capita is proxy for economic growth	WDI
Explanatory	Labor Force	The sum of employed and unemployed labor force	UNCTAD
Explanatory	Human Capital	Knowledge and skills that workers acquire through education and training (Mankiw, 2010) and school enrollment at secondary, tertiary and vocational as a share of population at time t is proxy for human capital.	WDI and NBE
Explanatory	FDI	Inflow of FDI as a percentage of GDP at a time t is proxy for FDI.	UNCTAD
Explanatory	ODA	Inflow of official foreign aid as a share of GDP at time t is proxy for ODA. Note that, aid for military and other non-development purposes are excluded	WDI
Explanatory	OFIs	Sum of inflows of remittances and external debt as a share of GDP at time t is proxy for OFIs.	WDI
Dummy	D	Regime change (the dummy variable D in the model)	NA

Source: Author's Compilation, 2017

### 3.4 Methodology

Descriptive analysis and econometric model have been employed to analyze the collected data. Descriptive analysis (line charts and tables) was used to describe the variables and to show the trend of variables. Then, econometric model (the ARDL approach) has been

employed since the ARDL approach has more advantages over others. *First*, the adoption of the ARDL co-integration technique does not require pretests for unit roots unlike other techniques (Nkoro & Uko, 2016). In other words, the ARDL technique is preferable when dealing with variables that are integrated of different order,  $I(0)$ ,  $I(1)$  or combination of both (Pesaran *et al.*, 2001). *Second*, the ARDL approach is robust when there is a single long run relationship between the underlying variables in a small sample size. That is, the ARDL technique provides a unified framework for testing and estimating of co-integration relations in the context of a single equation (Nkoro & Uko, 2016). *Third*, a dummy variable can be included in the co-integration test process if ARDL approach is applied (Rahimi *et al.*, 2011 cited in Garedew, 2016).

### **3.5 Method of Data Analysis**

Data analysis is essential for a scientific study and critical stage in interpreting numbers and extracting meaning (Mertens *et al.*, 2017). Before analysis, data were processed through manual and computerized system to edit, codify, classify and tabulate (Kothari, 2004). This would help to detect errors, anomalies and omissions in raw data. Consequently, Microsoft excel, Eviews 9.0 and Microfit 4.1 have been employed.

### **3.6 Procedures Undertaken**

#### **3.6.1 Stationarity Test**

Testing whether a time series data are stationary or not is very important. There are three reasons for which it is essential. *First*, the non-stationary series can strongly influence its behavior and properties. *Second*, it helps to avoid spurious regression that results from non-stationary data. *Third*, the standard assumptions of distribution will not be valid for non-stationary variables. That is, the usual  $F$ -statistic and  $t$ -ratios will not follow an  $F$  and  $t$  distributions respectively (Brooks, 2008). The most popular strategy for testing the unit root is the ADF and Philips–Perron tests (Nkoro & Uko, 2016). Both ADF and Philips–

Perron tests have been used to determine the degree of stationarity. Then, ADF test takes hypothesis –  $H_0$ : time series has a unit root and  $H_1$ : time series has no unit root.

### 3.6.2 Diagnostic Test

Through ARDL modeling the critical diagnostic tests – serial correlation, functional form, normality and heteroscedasticity will be applied. Moreover, examining the stability of the long-run parameters together with the short-run movements is vital. To test this, the cumulative sum (CUSUM) and cumulative sum squares (CUSUMSQ) tests have been used as proposed by Borensztein *et al.*, (1998).

### 3.6.3 Bound Testing Approach

The long run co-integration relationships between variables are determined through the ARDL approach as proposed by Pesaran *et al.*, (2001). The following ARDL equation has been adopted from Garedeew (2016).

$$\begin{aligned} \Delta \ln GDPpc_t = & \beta_0 + \theta_1 \ln GDPpc_{t-1} + \theta_2 \ln GDK_{t-1} + \theta_3 \ln LF_{t-1} + \theta_4 \ln HK_{t-1} + \\ & \theta_5 \ln AID_{t-1} + \theta_6 \ln FDI_{t-1} + \theta_7 \ln OFI_t + \sum_{j=1}^n \beta_{1j} \Delta \ln GDPpc_{t-j} + \\ & \sum_{j=1}^n \beta_{2j} \Delta \ln GDK_{t-j} + \sum_{j=1}^n \beta_{3j} \Delta \ln LF_{t-j} + \sum_{j=1}^n \beta_{4j} \Delta \ln HK_{t-j} + \sum_{j=1}^n \beta_{5j} \Delta \ln AID_{t-j} + \\ & \sum_{j=1}^n \beta_{6j} \Delta \ln FDI_{t-j} + \sum_{j=1}^n \beta_{7j} \Delta \ln OFI_{t-j} + \beta_8 T + \beta_9 D + \\ & U_t \dots \dots \dots (1) \end{aligned}$$

Where,

$\ln GDPpc_t$  – Natural logarithm of real GDP per capita at time t

$\ln GDK_t$  – Natural logarithm of GDK as a share of GDP

$\ln LF_t$  – Natural logarithm of the sum of employed and unemployed labor at time t

$\ln HK_t$  – Natural logarithm of human capital proxied by secondary, tertiary and vocational school enrollment as a share of population at time t

$\ln AID_t$  – Natural logarithm of foreign aid as a percentage GDP at time t

$\ln FDI_t$  – Natural logarithm of FDI as a percentage GDP at time t

$\ln OFI_t$  – Natural logarithm other foreign inflows at time t

$D$  – Dummy variable for the policy change

$U_t$  – The usual white noise residuals

$n$  – Lag length of the auto regressive process

$T$  – The time trend

$\Delta$  – The first difference operator

$\theta_1, \theta_2, \theta_3, \theta_4, \theta_5, \theta_6, \theta_7$  and  $\beta_{1j}, \beta_{2j}, \beta_{3j}, \beta_{4j}, \beta_{5j}, \beta_{6j}, \beta_{7j}$  are coefficients that measure long run and short run relationships, respectively

The hypotheses to determine a long run relationship between the variables is:

$H_0: \theta_1 = \theta_2 = \theta_3 = \theta_4 = \theta_5 = \theta_6 = \theta_7 = 0$  (no long run relationship)

$H_1: \theta_1 \neq \theta_2 \neq \theta_3 \neq \theta_4 \neq \theta_5 \neq \theta_6 \neq \theta_7 \neq 0$  (there is a long run relationship)

The critical values (CVs) (upper bound and lower bound) of F-statistics can be used to examine hypotheses (Pesaran *et al.*, 2001). The values provided by Pesaran *et al.*, (2001) cannot be used for small sample sizes since they were based on large sample sizes of 500 and 1000 observations (Naryan, 2005). Other values were generated by Naryan (2005) based on similar technique<sup>5</sup> as it was used by Pesaran *et al.*, (2001). These CVs are appropriate for small sample sizes ranging from 30 – 80 observations (Naryan, 2005).

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<sup>5</sup> GAUSS code

**Table 3.3:** Critical Values for the Bound Tests

CVs at 10 % level	CVs at 5 % level	CVs at 1 % level	Authors
(2.387 ; 3.671)	(2.864 ; 4.324)	(4.016 ; 5.797)	Naryan (2005)
(2.53 ; 3.59)	(2.87 ; 4.00)	(3.60 ; 4.90)	Pesaran <i>et al.</i> , (2001)

Note:

- If the calculated F statistics is higher than the upper bound of the CVs then we reject the null hypothesis of no cointegration
- If it is below the appropriate lower bound of the CVs, we cannot reject the null hypothesis
- If it lies within the lower and upper bounds, the result would be inconclusive

Source: Naryan (2005) and Pesaran *et al.*, (2001)

Once the long-run relationship among variables is confirmed, the long-run model can be estimated as follows:

$$\ln GDPpc_t = \theta_0 + \theta_1 \ln GDK_t + \theta_2 \ln LF_t + \theta_3 \ln HK_t + \theta_4 \ln AID_t + \theta_5 \ln FDI_t + \theta_6 \ln OFI_t + \theta_7 t + \theta_8 D + U_t \dots\dots\dots (2)$$

Then, the ECM is used to estimate the short-run dynamic parameters. Besides, it is used to determine the adjustment parameters that measure the speed of correction to long-run equilibrium after a short-run disturbance. Consequently, the standard ECM is estimated as follows:

$$\Delta \ln GDPpc_t = \beta_0 + \sum_{j=0}^n \beta_{1j} \Delta \ln GDK_{t-j} + \sum_{j=0}^n \beta_{3j} \Delta \ln LF_{t-j} + \sum_{j=0}^n \beta_{2j} \Delta \ln HK_{t-j} + \sum_{j=0}^n \beta_{4j} \Delta \ln AID_{t-j} + \sum_{j=0}^n \beta_{5j} \Delta \ln FDI_{t-j} + \sum_{j=0}^n \beta_{6j} \Delta \ln OFI_{t-j} + \beta_7 T + \beta_8 D + \delta ECT_{t-1} + U_t \dots\dots\dots (3)$$

Where,

$\beta_{1j}, \beta_{2j}, \beta_{3j}, \beta_{4j}, \beta_{5j}$  and  $\beta_{6j}$  denote coefficients that represents the short run dynamics of the model

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

$\delta$  denotes error correction parameter

### **3.6.4 Granger Causality Test**

In order to indicate the direction of causality between the dependent variable and the independent variables, Granger causality test has been applied. That is, causalities between aid and real GDP per capita, FDI and real GDP per capita, and OFIs and real GDP per capita have been performed.



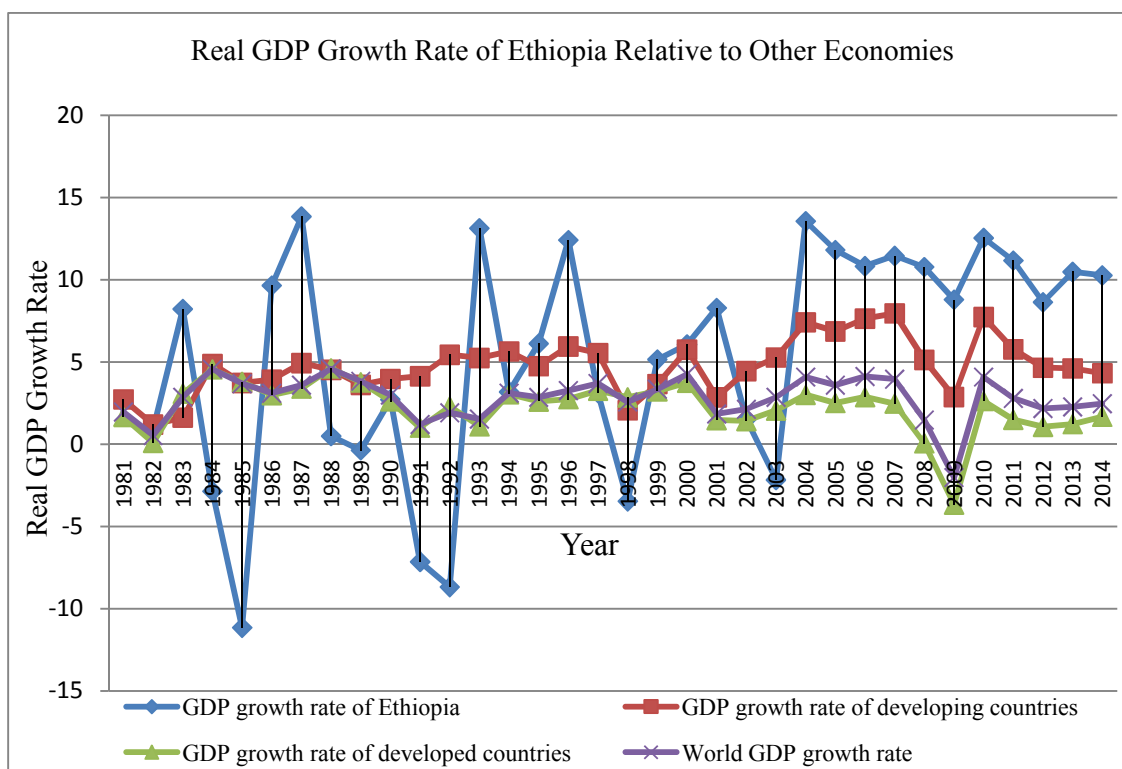
## **4. RESULTS AND DISCUSSIONS**

As discussed in section two, there has been continuous debate on whether capital inflows contribute to economic growth or not. The aim of this section is to analyze and discuss the empirical results from descriptive method and econometric model. Consequently, this part is organized into five sub-sections. Section 4.1 discusses the descriptive analysis. Section 4.2 presents econometric model testing including unit root, diagnostic, model stability and long run relationship tests. Section 4.3 explores econometric model results including dynamic long-run ARDL and short run estimates. The last section 4.4 presents the pair wise Granger causality results.

### **4.1 Descriptive Analysis**

This section presents the descriptive analysis of macroeconomic variables under consideration. The results are depicted by using line charts and tables, which help to understand the trend of economic variables under study. Besides, it allows us to make comparison of Ethiopia's GDP growth rate with other world economies.

Recently, Ethiopia is one of the fastest growing economies in the world (IMF, 2014). The performance of the Ethiopia's economy relative to other economies in terms of GDP growth rate is presented in the following chart.

**Figure 4.1:** Real GDP Growth Rate of Ethiopia Relative to Other Economies

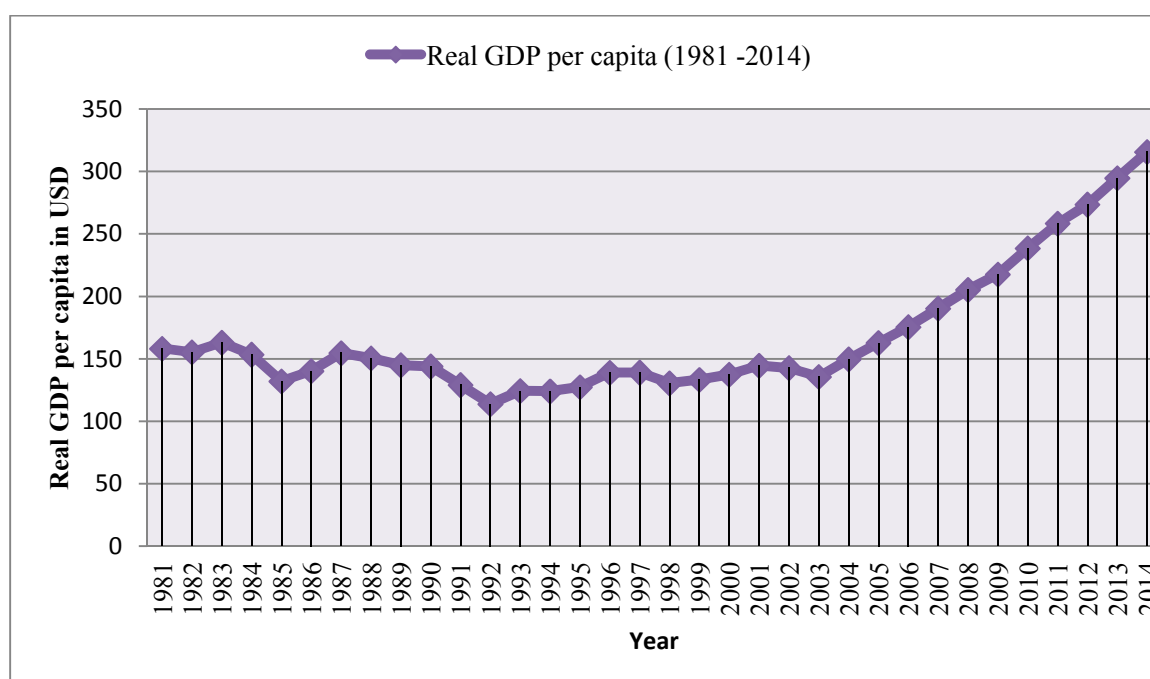
Source: Author's Computation, 2017

We observe large differences of GDP growth rate of Ethiopia between the two regimes (*Derg* and EPRDF). The figure 4.1 also allows us to obtain some insights into the fluctuation and irregularity of real GDP growth rate of Ethiopia. This is because the economy is mainly dominated by agricultural production and subject to number of shocks. Alemayehu (2011) also explains this result. One can see again the outlier year in terms of economic performance –negative and positive. *For instance*, the negative performance was due to nation-wide famine (1984 to 1985), political change (1991 to 1992) and Ethiopia-Eritrea War (1998 to 2000) (Abegaz, 1999). The positive performance was due to structural reforms (1995-1997) and relatively stable political situation in the country during EPRDF regime (Alemayehu, 2011). In conclusion, the economic performance of the *Derg* regime was poor mainly because of political instability (*e.g.* war with Somalia) and drought while the real GDP growth rate during

EPRDF regime shows better economic performance partly due to policy reform in the country as explained by Alemayehu.

Another interesting observation one can see again from figure 4.1 is that the real GDP growth rate of other developing countries in general and Ethiopia in particular is higher than the real GDP growth rate of developed economies, which supports the theory of convergence.

**Figure 4.2:** Ethiopia's Real GDP per capita



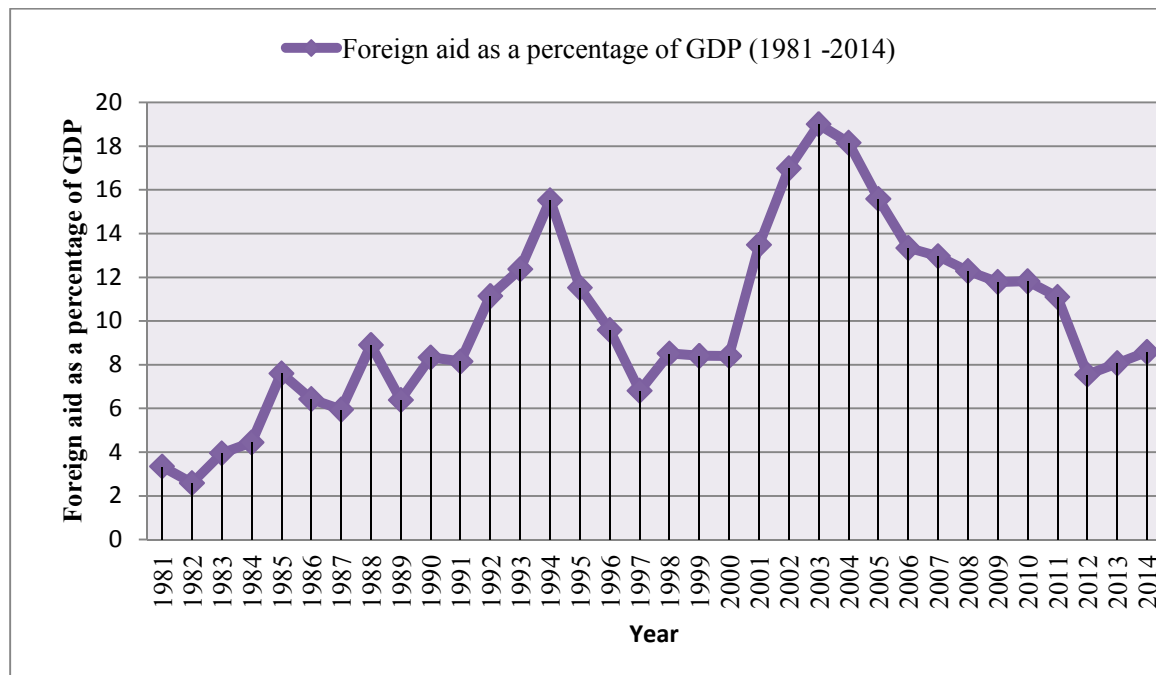
Source: Author's Computation, 2017

The real GDP per capita is one of the measurement of the output of a country. It is considered as the best instrument to measure the performance of one's economy. Figure 4.2 illustrates that the real GDP per capita has similar trend starting from 1981 to 2003. Conversely, the real GDP per capita is increasing at decreasing rate (2004 to 2014).

The flow of ODA is considered as one of the most important source of capital inflows for developing countries in general and Ethiopia in particular. Economic growth through

support for investment and reform and reduction of vulnerability of the economy are the prime objectives of entities providing aid in Ethiopia (Abegaz, 1999). However, achieving this objective is mainly in the hands of domestic government policies and institutional arrangement. The following figure shows the flow of ODA as a percentage of GDP.

**Figure 4.3:** Foreign aid as a percentage of GDP

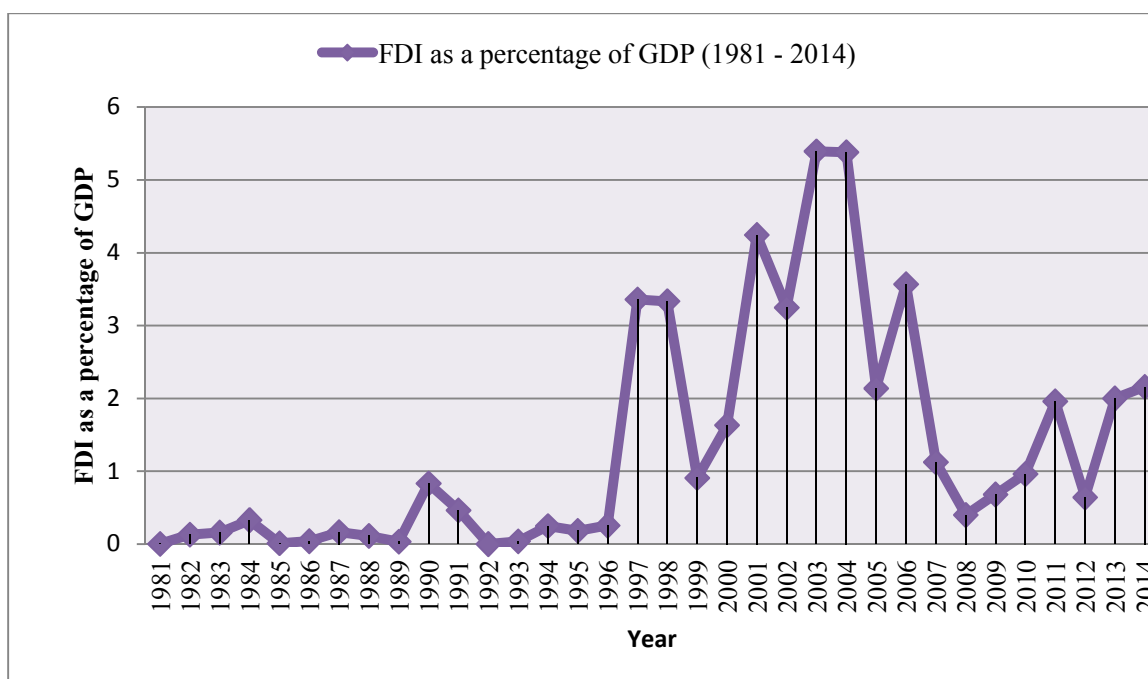


Source: Author's Computation, 2017

Figure 4.3 shows that the flow of ODA as a percentage of GDP is relatively increasing even during a *Derg* period. During a period of post-*Derg*, there was a sharp increase in the flow of foreign aid as a percentage of GDP (1992 to 1994). From 1994 to 2000, however, the flow of aid as a percentage of GDP declined significantly. With regard to EPRDF regime, there was a rise in the flow of aid particularly starting from 1992 to 1994 and from 2000 to 2003. On the other hand, there was continuous decline of aid flow from 2005 to 2012. During the EPRDF regime, the main entities that provided the aid are the US, the World Bank Group and the UK (OECD, as cited in Frederic & Melissa, 2013).

In general, the flow of FDI contributes to the production process through technology transfer and in turn, improves economic growth of host country. The trend of FDI as a percentage of GDP in Ethiopia over the period 1981 – 2014 is depicted as follows

**Figure 4.4:** FDI as a percentage of GDP



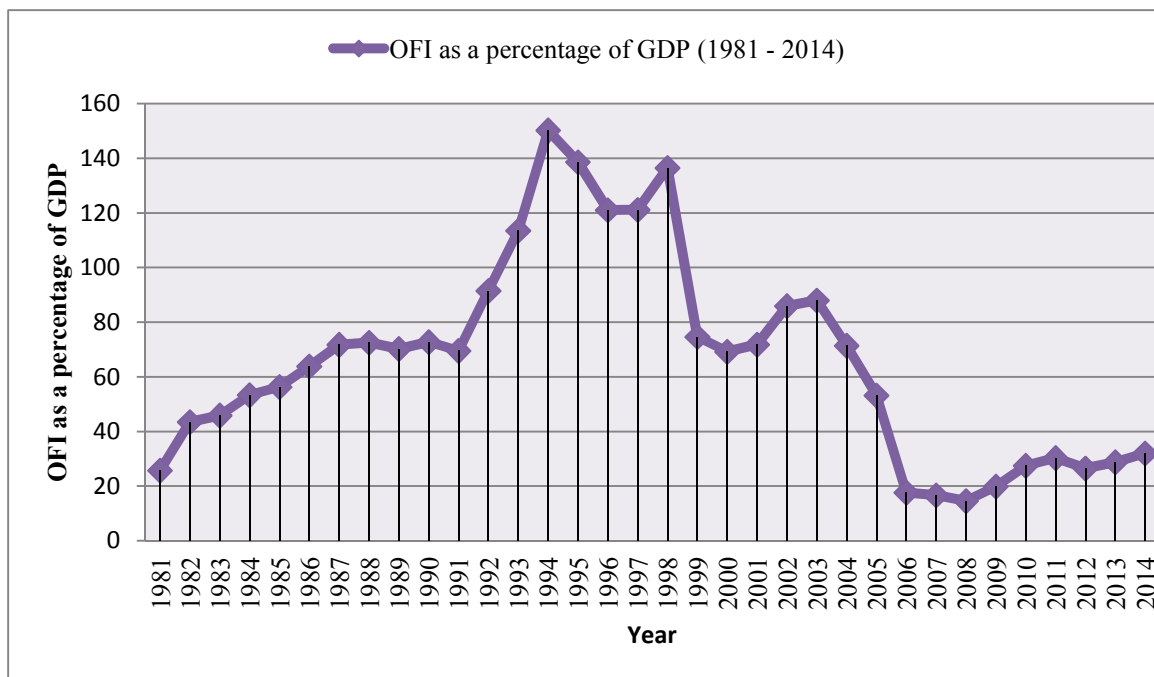
Source: Author's Computation, 2017

Figure 4.4 shows that the FDI as a percentage of GDP during the *Derg* (1981 to 1991) and early EPRDF regime was stagnant. On the contrary, *Post-Derg* regime (1991 to present) eliminates constraints of FDI and considerable attempt were made in creating conducive environment in order to attract investors as explained by Selamawit (2015). As described by Selamawit, the main FDI sectors in the country are agriculture (42 percent), manufacturing (45 percent), service (12 percent) and others like mining (1 percent). However, generally the flow of FDI was highly irregular during both regimes. In addition, in some cases the flow of FDI shows a unique behavior. For instance, a sharp decline of the FDI flow in 1999 was due to border conflict with Eritrea and the decline in 2008 reflected the global financial crisis. On the other hand, the flow of FDI rises in both

2004 and 2006 due to exploration of petroleum mainly in Ogaden region (UNCTAD, 2007 cited in Selamawit, 2015).

The flow of remittances and external debt are aggregated into OFIs. Accordingly, the result of OFIs as a percentage of GDP is presented as follows.

**Figure 4.5:** OFI as a percentage of GDP



Source: Author's Computation, 2017

It is quite understandable that the flow of OFIs during *Derg* and early post-*Derg* (1991 - 1994) has increased. This is mainly due to external flow of debt and in turn, external indebtedness significantly increased during 1980s to late 1990s since during this period there was internal war, which needed equipment and arms procurement (Garedew, 2016).

**Table 4.1:** Summary of Descriptive statistics\*

	AID	FDI	GDK	GDPpc	HK	LF	OFI
Mean	9.97	1.36	24.92	167.69	2.63	28972.25	66.09828
Median	8.75	0.66	23.45	147.39	1.86	26743.26	69.40296
Maximum	19.01	5.39	37.99	315.76	5.65	46397.16	150.2854
Minimum	2.59	0.002	14.07	113.88	0.78	17231.29	14.61635
Std. Dev.	4.13	1.60	7.00	51.79	1.58	8669.66	37.68065
Skewness	0.35	1.21	0.17	1.56	0.85	0.49	0.568588
Kurtosis	2.56	3.37	1.83	4.34	2.14	2.034	2.516812

\*all figures are rounded to conserve space

Source: Author's Computation, 2017

The summary of descriptive statistics enables us to present data in an easily understandable manner. For instance, the central tendency (mean, median) measures the position and distribution of data. Likewise, the measure of dispersion describes the variability of data.

## 4.2 Econometric Model Testing

Before discussing the econometric model results (dynamic long-run ARDL and short run error correction estimates), it is important to investigate whether the data fits the model under consideration. For this purpose, unit root test, diagnostic testing, model stability and test for long run relationship were employed. Note that, in all cases \*, \*\* and \*\*\* denote a significance level at 10%, 5% and 1%, respectively.

### 4.2.1 Unit Root Test

In order to test the presence or absence of unit root, the ADF and PP tests are used and the result of ARDL approach is presented in the following table.

**Table 4.2:** ADF Unit Root Testing

Variables	ADF t statistics at level			ADF t statistics at first difference	
	With intercept	With intercept and trend	None	Intercept	With intercept and trend
lnGDPpc	1.716362	0.509418	1.349724	-3.967187***	-3.466189*
lnGDK	-0.396381	-1.633760	1.648180	-5.457695***	-5.348008***
lnLF	0.918752	-1.146056	15.58772	-4.849892***	-4.910742***
lnHK	-0.237101	-1.486070	1.034818	-4.973212***	-4.983487***
lnAID	-2.823148*	-2.527571	0.204923	-6.158031***	-6.820832***
lnFDI	-1.483793	-1.918527	-1.692031	-7.511090***	-7.391537***
lnOFI	-1.442352	-1.978127	-0.084937	-4.453861***	-4.376273***
MacKinnon (1996) CVs					
The critical values	With intercept		With intercept & trend		None
1%	-3.679322		-4.309824		-2.636901
5%	-2.967767		-3.574244		-1.951332
10%	-2.622989		-3.221728		-1.610747

Source: Author's Computation, 2017

Based on ADF CVs, the null hypothesis (time series has unit root) is rejected. The result shows aid is stationary at level and other variables are stationary at their first difference. Phillips and Perron developed a comprehensive theory of non-stationarity and its result is depicted as follows.



**Table 4.3:** PP Unit Root Testing

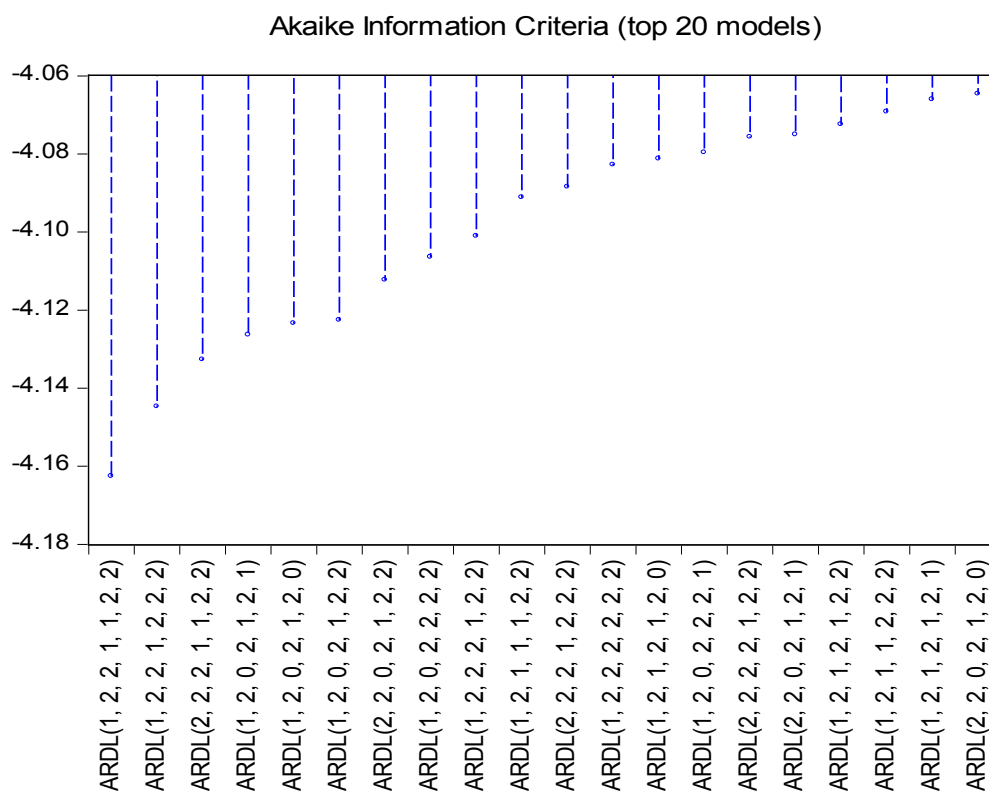
Variables	PP test statistics at level			PP test statistics at first difference	
	With intercept	With intercept and trend	None	With Intercept	With intercept and trend
lnGDPpc	1.449645	0.204503	1.468549	-3.889632***	-5.511407***
lnGDK	-1.746803	-3.637222**	1.807359	-15.43122***	-21.22862***
lnLF	0.905489	-1.146056	14.84684	-4.855804***	-4.869499***
lnHK	-0.313763	-1.561253	0.942681	-4.973212***	-4.983487***
lnAID	-2.353665	-1.837622	0.239375	-6.137847***	-6.773107***
lnFDI	-3.330801**	-4.236314**	-3.351161***	-9.415754***	-9.174909***
lnOFI	-1.537677	-2.342665	-0.084937	-4.418806***	-4.317903***

Source: Author's Computation, 2017

PP unit root test result shows that the GDK and FDI are stationary at level and other variables are stationary at their first difference. Both ADF and PP tests imply that, all variables are integrated at I(0) and I(1). Thus, ARDL approach is a preferred method for econometric analysis.

#### 4.2.2 Diagnostic Testing and Model Stability

Akaike information criterion (AIC) is used to determine the optimal lag length of each variable automatically since the size of sample taken for this study is small. Besides, Pesaran and Shin (1999) recommends that a maximum of two-lag length is appropriate for annual data.

**Figure 4.6:** Optimal Lag Length of Variables

Source: Author's Computation, 2017

A maximum lag length of two is selected for variables  $\ln\text{GDPpc}$ ,  $\ln\text{GDK}$ ,  $\ln\text{LF}$ ,  $\ln\text{HK}$ ,  $\ln\text{AID}$ ,  $\ln\text{FDI}$ ,  $\ln\text{OFI}$  and labeled as ARDL (1, 2, 2, 1, 1, 2, 2), respectively. This is done to get valid result and inferences through automatic determination of the lag length. We illustrate this in figure 4.6.

To check the reliability of the long-run and short-run models, diagnostic tests such as serial correlation (Brush and Godfray LM test), Functional form (Ramsey's RESET test), Normality (Jaque-Bera test), Heteroscedasticity (Breusch-Pagan-Godfrey test) were performed. In addition, it is important to check the overall stability of the long-run and short-run relationship of variables. For this purpose, the CUMSUM and CUMSUMSQ recursive residuals tests were applied as suggested by Pesaran *et al.*, (2001). Accordingly, the following table 4.4 presents this result.

**Table 4.4:** Diagnostic tests

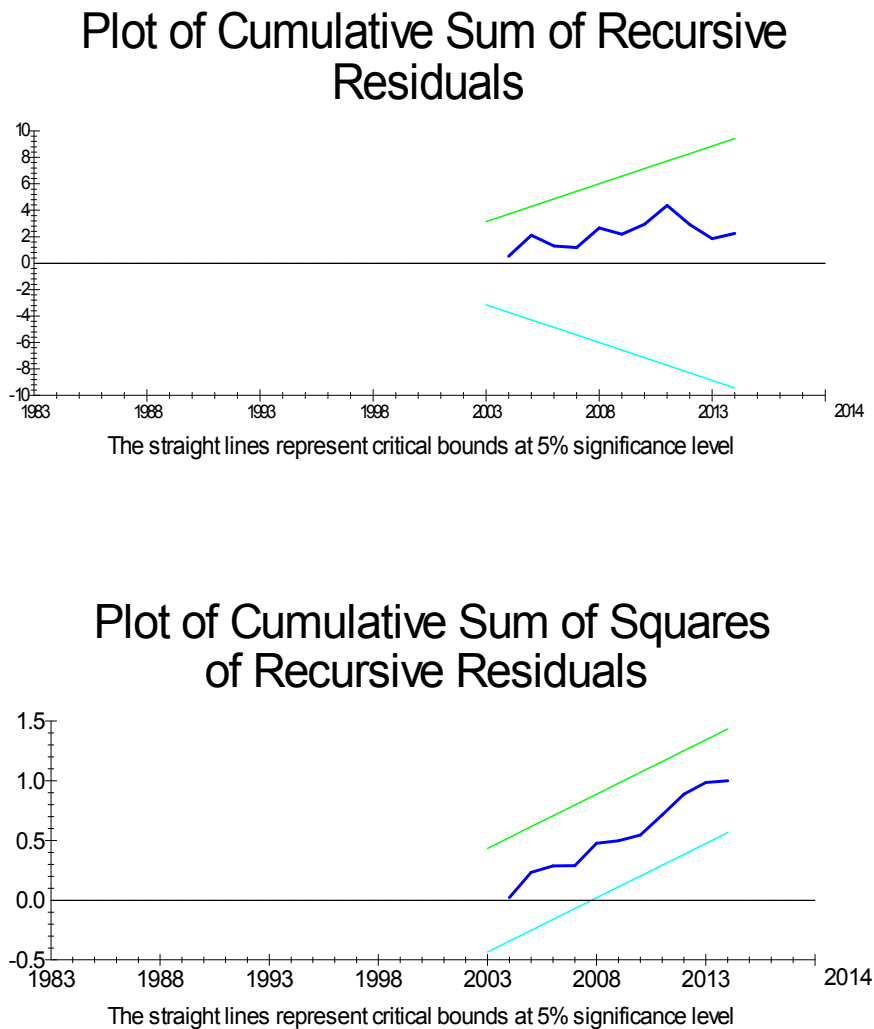
Test statistics	LM version	F version	Analysis
Serial Correlation	CHSQ(1)= .23416[0.628]**	F( 1, 11)= .081085[0.781]**	There no serial correlation because $0.628 > 0.05$
Functional Form	CHSQ(1)= 1.9355[0.164]**	F( 1, 11)= .70815[0.418]**	The model is correctly specified because $0.164 > 0.05$ .
Normality	CHSQ(2)= 3.4516[0.178]**	Not applicable	The residuals are normally distributed because $0.178 > 0.05$
Heteroscedasticity	CHSQ( 1)= 1.3513[0.245]**	F( 1, 30)= 1.3227[0.259]**	There is no heteroscedasticity problem due to $0.245 > 0.05$ .

Source: Author's Computation, 2017

The results of both LM and F versions of the statistic indicate that there is no serial correlation problem; the model is correctly specified; the errors are normally distributed and there is no heteroskedasticity problem in the model.

Model stability has been examined through CUSUM and CUSUMSQ tests as recommended by Pesearon and shin (1997). This also helps to identify the point of time where the structural break occurred.

**Figure 4.7:** CUSUM and CUSUMSQ tests



Source: Author's Computation, 2017

The figure 4.7 illustrates that the estimated coefficients are stable since the plot of CUSUM and CUSUMSQ recursive residual statistic moves between the critical bounds. This implies that there is no structural instability in the model during the period under investigation. Thus, the model appears to be stable in estimating long run and short run relationship between variables.

### 4.2.3 Tests for Long Run Relationship

The F-statistic (Wald test) is used to confirm the long run relationship of the underlying variables. The F-statistic should exceed the CV to establish the long run relationship of the series. Consequently, the following table is developed which compares the F-statistic with the upper and lower bounds of CVs.

**Table 4.5:** Bound test for co-integration analysis

Description	Values
Number of observations	34
Optimal lag length of the model	2
Calculated F- statistics	8.995230

Source: Own Computation, 2017

Pasaran *et al.*, (2001) and Naryan (2005) provide the CVs for bound test with unrestricted intercept and trend. Consequently, CVs are 3.60 for lower bound and 4.90 for upper bound, 2.87 for lower bound and 4.00 for upper bound, and 2.53 for lower bound and 3.59 for upper bound are significant at 1%, 5% and 10% respectively. Similarly, CVs by Naryan (2005) are 3.80 for lower bound and 5.643 for upper bound, 2.797 for lower bound and 4.211 for upper bound, and 2.353 for lower bound and 3.599 for upper bound are significant at 1%, 5% and 10% respectively.

The calculated F-statistic is 8.99 and this value exceeds the upper bound critical values, which were provided by Pasaran *et al.*, (2001) and Naryan (2005). The results show that there is evidence of long-run association between log of real GDP per capita and the explanatory variables. Thus, we reject the null hypothesis, which states that there is no co-integration.

## 4.3 Econometric Model Results

### 4.3.1 Dynamic Long-run ARDL Estimates

The following table presents the result of econometric regression model that shows the long run coefficient of variables under study.

**Table 4.6:** Estimate of Long run Coefficients

Dependent variable is lnGDPpc				
Regressors	Coefficients	ST. Error	T-Ratio	Prob. Value
lnGDK	0.48708	0.084023	5.7970	[0.000]
lnLF	5.0532	1.8374	2.7502	[0.018]
lnHK	-0.068337	0.096890	-0.70531	[0.494]
lnAID	-0.35523	0.032820	-10.8235	[0.000]
lnFDI	-0.035188	0.010579	-3.3263	[0.006]
lnOFI	-0.050531	0.030696	-1.6462	[0.126]
dummy (D)	0.19789	0.11948	1.6563	[0.124]
Constant (C)	-44.8967	17.8381	-2.5169	[0.027]
Trend (t)	-0.13113	0.056600	-2.3168	[0.039]

Source: Own Computation, 2017

In the long run, the GDK has a significant and positive impact on the real GDP per capita. Keeping other things remain constant, a one percent change in the log of gross GDK leads to a 0.48 percent increase in the log of real GDP per capita in the country. This implies that the existing physical equipment, buildings and machinery that are used in the production process has a positive contribution to the growth of Ethiopia's economy. This corroborates that the capital stock is critically important as a component of final aggregate demand and it has an impact on the economic growth and employment opportunities (Ghali, 1998). Others also concluded similar findings on the role of capital stock on economic growth (Iftikhar *et al.*, 2016; Li *et al.*, 2015). One can conclude that

the capital accumulation leads to the improvement of labor productivity and in turn, promotes growth.

One can see from the table 4.6, the labor force has positive and significant impact on real GDP per capita in the long run. Holding other things constant, a one percent increase in labor force leads to a 5.05 percent increase in real GDP per capita. The other identified variable that determines economic growth is human capital. It includes skills acquired through education, training and experience that play an important role in the technological progress (Mankiw, 2008). The model result revealed that human capital is insignificant in affecting real GDP per capita in the country.

As table 4.6 shows, the log of foreign aid has a negative and significant impact on the log of real GDP per capita. That is, holding other things constant, a one percent increase in the flow of foreign aid leads to a 0.35 percent decline in real GDP per capita. Thus, we fail to accept the hypothesis, which states that there is positive and significant relationship between foreign official aid and economic growth in Ethiopia. Put differently, it has confirmed that there is a negative and significant relationship between foreign official aid and economic growth in Ethiopia. This finding supports Ndambiri *et al.*, (2012) and Mallik (2008). They explained that the important ingredients are missing to stimulate the economic growth through flow of ODA in developing countries. This is the reason why the contribution of foreign ODA to the economic growth has mixed results. In this regard, Moyo (2009) explained that foreign aid fosters, even facilitates corruption in developing country, particularly in Africa. Further, she stressed that the flow of foreign aid is so susceptible to theft that it has created a vicious cycle in which many rulers actively promote continued dependency. On the other hand, World Bank (1998) contends that the flow foreign aid leads to economic growth in host country with good policy environment and sound institutional arrangement.

The importance of FDI has been increasing from time to time because of globalization process. As a result, it is widely recognized that the flow FDI as a source of employment, transfer of technology and in turn, promotes economic growth of host country. However,

the positive contribution of FDI to economic growth in developing country is questionable. In this regard, a number of academic researchers studied this problem by arguing that the benefits of FDI depend on the economic environment of the host country. This is exactly what happened in Ethiopia during the study period. The result is shown in Table 4.6. From the ARDL regression result, in the long run, the flow of FDI negatively affects the economic growth. Keeping other variables constant, a one percent change in FDI could result in a 0.035 percent decline in real GDP per capita. The likely explanation to this negative effect of FDI on host country's economic growth includes poor institutional arrangement, insufficient openness to trade, inadequate basic infrastructures and regulatory frameworks (Kurtishi-Kastrati, 2013). There are also preconditions for FDI to contribute to the economic growth in the host countries. These are better human capital and competitive financial development (El-Wassal, 2012). In this regard, Gök & Doğruel (2016) argued that infrastructure investment in developing countries is not strategic to facilitate environment for investment. Even in most cases, it leads to wasting of resources and may not contribute to economic growth. Therefore, we fail to accept the hypothesis, which states that there is positive and significant relationship between FDI and economic growth in Ethiopia. Put differently, the flow of FDI has a negative effect on the economic growth in Ethiopia. On the contrary, some authors' provided the evidence that there was a positive and significant relationship between FDI and real GDP growth (Tahir *et al.*, 2015; Selamawit, 2015).

The study also examined the relationship between OFIs and real GDP per capita. The result shows that OFIs are found to be insignificant in affecting real GDP per capita. This finding is consistent with the findings of Genç and Tandoğan (2015) and Tchereni *et al.*, (2013). The other variable in the model is the dummy variable for policy change and it is found to be insignificant impact on real GDP per capita. Conversely, a time trend has a negative and significant impact on the real GDP per capita. Keeping other variables constant, a year change of the time trend causes the real GDP per capita to decline by a 0.13 percent.



### 4.3.2 Dynamic Short Run Error Correction Estimates

**Table 4.7:** Short Run Error Correction

Dependent variable is DlnGDPpc				
Regressors	Coefficients	ST. Error	T-Ratio	Prob. Value
DlnGDK	0.16746	0.041463	4.0388	[0.001]
DLF	2.6772	1.7511	1.5289	[0.144]
DlnHK	0.095140	0.062436	1.5238	[0.145]
DlnAID	-0.23220	0.038921	-5.9659	[0.000]
DlnFDI	0.0012009	0.0072981	0.16455	[0.871]
DlnOFI	0.026169	0.030162	0.86761	[0.397]
Dummy (dD)	0.16719	0.099132	1.6866	[0.109]
DConstant (dC)	-37.9324	16.0826	-2.3586	[0.030]
DTrend (dt)	-0.11079	0.050230	-2.2057	[0.041]
ECM	-0.84488	0.14162	-5.9660	[0.000]
R-Squared	0.94401		R-Bar-Squared	0.85535
F-stat. F( 13,18)	15.5625[.000]		DW-statistic	2.1129

Source: Author's Computation, 2017

The short-run ARDL estimate indicates that, gross domestic capital formation has a significant positive impact on real GDP per capita. Keeping other things constant, a one percent change in log of GDK leads to a 0.16 percent increase in log of real GDP per capita. This is similar to the long-run result, implying the importance of the existing supply of physical capital that are used in the production process.

The coefficient of the flow of foreign aid indicates a negative and significant effect on economic growth. This is also consistent with the result of long-run model. This negative coefficient of foreign aid indicates that when it increases by one percent, real GDP per

capita income declines by 0.23 percent. Unlike long-run analysis, the short run estimate shows that FDI is insignificant and it does not have an impact on real GDP per capita.

In the sort-run, a time trend also has a negative and significant impact on the real GDP per capita. This is consistent with the long-run result. Keeping other things constant, a year change of the time trend causes real GDP per capita to decline by 0.11 percent. Moreover, log of human capital, log of labor force, log of OFIs and dummy variable are found to be insignificant in affecting economic growth in the short-run.

The adjustment speed towards long-run equilibrium shows a highly significant value of -0.845. This implies that there is a high speed of adjustment to equilibrium after a shock. Put differently, about 84.5 percent of the disequilibrium from the previous year's shock converges back to the long-run equilibrium in the current year. This also confirms the existence of a stable long run relationship among variables.

#### 4.4 The Pair Wise Granger Causality Results

To identify the direction of causality between the dependent and independent variables, a Granger causality test is undertaken. We present this in the following table.

**Table 4.8:** Pair Wise Granger Causality Test

Null Hypothesis	Lag length 1		Lag length 2	
	F-stat	Prob. Value	F-stat	Prob. Value
lnAID does not granger cause lnGDPpc	6.37431	0.0171	3.35151	0.0501
lnGDPpc does not granger cause lnAID	0.78271	0.3833	0.54341	0.5870
lnFDI does not granger cause lnGDPpc	0.08225	0.7762	3.61604	0.0406
lnGDPpc does not granger cause lnFDI	0.51774	0.4774	3.61532	0.0406
lnOFI does not granger cause lnGDPpc	0.30314	0.5860	0.37266	0.6924
lnGDPpc does not granger cause lnOFI	1.03505	0.3171	0.68922	0.5106

Source: Author's Computation, 2017

At lag length one, there is a unidirectional causality between  $\ln AID$  and real GDP per capita. This implies that foreign aid causes real GDP per capita to change but real GDP per capita does not cause foreign aid to change. This result is similar to that of Tesfahun (2014). In the case of lag length two, there is a bi-directional relationship between  $\ln FDI$  and real GDP per capita. This implies that FDI causes real GDP per capita to change and a change in real GDP per capita causes FDI to change. This result is similar with Yaya (2015). However, there is no causal relationship between OFIs and GDP per capita in Ethiopia during the study period.

## **5. CONCLUSION AND IMPLICATIONS**

Based on the findings of the study, the conclusions and implications are discussed in this section. The conclusions are drawn based on the research objectives and implications are forwarded to policy makers, researchers and others.

### **5.1 Conclusion**

The main objective of this study is to examine the relationship between FCIs and economic growth in Ethiopia over the period 1981 to 2014. In order to achieve this objective, the ARDL model has been employed. The explained variable under consideration is economic growth (real GDP per capita). The explanatory variables are foreign aid, FDI and OFIs (remittance and external debt). These variables are proxied by foreign aid as a percentage of GDP, FDI as a percentage of GDP and OFIs as a percentage of GDP. In addition, GDK, labor force and human capital were included in the model. This study, unlike others, aggregates all components of capital flows into FCIs. Put differently, the results from other studies were inconclusive because there was disaggregation of each component of capital inflows. Moreover, the study attempted to narrow the gap of methodological limitations by using ARDL approach. Furthermore, the flow of remittances and external debt were aggregated into OFIs.

The data obtained from WB, UNCTAD and NBE were analyzed using descriptive and econometric modeling analysis. The overall result from descriptive analysis showed irregularities in most of the macroeconomic variables. Prior to analyzing the econometric model results, econometric tests were performed to examine whether the data fit the model under consideration. In particular, ADF and PP unit root tests were employed to test the stationarity of time series data. The ADF results showed that aid was stationary at  $I(0)$  at 10 percent level of significance and the remaining variables were stationary at their first difference. On the other hand, the PP unit root test result showed GDK and FDI were stationary at  $I(0)$  at 5 percent level of significance and the remaining variables were stationary at their first difference. In addition, the reliability of the long run and short run

models of diagnostic tests like serial correlation, functional form, normality, and heteroscedasticity were performed and checked. Moreover, CUMSUM and CUMSUMSQ recursive residuals tests were utilized to check the stability of the model and the result revealed that the model was stable. Furthermore, in order to determine the optimal lag length of each variable, AIC was used since it was a more preferred choice for the small sample size.

Both in the long run and short run, there is a significant and direct relationship between GDK and real GDP per capita. Labor force is another explanatory variable that has been considered in this study and in the long run, it has a positive and significant contribution to the growth of Ethiopia's economy. On the other hand, both in the long run and short run, human capital is insignificant in determining economic growth in Ethiopia.

As we discussed in the empirical review part, the contribution of FCIs to economic growth is a debatable issue. The study investigated the relationship between foreign aid and real GDP per capita. The long-run coefficient of aid has a negative and significant effect on the growth of Ethiopia's economy. This is mainly because the funds are not always connected to the productive sectors. In addition, poor institutional arrangement and corruption explain the indirect relationship between foreign aid and economic growth. The short-run result is consistent with the result in the long-run analysis. This conclusion supports the findings of Ndambiri *et al.*, (2012). Moreover, Moyo (2009) argued that massive transfers of foreign aid is so susceptible to theft and promote continued dependency.

In most cases, FDI is believed to be a positive contribution to the economic growth. However, this study finds that FDI has a significant and negative contribution to the economic growth of Ethiopia. This is because of inadequate infrastructure, poor institutional management, poor governance and inadequate skilled human power. This conclusion is similar to that of Gok & Dogruel (2016). The other explanatory variable is OFIs and it is insignificant in affecting real GDP per capita in Ethiopia. The result is consistent to that of Genç & Tandoğan (2015) and Tchereni *et al.*, (2013). The short run

dynamic ARDL result shows that there is a high speed of adjustment to equilibrium after a shock. Finally, the study confirms that there is a unidirectional relationship between foreign aid and real GDP per capita whereas a bidirectional relationship exists between FDI and real GDP per capita. However, there is no causal relationship between OFIs and GDP per capita in Ethiopia during the study period.

## 5.2. Implications

From the findings, foreign aid and FDI have a negative and significant impact on the real GDP per capita in Ethiopia. This implies that the over-dependence on the foreign capital flows is both adverse and unreliable in determining the economic growth. In relation to foreign aid, on one hand, the study recommends that Ethiopia's government has to ensure that, foreign aid is linked to productive sectors and the government has to pursue policies device to reduce its over-reliance on foreign aid on the other hand. In this regard, the government can mobilize domestic resources through capital market since it is an easy way to start and fund resources themselves as recommended by Moyo (2009). The author of this study agrees with the second idea, which is an internal mobilization of funds. This is because most of the donors are providing funds to keep their interest in the recipient countries. Put differently, when the recipient countries change the political and economic situations against the donors, the aid will certainly decline considerably<sup>6</sup>. To get the benefits of FDI, the government of Ethiopia has to play a significant role in ensuring better institutional arrangement and sound macroeconomic policies, which are necessary requirements.

Finally, exploring different components of FCIs is vital to recognize the important variables that determine economic growth in different periods. This requires conducting intensive research with different models in the area. The current study investigates FCIs and real GDP per capita but it does not consider policy environment as a variable. It is the

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<sup>6</sup> This was exactly happened in Ethiopia during the *Derg* regime

author's view that future research could, therefore, examine the FCIs by considering policy environment and covering large sample size.

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