



**ST. MARY'S UNIVERSITY  
SCHOOL OF POST GRADUATE STUDIES**

**IMPACT OF FOREIGN DIRECT INVESTMENT ON ETHIOPIAN  
ECONOMIC PERFORMANCE: A VECTOR ERROR CORRECTION  
MODEL**

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**SCHOOL OF POST GRADUATE STUDIES**  
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**Impact of Foreign Direct Investment on Ethiopian Economic Performance: A  
Vector Error Correction Model**

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ART IN DEVELOPMENT ECONOMICS**

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**JUNE, 2017**  
**Addis Ababa, Ethiopia**

## **DECLARATION**

I declare that this MA Thesis is my original work, has never been presented for a degree in this or any other university and that all sources of materials used for the thesis have been duly acknowledged.

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## **ENDORSEMENT**

This thesis has been submitted to St. Mary's University, School of Graduate Studies for examination with my approval as a university advisor.

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June, 2017



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## **ACRONYMS AND ABBREVIATION**

AIH	Absolute Income Hypothesis
EEA	Ethiopian Economic Association
EIA	Ethiopian Investment Agency
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
IMF	International Monetary Fund
LDCs	Least Developed Countries
MA	Mergers and Acquisition
MNEs	Multi National Enterprises
MoFED	Ministry of Finance and Economic Development
MPC	Marginal Propensity to Consume
MPS	Marginal Propensity to Save
NBE	National Bank of Ethiopia
PIH	Permanent Income Hypothesis
SDG	Sustainable Development Goals
SSA	Sub Saharan Africa
TNCs	Trans National Corporations
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
WDI	World Development Indicators

## ABSTRACT

*There is a general consensus that Foreign Direct Investment (FDI) will do more good than bad to the economic performance of a host country. However, the net effect of the inflows of foreign capital in the form of FDI depends on the specific characteristics of the host country as well as on the state of economic development that prevails in the host country. The main purpose of this study is to analyze the impact of FDI on the economic performance of Ethiopia by using time series data for the period ranging from 1971 to 2015 using aggregate national data. The research employed Vector Error Correction Model (VECM). The result showed that all the variables are non stationary at level but they become stationary after first differencing indicating that all the variables are integrated of the same order and also that the results of cointegration test indicates as there is cointegration among the variable meaning that they do have tendency to move together in the long-run. The result of the study also shows that FDI inflows will have negative adverse effect on the performance of the Ethiopian economy in the long run but it has positive contribution in the short run. Therefore every policy actions with respect to FDI has to take into consideration the long run issues as well. More specifically the size of local content in the final products of foreign investors should be identified and included in terms of investment. Moreover the incentive packages provided for foreign investors should be certain so that the benefits from provisions exceeds the social costs incurred for the purpose.*

**Key words:** *Foreign Direct Investment, Economic Performance, and Vector Error Correction Model*

# 1. INTRODUCTION

## 1.1 Background of the study

In today's globalization where every country becomes under the influence of it, there is increasing global interdependence and integration following improvements in information technology. To access many of the economic benefits associated with international cooperation so that the nation could remain competitive in international markets and to insure better quality of life for its citizens, countries remove most of the trade restrictions and become more open to international market by exercising a series of reform agenda. As a result most of the economic sectors becomes open for foreign investment and increased capital movement across boarder to areas where it is most demanded. These capital flows take the form of foreign direct investment and portfolio investment, with FDI account for more than 60 per cent of the total private capital flow (Carkovic and Levine 2002; Alfaro *et al.*, 2004). While the motives for FDI is many, there is a general view that FDI, by its very nature, has a positive and favorable impact on economic performance when viewed from the perspectives of the host country. Empirical investigation of the economic impacts from FDI flows indicates as there is positive correlation between economic performance or growth and FDI flows (Anti 2013; Moyo 2013; Brenner 2014, Melnyk *et al.* 2014).

FDI is the net inflows of investment to acquiring long lasting management interest in an enterprise operating in an economy other than that of the investor (World Bank, 2014). Governments of developing countries are now giving more attention to the potential for private FDI in their economies. This is because many developing countries now desire to extend the market-price system and the private sector and to mitigate the external debt problem by attracting more private foreign investment. When a country suffers a resource or savings gap, it will also confront a foreign exchange gap that will have to be filled with an inflow of foreign capital. In macroeconomic terms when government expenditure plus private investment exceed government revenue and private savings, this internal imbalance will spill over into an external imbalance of imports greater than exports, and hence constitute foreign exchange gap. International financial intermediation is then required to fill the foreign exchange gap. This can be accomplished by loans from multilateral lending agencies and commercial banks, or by private foreign investment. While the former sources of foreign capital are flat or declining, FDI has considerable potential.

It is understandable why there is now a desire by developing countries to increase the equity/debt ratio on foreign capital: there are some relative advantages of FDI over foreign loans from the standpoint of balance of payments adjustment. Equity investment requires payments only when it earns a profit, but debt requires payments irrespective of the state of the economy. The host country can also control payments whereas the terms of the servicing of debt are set in international markets. In contrast to the need to service debt (amortization and interest), earnings from private foreign investment are frequently reinvested and only a part repatriated. With private foreign direct investment, both commercial risk and the exchange rate risk are passed on to the investor rather than having to be borne by the host government.

FDI can take one of the following forms; Mergers and acquisitions, building new facilities (Green field investment), renovating profits from overseas operations and intra company loans. In narrow sense FDI refers to building new facilities (Green field investment). FDI is defined as the net inflows of investment. Inflows minus outflows to acquire a lasting management interest (10% or more of voting stock) in an enterprise operating in an economy other than that of an investor (World Bank; 2012). It usually involves participation in management, joint venture, transfer of technology and enterprise. Therefore, FDI is an example of international factor movements. There are three types of FDI, these are: Horizontal FDI, this is when firm duplicates its home country based activities of the same value chain stage in the receiving country using FDI; platform FDI this is when a firm produces its output near the market where cost of production is minimum and lastly Vertical FDI that is when a firm through FDI moves up or down along the value chains to perform value adding activities and thereby internalize the production activities.

According to Todaro and Smith (2003), the contributions of FDI to the development of a country are widely recognized as filling the gap between desired investments and domestically mobilized saving, increasing the tax revenues, and improving management skill, helps in technology transfer, as well as improving labor skills in host countries. These are important ingredients for the host country to fight poverty by boosting its growth potential. By introducing advanced technology, management practices and improved production techniques, it is argued that FDI can improve productivity (Borensztein et al 1998).

For an economy in order to add to its capital stock and hence accelerate its growth it has to invest in desired level and quality. That is why investment is at the center of growth models. However

less developed countries are characterized by low level of domestic saving that is not sufficient to finance its desired investment. Consequently; there exists huge gap between the required rate of investment and the existing rate of investment.

Although many host governments perceive FDI as a potential threat to their sovereignty, they continue to offer foreign companies the incentives to invest. This is further highlighted by the continued rapid growth of FDI increasing over 183 percent in developing nations since 2010 (United Nations Conference on Trade and Development [UNCTAD], 2011). FDI continues to be a major contributor to these nations' capital formation.

The relative importance of FDI, its greater stability and its more diverse development impact compared with other sources of finance means that it remains an important component of external development finance to these economies. Over the past decade (2004-2014), FDI stock tripled in LDCs. FDI flows to developing countries now account for 55 per cent of the global total. Developing Asia drove the increase while flows to Latin America declined and those to Africa remained flat (UNCTAD, 2015). In the past decade (2001-2010) FDI inflows have been the most important external private capital flows for LDCs, exceeding foreign portfolio and other investments combined (UNCTAD, 2011). FDI does play an important role in LDCs and this importance has grown over the past decade, as evidenced by the expanding presence of the largest transnational corporations (TNCs).

Most LDCs have been making efforts to improve the investment environment over the years, for instance through, reducing taxes, establishing an investment promotion agency to better assist foreign investors and abolishing FDI related restrictions. Furthermore, increased attention has been paid by many LDCs to policy initiatives at the bilateral, regional and multilateral levels in order to enhance international cooperation in matters relating to FDI.

Ethiopia is one of the world's poorest countries. According to MoFED (2010), out of a population of more than 80 million, estimated 29.2 per cent of the population was living below the poverty line in 2009/2010. The Ethiopian economy has to grow at least at annual growth rate of 10% for more than two decades so that the country can attain the per capita income level achieved today by average Sub-Saharan African (SSA) countries. However, Ethiopia's gross domestic savings as



proportion of GDP is quite low, and it is unlikely to achieve this growth rate by mobilizing the meagre domestic savings (EEA, 2000 and 2007).

Following the liberalization of the Ethiopian economy in 1992, the government has provided various incentive packages to attract foreign investors. Numerous macroeconomic reforms have been implemented with the objective of achieving macroeconomic stabilization and growth. The macroeconomic reforms include privatization of state owned enterprises, liberalization of trade policy, reduction of import tariff rates, elimination of non-tariff barriers, devaluation and deregulation of price and exchange rate controls (UNCTAD, 2002). The Ethiopian Investment agency (EIA) was also established in 1992 to promote private investment, primarily foreign direct investment.

## **1.2 Statement of the Problem**

The multifaceted Sustainable Development Goals (SDG) in the post 2015 has put forward by united nations and goal number one is to end poverty in all its forms everywhere by 2030 and other desirable 16 more goals are included. The achievement of these goals contribute to improvement of world peace and security, stability of world economy and investment, reduction of international illegal migration and social unrest and above all it is a key to improvement in human development and welfare. However, realizing these goals requires strong international cooperation and high level of capital investment especially in LDCs where return on capital is higher as capital is scarce resource in those economies. Besides it is this part of the global community where poverty is most pervasive.

For almost all developing countries the size of domestic saving is not sufficient to finance domestic investment and the gap is bridged by sourcing capital from the rest of the world. One of the most common way to access such external capital is by promoting private foreign investment and Ethiopia is not exception. To this end the country has opened several economic sectors to foreign investors. The government has also issued several investment incentives. As a result; there has been a significant increase in the inflow of FDI in Ethiopia today when compared with past times.

Theoretically, FDI has been shown to boost economic growth through technology transfer and diffusion (Dimelis, 2005; Schneide, 2005), spillover effects, productivity gains, and the

introduction of new processes, managerial skills and know-how in the host countries (Girma, 2005; Li and Liu, 2005). In addition, FDI can create an international network that can help domestic products move across borders. Also, a number of studies including those by Barro and Sala-i-Martin (1995), Grossman and Helpman (1991), Hermes and Lensink (2003), suggest that FDI plays an important role in modernizing the economy and promoting economic growth in host countries, especially developing countries.

On the other hand, some authors found that there is no positive relationship in other country studies, or if there is any effect there is minimum economic effect. If foreign investment is directed toward more productive industries, the observed positive correlation will overstate the positive impact of FDI on growth. Aitken and Harrison's (1999) study of plant level data for Venezuela solves this problem and consequently finds no evidence of a positive technology spillover. This result was consistent with Haddad and Harrison's (1993) study using panel data for Morocco, which also concludes that the net effect of FDI on productivity is small. In the case of Aitken and Harrison's (1999) study they find that FDI raises productivity within plants that receive the investment, but lowers that of domestically owned plants; a finding that contradicts spillover theory.

Several empirical studies indicate that the growth effect of FDI is strongly dependent on the institutional circumstances of the host or receiving countries (Hermes and Lensink 2003). Still others find that FDI inflow is positively associated with economic growth only when countries have previously achieved a certain level of wealth (Blomstrom et al., 1994), education (Borenstein et al. 1998), or financial development (Alfaro et al, 2004; Hermes and Lensink 2003). On the other hand Carkovic and Levine (2002) find that these results are not robust when controlling for simultaneity bias, while Townsend (2003) confirms this result using data for less developed countries. Generally, the coexistence of positive as well as negative findings of relationships between FDI and growth indicates the generalization problem and look for further study on the subject.

The capital movement in to the country is encouraged just whenever government expenditure plus private investment is found to be greater than government revenue plus private savings which is a particular characteristic of developing economies and capital inflow is a must to sustain development if there is any in those economies. Capital movement can be in the form of long term loan from multinational companies or in the form of investment that could be portfolio investment

or direct foreign investment. Using FDI as a source of capital is more appropriate because the cost of capital and/or the yield of capital depend on the performance of the host country's economy that is to mean it is paid in the form of profit. Moreover unlike the borrowed capital the business risk as well as foreign exchange risk is assumed by the investors which are often inevitable in line with factor mobility. Furthermore, FDI is thought to have a positive effect on host countries' economy in the form of job creation, technology transfer, improving management skill of domestic firms, exposure to international market by domestic investors, introduction of new line of production, enhancing competitiveness of domestic firms which in fact depends on the nature as well as the behaviour of the firms (domestic and foreign) and improvement of the host country's balance of payment deficit just to mention a few (Moyo, 2013; World Bank, 2015)

Therefore, contribution of FDI to the host economy's GDP is one of the empirical questions that looks for close investigation. This study empirically analyses the relationship between FDI and economic growth in Ethiopia. The impact of foreign direct investment on growth depends on the socio-economic conditions of a country and this study attempts to focus on the significance of FDI on Ethiopian economic performance which government policy is focused on so as to bring up the welfare of citizens.

### **1.3 Research objective**

#### **1.3.1 . General objective**

The general objective of the study is to assess impact of foreign direct investment on Ethiopian economic performance.

#### **1.3.2 . Specific objectives**

- To understand the long run and short run relationship between foreign direct investment and economic growth in Ethiopia.
- To examine whether there exists causal relationship between FDI and Ethiopian economic performance.
- To examine the impact of other macroeconomic variables included in the study on the economic performance of Ethiopia.
- To examine causal relationship between FDI and major macroeconomic variables

#### **1.4 Significance of the study**

It is widely believed and accepted that FDI has done more good than bad to the economic performance of LDCs and it is recommended by World Bank and International Monetary Fund (IMF) for its wide implementation so as to address the immediate problems faced by those nations. This study will attempt to fill the knowledge gap that prevails for making appropriate decision on the relevance of FDI for specific country given its resource base, institutional make up and human resources. As a result this study will help policy makers to take appropriate measures while putting the necessary incentive measures that promote FDI and helps to monitor the contribution of FDI for short term and long term development objectives of the country. Moreover the result of the study would be helpful for determining the role of FDI for economic performance of Ethiopia empirically and to justify or refute the work of other researchers as the country is on the move to attract more size of foreign direct investment in the future.

#### **1.5 Scope and Limitation of the Study**

This study focuses on the analysis of the impacts of FDI on Ethiopian economic performance and thus it is country specific study. For this reason the conclusions derived from the analysis reflect the facts for Ethiopia. Moreover the study used secondary data from different sources which may be subjected to some abstractions that involve human element. Moreover the research used aggregate data at national level, as a result it fails to reflect the role of specific sector of the economy for the economic growth that is induced by the attraction of foreign investors to the country. Furthermore because the study used aggregate data the analysis does not address the role of FDI in terms of job creation, in terms of revenue generation, in terms of technology transfer that are the major channels through which the benefits from inflows of FDI are reflected on the economic performances of a given country. Likewise sectoral concentration of the inflows of foreign direct investment to identify where the FDI bears more fruit was not addressed in this study.

#### **1.6 Organization of the thesis**

The rest of the study is organized as follows: Review of related literature is presented in chapter two followed by research methodology which is presented in chapter three. The subsequent chapter

presents results and discussion and the final chapter presents conclusion and policy implications for future action.

## **2. LITERATURE REVIEW**

### **2.1 .Definition and Concept of Foreign Direct Investment (FDI)**

FDI are the net inflows of investment to acquiring long lasting management interest in an enterprise operating in an economy other than that of the investor (World Bank, 2014). Foreign investments can be categorized as two types: horizontal and vertical. Now a days, there is another type called the export platform type. The horizontal type of investment is to produce final goods in the same country in order to reduce transportation cost. It has been often observed in developed countries as a measure of penetration into a local market. The vertical type of investment is to produce labor-intensive products in a country where the labour cost is relatively low in order to reduce the production cost. The export platform type of investment is to produce final goods in a country that is close to the market in order to export the goods to the market with low transportation cost.

Based on the purpose of investment FDI can be classified as market seeking, resource seeking and efficiency seeking (UNCTAD, 1998). Resource seeking FDI is made to access natural resources such as minerals, raw materials, or lower costs for investor. For developing countries that are characterized by low level of capital, know-how and infrastructure, the availability of natural resources has been the main determinant of FDI. Market seeking FDI as explained by its name is taking place to have more market for one's output and to increase the market share. The availability of potential market backed with effective demand is the main motivating factor for investors to expend their capital in expectation of high return. The purpose of efficiency seeking is to acquire production of a given quantity at a given possible minimum cost. This is done by efficient allocation of activity of the firms. In this type of FDI international specialization whereby firms seek to benefit from differences in product and factor prices and risk diversification (Behrman, 1972).

Foreign direct investment is also classified into Greenfield investment, merger and acquisitions (M&A) and reinvested earnings. Greenfield investment includes any investment undertaken abroad where the finance is covered by capital raised in direct investor's country. Merger and acquisitions (M&A) refers to the transfer of ownership of a local productive activity and assets from a domestic to a foreign entity (UN, 1998 cited by Accolley). The profits that are not repatriated by direct investors but kept in the host country to finance future projects is referred to reinvested earnings. Furthermore FDI can be classified as Export oriented FDI, Market development FDI, and

Government initiated FDIs. Export-oriented FDI is made primarily for export purpose of raw materials or finished goods at lower cost of production to the rest of the world other than the host country. Market development FDI is production for sale in the host country's market: the primary purpose of which is import substitution. Finally, government initiated FDI is when the investment is initiated and subsidized by the host country's government. The purpose here is to reduce the rate of unemployment, for correction of balance of payment imbalance, to have faire distribution of investment capital among regions, for technology transfer, to have access to world market etc. (Accolley, 2003).

## **2.2 Theoretical literature**

### **2.2.1 Theories on economic growth**

Classical economists believe that the flexibility of price and wages will determine the supply (output) of goods and services and the demand for goods and services and this bring about full employment in the economy and hence leads to equilibrium level of production. According to this school the low of marginal productivitiy of investment and capital governs the decission by economic players. According to this paradigm, the economy will function best if left for market forces of demand and supply and advocates the laissez faire economy (Mankiw, 2010).

The Harrod-Domar theory of economic growth relates the growth to the amount the economy able to save and invest from its Gross National Product (GDP). According to Harrod-Domar model the higher the rate of saving the higher will be growth rate of national income and the more will be rate of capital formation. And also the higher the capital output ratio the lesser will be growth rate of national income. Thus for an economy to experience sustainable growth in the long run investment which is addition to capital stock is a key and increasing rate of saving and investment is a way towards growth process. The Harrod-Domar model also shows that the market mechanism may not provide stable growth rate in the long run as proposed by classical economists.

According to the Solow-Swan growth model (1956), the neoclassical growth theory, growth in output per worker is determined by stock of capital, by labour force and by technological progress. In this model output per labour increases as capital labor ratio increases but at a decreasing rate. This inturn implies existance of steady-state capital stock at which there is no change in level of

capital increase and hence the output also remain constant because at the breakeven where addition to capital stock through the process of saving and investment is equal with the rate of capital depreciation that is steady-state capital stock where the economy experiences no growth because of diminishing marginal product of capital. The model shows that the saving rate that determines the rate of investment is a key determinant of the steady-state capital stock. If the saving rate is high, the economy will have a large capital stock and a high level of output in the steady state. If the saving rate is low, the economy will have a small capital stock and a low level of output in the steady state. Higher saving leads to faster growth in the Solow model until the economy reaches a new steady-state. According to the Solow model, if a nation devotes a large part of its income to saving which is the same as investment, it will have a high steady-state capital stock and a high level of income and vice versa. The labor force has two effects on output per worker. One is high rate of population growth reduces capital labour ratio and can bring about decline in output per worker. On the other hand population is a source of technological growth through idea generation and increase in technology is source of sustained economic growth but assumed as exogenous in the Solow model. This is clearly stated as technological growth is a potential source of improved labour productivity. Higher labour productivity entails sustained economic growth for the economy(Mankiw 2010).

Solow-Swan model is criticized for its assumption that technological progress is determined exogenous to the model and considers as given. Moreover, attributing differences in output to differences in capital without considering differences in the effectiveness of labor implies large variations in the rate of return of capital (Lucas, 1990). Labour effectiveness is believed by economists as the only source of variation in income per capita growth rates across countries, but this driving force for long-run growth is exogenous to Solow-Swan. This limitation of the neoclassical growth model is addressed by endogenous growth models. Endogenous growth model provides theoretical foundation for persistent growth of output that is determined within the system of production process. An important implication of the new growth models is that economies with increasing returns to scale do not necessarily gravitate to steady-state level of income (Ucak, 2015).

Given the persistent growth in output by technological progress, income disparity between rich and poor countries may enlarge if richer countries make investments that leads to larger externalities such as research and development that is a potential source of knowledge the marginal product of



which is increasing and it has also large size of externality to the economy. Even if there is high rates of return on investment in those countries with low level of capital stock, its productivity is offset by low level of investment in human capital, infrastructure, or research and development. Thus the new growth models focuses on the importance of knowledge and technology to have effective labour that has high productivity per unit of capital and this is a potential way to achieve low capital output ratio desirable for the economy traveling forward to maintain and sustain high output labor ratio. As firms and workers are experienced on production they can produce more efficiently, which is called learning-by-doing. Arrow (1992) assumes that the technical augmentation factor is related to economy-wide aggregate capital in a process of “learning-by-doing” (Ucak, 2015).

### **2.2.2 Theories on Foreign Direct Investment**

Theories on FDI are organized into three schools. The first two are traditional schools of development thinking “ the dependency and modernization schools” and the third one is the integrative school (Wilhelms, 1998).

The dependency school flourished between 1960s and 1980s. Its focus on the consequences of foreign direct investment in developing countries was its major contribution to the concept and impact of FDI. The dependency school consists dependencia (neo-Marxist) and structuralist theories. According to the dependencia (neo-Marxist) sub school international trade and the multinational companies exploits developing countries through deteriorating terms of trade and transferring profits out of developing economies respectively. The structuralist sub school on the other hand assumes that industrialized countries and domestic centers (national capital) extract resources from the periphery, namely the poor countries or local countryside.

According to modernization school FDI is considered as a means to wards sustained growth and development. Thus for effective factor mobility the principles of free market need to be exercised by open economy to international trade and investment rather than being attached to closed economic system and also by abolishing excessive market distortions by state intervention to the free operation of price mechanism in the market places. The perfect market approach adopted by the modernization school is represented by the neoclassical and perfect market theories. According to neoclassical theories international capital flows is explained by differential rates of

return on capital from country to country that leads to capital arbitrage, with a capital seeking highest rates of return. But capital arbitrage theories fail to explain reason why private investment takes the form of FDI and also the empirical testing of the theories has not produced meaningful results. On the other hand perfect market theory assumes perfect competition among participants and market price is set based on demand and supply laws and market power is not taken over by neither producer or consumer as a result all participants in the market are assumed to be price takers, and there is free entry and exit, uniform products and there is no information asymmetry. Because of its over simplified assumption it again fail to help economies enjoy the full advantage of FDI benefits.

The imperfect market approach of modernization theory consists of industrial organization theory, the theory of the firm and internalization theory. According to industrial organization theory, FDI occurs usually in oligopolies where a small number of sellers exert control over the market. Such market imperfections can make it more efficient for firms to diversify or integrate vertically or horizontally instead of competing against one another. The theory of firm examines factors that influence a firm's choice of foreign investment instrument. Under the internalization theory since firms want to control risk and keep control and market share, they continue operations through a hundred percent subsidiary. Indicating that decisions involving foreign direct investment are market-driven.

The integrative school by combining concepts from dependency and modernization theories analyses FDI from the perspectives of investors and host countries. It is explained by the eclectic foreign direct investment paradigm, negotiation theory, and integrative theory. The eclectic paradigm examines FDI from the view point of firms, while the bargaining approach and integrative theory examines FDI from the perspective of host nation focusing on positive contributions of FDI not in a way that dependency theory explained it.

Denisia (2010) classifies theories of FDI as production cycle theory, the theory of exchange rates on imperfect capital markets, the internalization theory and the eclectic theory. The product lifecycle theory is first proposed by Raymond Vernon in 1966. According to this theory firms that discover a product in their home country through a series stages of development of a product undertakes FDI to produce the product in foreign country as it becomes more feasible to do so than producing in the home country alone. The product life cycle theory proposes that there are four

stages of life cycle: introductory phase, growth, maturity and decline phases. Firms undertake FDI at particular stage in the life cycle of the product they have pioneered. Vendor argues that firms invest in other advanced countries when local demand in those countries grows large enough to support local production. Therefore, in the early stage FDI is market oriented. When product standardization and market saturation give rise to price competition and cost pressures it subsequently shift production to developing countries. Because labour costs in developing countries is lower, investment in those economies is considered to be profitable especially when the sector of investment is labour intensive production. Thus latter stages of product life cycle FDI will be export oriented and motivated by cheap labour consideration. At the end of product cycle, the country where the product invented has become the net importer of the produce. However, this theory fails to explain the reason to undertake FDI rather than continuing to export from its home base and rather than licensing a foreign company to produce the product. Even though the product life cycle theory is applicable for some products it is not applicable for the vertically integrated MNEs (Kastrati, 2013).

The theory of exchange rates on imperfect capital market is the second theory which tried to explain FDI flows. In the empirical analysis made by Cushman (1985) shows that real exchange rate increases stimulated FDI made by USD while a foreign currency appreciation has reduced American FDI. However, currency risk rate fails to explain simultaneous FDI between countries with different currencies.

The internalization theory explains the growth of transnational companies and their motivations for achieving FDI. The theory was initially launched by Coase in 1937 in a national context and Hymer in 1976 in an international context. Buckley and Casson first developed the internalization theory in 1976. They reveal that transnational companies are organizing their internal activities so as to develop specific advantages, which then to be exploited. The market imperfections approaches to FDI referred to the internalization theory (Kastrati, 2013). According to Hymer (1976) foreign direct investment take place only if the benefits of firm specific advantages outweigh the relative costs of operating abroad.

The eclectic theory was developed by professor Dunning. This theory includes three different theories of FDI: Ownership-specific (O), location-specific (L), and internalization (I). This theory

states that these three factors (OLI) are important in determining the extent and pattern of FDI flows.

The ownership specific advantages include both tangible assets such as natural endowments, manpower, capital and intangible assets such as information technology, managerial, marketing skill, entrepreneurial skill and organizational systems. Firms have a monopoly over its own specific advantages and using them abroad leads to higher marginal profitability or lower marginal cost than other competitors (Dunning, 1973, 1980, 1988, cited by Denisia, 2010). Accordingly there are monopoly, technology and economies of large size.

The location advantage includes factor endowments, market structure, government legislation and policies, and political, legal, and cultural environments in which FDI is undertaken. The location advantages of different countries determine the host countries for the activities of transnational corporations. Thus each country will have three specific advantages. The first is economic benefits which refers to factors of production, transportation cost, telecommunication, market size and the like; second is political advantage that refers to governments policies that affect FDI flows and finally social advantage that refers to hospitality of the host country, cultural make up, distance between the country of investors and host countries etc.

Internalization by the firm is the action taken to produce and market by using its own internal subsidiaries moving up or down the value chain. Assuming the first two conditions are met, it is found to be profitable for the company to use these advantages together with some factors outside the country of origin (Dunning, 1973, 1980, 1988 cited by Denisia, 2010). Internalization helps the company to manufacture and supply raw materials for its own basic products maintaining the desired quality standards. This in turn helps the company to keep cost of production minimum that make the company competitive and profitable. Besides marketing functions internalized by the company helps to deliver the product where it is most valued that is key for sustainability of production by the firm.

Generally the eclectic paradigm of OLI reflects the specific merits attached to the host country and the investors that facilitate FDI flows. Infact there are both opportunities and challenges offered by a given country from which the investor choose the host country to maximize its objective of engaging in direct investment in countries other than its own. The managerial skills, business

experience, production technology, marketability of the products globally, the extent and type of competition faced in the host country, the capital size and etc by which the investor is characterized matters most to cope up with what it faced in the host country. Thus the challenges and opportunities offered by different types of countries will determine the magnitude and pattern of production as well as the objectives and strategies of the firms (Denisia, 2010).

### **2.3 Empirical literature**

There are mixed findings on the impact of FDI on the economic performance of host countries, some are supporting its positive contribution for economic growth and others come up with negative relationship between the two variables as there exists variation between countries in terms of economic, political, institutional and cultural environments. Alfaro (2003) examines the effect of foreign direct investment on growth in the primary, manufacturing and services sectors using cross-country data for the period 1981-1999. The study found that FDI has an inconclusive effect on growth. Whereas FDI in the primary sector found to have a negative effect, FDI in manufacturing sector tends to have a positive effect. Likewise Khaliq & Noy (2007) analyzes the impact of FDI on economic growth using sectoral data in Indonesia for the period 1997-2006. The result of the study shows that FDI has a positive effect on economic growth. However when the average growth performances of different sectors are taken in to consideration the impact of FDI will no more be positive. The FDI inflows in the mining and quarrying sector found to have negative impact.

Adewuni (2006) investigates the contribution of FDI to growth in Africa. The study uses a time series data for a panel of eleven countries over the period 1970-2003. The finding indicates that foreign direct investment has a positive but insignificant contribution to growth in most of the countries. Similarly Anna (2007) examines the impact of foreign direct investment on economic growth in China during 1994-2003. The results of the study indicates foreign direct investment had a positive but insignificant effect on economic growth.

Lund (2010) examines the causal relationship between FDI and economic growth in both developed and developing countries. The study uses panel cointegration and Granger causality techniques. The findings of the study were: (a) causality from FDI to GDP is more common in higher income countries; (b) causation is primarily running from economic growth to FDI in

developing countries. Meaning that the level of FDI flow is determined by the economic performance in developing economies not the other way round; and (c) FDI cause economic growth primarily in the manufacturing sector. Lamine (2010) also uses Granger causality test to determine the contribution of FDI on Guinea Republic's economic growth. The result of the study indicates that the contribution of FDI to economic growth was less.

Louzi & Abadi (2011) analyzes the impact of FDI on economic growth in Jordan using time series data from 1990-2009. The study applies cointegration and error correction mechanism. The result indicates the FDI inflows did not exert an independent influence on economic growth. On the other hand Koojaroenprasit (2012) explores the empirical impact of FDI on South Korean economy over the period 1980-2009. The study indicates that FDI has a strong and positive impact on South Korean economic growth. Likewise Gudaro et al. (2012) examines the impact of FDI in Pakistan for the period 1981-2010. The study result shows that there exists a significant positive relationship between gross domestic product and foreign direct investment. The study concludes that FDI is an essential determinant of economic growth in developing economies through technology transfer, by stimulating competition in the domestic market, and by its contribution to human capital development.

Juma (2012) estimates the impact of foreign direct investment on growth in Sub-Saharan Africa. The study uses panel of 43 countries over the period 1980-2009. The study indicated that foreign direct investment was associated with higher growth in Sub-Saharan Africa. In addition the study investigates for a difference in the effect of foreign direct investment on growth in mineral rich versus mineral poor countries. The results of the study does not found statistically significant difference among the two set of countries. On the other hand Umeora (2013) investigates the effect of foreign direct investment on gross domestic product, inflation and exchange rate in Nigeria. The study shows that foreign direct investment does not make gross domestic product to grow and has a negative effect on exchange rate.

Moyo (2013) analyzes the impact of foreign direct investment on GDP in Zimbabwe, post dollarization period. The results of the study shows that foreign direct investment has a very significant positive impact on economic growth. The study by Anti (2013) examines the impact of foreign direct investment on economic growth in Ghana. The result of the study indicates that there exists a long-run equilibrium and causal relationship between foreign direct investment and gross

domestic product. It also determines that in the short-run, effects of GDP and GNI volatility on FDI are nearly imaginary.

Brenner (2014) studies the effect of foreign direct investment on national economic growth with the help of GMM panel regression. The study separates the less and more developed countries as well as the time periods 1974-1991 and 1992-2009. The empirical analysis found that FDI has an effect on production capacities for more developed countries in the first time considered, while the effects on innovation activities are exist for the medium developed countries in the latter time period. The effects in less developed countries are found to be negative. Melnyk et al. (2014) investigates the impact of FDI on economic development of post communism transition economy countries. The study indicates that FDI had significant influence on economic growth of host countries.

In Ethiopia there are few studies on the impacts of foreign direct investment on economic growth. Remal (2012) empirically analyze the relationship between foreign direct investment and poverty for the period 1970-2009. The study uses co-integrated VAR approach. Accordingly foreign direct investment had a negative impact on economic growth and hence does not reduce poverty in the country.

Tibebu (2014) examines the relationship between FDI and domestic private investment using time series data over the period 1970-2012. The study shows that FDI crowds-out domestic private investment and also foreign direct investment does not have a significant effect on economic growth. The results of the study indicates in the long run economic growth have a significant positive effect on both foreign direct investment and domestic private investment.

Asmelash (2015) analyzes foreign direct investment in Ethiopia using co-integrated VAR approach over the period 1974/75 to 2013/14. The study took the determinant of FDI in Ethiopia such as infrastructure development, the domestic market size and growth potential, macroeconomic stability, human capital development, openness, and external debt and evaluate as to how they affect the inflow of FDI the result of the study indicates that in the long run variables such as infrastructure development, the domestic market size, human capital, openness, and external debt are found statistically significant positive relation, but the inflation rate is negatively related and statistically significant. However, in the short run there exists a negative relation between the gross

capital formation and inflation and they are statistically significant. Gross domestic product found to have positive significant relation with FDI. The study also indicates that there was bidirectional causality between gross fixed capital formation and foreign direct investment. The variables inflation, Gross Domestic Product, Debt Servicing, Openness and Human Capital does Granger-causes foreign direct investment but not the other way around.

Generally, in case of Ethiopia study conducted to measure the impact of foreign direct investment on the country's economic performance are few in number and the findings of almost all studies indicates as there is negative relationship between FDI inflows and the performance of the economy. In spite of empirical work's investigation as a developing country Ethiopia shows great interest to attract direct investment in various sectors of the economy by providing various incentive packages which is improving from time to time. And also looking after the potential opportunities in the country there is increasing trend of FDI flow to the country especially from emerging economies such as China and India. Given these facts the topic under investigation is believed to be less researched; meaning, the understanding and knowledge in the area is limited and the present study tries to address the issue by incorporating additional variables that help to explain the impact of FDI on the economic performance of the country using aggregate time series data. In today's fast changing global economic activities and global competition understanding the role of capital movement across borders is a key to look after the long run and short run strategy adopted in these economies.

## **2.4 Overview of FDI in Ethiopia**

According to the United Nations Conference on Trade and Development (UNCTAD), the flow of foreign investments fell from 0.6 billion USD in 2006 to 0.1 billion USD in 2008. Then, it started to increase gradually and reached at 1.2 billion USD in 2014, except for a fall in 2012. Similarly, the stock of foreign investments shows an increasing trend. It reached at 3 billion USD in 2006, 4 billion USD in 2010 and then increases by 1 billion USD every year, which leads to over 7 billion USD in 2014.

FDI flows to developing countries now account for 55 per cent of the global total. Developing Asia drove the increase while flows to Latin America declined and those to Africa remained flat (UNCTAD, 2015, p 2).



Foreign investments can be categorized as two types: horizontal and vertical. Now a days, there is another type called the export platform type. The horizontal type of investment is to produce final goods in the same country in order to reduce transportation cost. It has been often observed in developed countries as a measure of penetration into a local market. The vertical type of investment is to produce labor-intensive products in a country where the labour cost is relatively low in order to reduce the production cost. The export platform type of investment is to produce final goods in a country that is close to the market in order to export the goods to the market with low transportation cost.

The economic, social and geographical conditions of Ethiopia has made the country to qualify for the three types of investments; though the vertical type of investment is widely implemented following low cost of labour in the areas of labour intensive investments such as garment, leather, shoe and the like industries. Besides since Ethiopia has large population size and experiencing high rate of economic growth which is a signal for large market size domestically and in the region, there is also horizontal type of investment in manufacturing of consumer goods and in the real estate sector as there is high demand for residential construction. Finally since Ethiopia is located close to the large market from Middle East and Europe there is expanding export platform investment type in areas of finished consumer goods and flower production. Availability of the three major drivers of foreign investment entails the potential of the country to attract more FDI which has significant share in private investment in the country currently.

Raw material requirements of investment projects both domestic investment and foreign investment is expected to rise obviously with the expansion of private investment which is expected to be supplied by the supporting industries in the host country with desired quality and quantity as well as in the required time. However, supporting industries in developing economies like Ethiopia often fail to meet the requirements of foreign investors and they forced to supply those raw materials both from domestic and international markets by moving up or down the supply chain by themselves and this opens the door for foreign investors to take the market away from the inefficient domestic investors. Domestic suppliers are inefficient because they do have limited capital, limited experience to international competition and limited technology.

#### **2.4.1 Investment negative list in Ethiopia**

In principle Ethiopia has an open policy for FDI, but some business sectors such as power supply, telecommunication, banking, insurance, forwarding and shipping services, and some areas of trading are reserved only for domestic investors (EIC, “Invest in Ethiopia” 2015).

According to councils of Ministers Regulation (No. 270/2012); business areas exclusively reserved for the government include: postal services, transmission and supply of electrical energy through the integrated national grid system and passenger air transport services using aircraft with a capacity of more than 50 passengers. Areas reserved for joint-venture investment with the government include: production of weapons and ammunition and telecommunication services. Areas exclusively reserved for domestic investors: Trade includes: export of raw coffee, chat, oil seeds, pulses, precious minerals, natural forestry products, hides and skins bought from the market, and live sheep, goats, camel, equines and cattle not raised by the investor; import trade; wholesale trade (excluding supply of petroleum and its by-products as well as wholesale trade by foreign investors of their locally produced products) and others. Areas exclusively reserved for Ethiopian nationals: banking, insurance, micro-credit and saving services; broadcasting and mass media services; attorney and legal consultancy services; preparation of indigenous traditional medicines; advertisement, promotion and translation works; domestic air transport services using aircraft with a seating capacity of up to 50 passengers; packaging, forwarding and shipping agency services.

#### **2.4.2 Investment Incentive Scheme**

EIC, “Invest in Ethiopia: An Investment Guide to Ethiopia 2015”. Customs duty: 100% exemption from the payment of customs duties and other taxes levied on imports is granted to all capital goods, such as plant, machinery and equipment and construction materials and also spare parts worth up to 15% of the total value of the imported investment capital goods. Income tax exemption depending on the type of business operation and location where the business operation has taken place that is proximity of operational area to the capital city. Loss carry forward is an incentive scheme in which the firm experiencing loss during income tax exemption period can take forward the loss for future consideration.

The liberalization measures undertaken in the post 1992 period have encouraged foreign investment flows into the country. For a large country the second most populous in Africa-with great potential, in terms of resource endowment and geographical position, it should be considered an attractive location for foreign investment. However, the quantity of FDI that entered the country in the past decade was disappointingly small when compared to other countries in the region. The cumulative FDI inflow to Ethiopia for the period 1994 to 1997, a time of economic growth and rapid private sector development, illustrates this point clearly. The cumulative inflow during this period was equivalent to 0.2 per cent of total inflow to Sub-Saharan Africa. Compared to other countries in the region, the amount of foreign investment in Ethiopia during this period was equivalent to only 5.3 percent of FDI inflow to Uganda, 5.4 percent to United Republic of Tanzania, 34 per cent to Kenya, 0.9 per cent to Egypt and 1.8 per cent to Morocco. In comparison with other countries in the region, therefore, the total FDI inflow into Ethiopia in the past decade has been insignificant. (UNCCTD, 2002).

Since 1991, Ethiopia has opened many economic sectors for foreign investors. The inflow of FDI to Ethiopia has increased from an annual average of \$131 million in 1995-2000 to \$312 million in 2001-2006 although there are fluctuations. The total FDI inflow into Ethiopia has increased continuously from US\$ 135 Million in 2000 up to US\$545 Million in 2004. Since then, up to 2007 the yearly FDI inflows have varied between US\$ 545 Million and US\$ 265 Million (UNCTAD, 2008).

Ethiopia is one of the world's poorest countries. According to MoFED (2010), out of a population of more than 80 million, estimated 29.2 per cent of the population was living below the poverty line in 2009/2010. The Ethiopian economy has to grow at least at annual growth rate of 10% for more than two decades so that the country can attain the per capita income level achieved today by average Sub-Saharan African (SSA) countries. However, Ethiopia's gross domestic savings as proportion of GDP is quite low, and it is unlikely to achieve this growth rate by mobilizing the meagre domestic savings (EEA, 2000 and 2007).

### **3. RESEARCH METHODOLOGY**

This chapter presents methods and techniques used to obtain data and methods used for data analysis. Detail description of research design, data source and type, econometric tools and diagnostic checking techniques are presented as follows.

#### **3.1 Research Approach**

The quantitative research is the most appropriate way to analyse the variables that can be measured such as FDI and GDP. Quantitative design enables research and description of economic problems and processes that are not directly observable (Bayai et al 2013). Quantitative approach to research is convenient for quantitative description; comparisons between groups, areas or variables. Therefore for this research quantitative design is used.

#### **3.2 Data Sources and Type of data**

To meet the objective of the study secondary time series data for the period 1971 – 2015 was used. And the source of data for the study were National Bank of Ethiopia (NBE); World Development Indicator (WDI, 2017), online Databases of World Bank (2017), etc.

#### **3.3 Method of Data Analysis**

##### **3.3.1 Descriptive Statistics**

Descriptive statistics such as percentages and graphs are used to analyze the trend of FDI inflows into the country.

##### **3.3.2 Model Specification**

###### **3.3.2.1 Theoretical Framework**

To analyze the impact of FDI on economic growth the standard growth accounting model has been used. The augmented Solow production function specifies that output is a function of labor, human capital, capital stock and productivity (Mankiw, 1992). By using the Cobb Douglas production function we can write this as:

$$Y_i = A_i K_i^\beta L_i^\mu H_i^\theta \dots \dots \dots (3.1)$$

Where Y represents the output flow; and  $K_i$ ,  $L_i$  and  $H_i$  are the total factor productivity, capital stock, the labor, the human capital stock respectively.  $A_i$ , accounts for the output growth that is not accounted by the growth in factors of production included.  $\beta$  represents the coefficient of capital stock,  $\mu$  represents the coefficient of labor and  $\theta$  is the coefficient of human capital.

For this study the capital stock is represented by the net inflow of foreign investment and by the domestic saving because by economic theory saving represents investment which in turn represent capital formation used for production for the economy.

### 3.3.2.2 Econometric Approach,

Because of the possibility of endogeneity in the relationship between dependent variables in time series data analysis, this study is based on the Vector Error Correction Model (VECM) model. The VECM is preferred because for Cointegrated variables it is possible to analyse both long run and short run relationships between variables. Our model relates economic performance measured by per capita gross domestic product (PCGDP) to foreign direct investment (FDI), Gross domestic saving (GSAVING), trade (TRADE), growth of labor supply (LBRG) and external debt stock (ED).

Model

$$PCGDP = \beta_0 + \beta_1 FDI + \beta_2 GSAVING + \beta_3 TRADE + \beta_4 LBRG + \beta_5 ED + E \dots \dots \dots (3.2)$$

Where;

- PCGDP is per capita gross domestic product
- FDI is net foreign direct investment (FDI) inflow
- GSAVING is gross domestic saving
- TRADE is volume of export and import for time given
- LBRG is growth of labor supply
- ED is stock of external debt
- E represents error term

### 3.4 Test of Stationarity

According to Gujarati (2008) empirical work based on time series data assumes that the underlying time series is stationary. A time series is stationary if its mean, variance and autocovariance remains the same no matter at what point we measure them; meaning that they are time invariant. If time series is non-stationary the persistence of shocks will be infinite. It will also result in spurious regression where the result of the regression doesn't reflect actual relationship of variables. Furthermore a regression of one on the other could have a high  $R^2$  with out any meaningful relationship between the variables. Thus, each series is checked for stationarity using the standard Augmented Dickey-Fuller (ADF) test. Moreover, models with non-stationary variables will invalidate the standard assumptions for asymptotic analysis. In other word the usual "t-ratios" will not follow a t-distribution, so one can not validly undertake hypothesis tests about the regression parameters.

#### Augmented Dickey-Fuller (ADF)

The Dickey-Fuller (DF) and Augmented Dickey-Fuller (ADF) tests are the most widely used test methods for unit root (Gujarati, 2008).

If the data generating process follows the first order autoregressive process, i.e. AR(1) the simplest form of the Dickey-Fuller (DF) test amounts to testing;

$$Y_t = \mu + \rho Y_{t-1} + U_t \dots \dots \dots (3.3)$$

Or

$$\Delta Y_t = \mu + \gamma Y_{t-1} + U_t \text{ where } \gamma = \rho - 1 \quad U_t: IID(0, \sigma^2) \dots \dots \dots (3.4)$$

Then we test the hypothesis:

$$H_0: \rho = 1 \text{ (i.e. } Y_t \text{ series is non stationary)}$$

$$H_1: \rho < 1 \text{ (i.e. } Y_t \text{ series is integrated of order zero or stationary)}$$

If there is a deterministic component (intercept, trend, dummies) in the data generating process, we must allow a time trend to enter in the regression model and it can be expressed as:

$$\Delta Y_t = \mu + \gamma t + \beta Y_{t-1} + U_t \quad U_t \sim IID(0, \sigma^2) \quad (3.5)$$

And we test the same set of hypothesis as in equation (3.4).

But the DF test assumes data generating process follows autoregressive (AR) of order one; AR(1), and residuals are ‘white noise’. However, if data generating process is AR(p), where  $p > 1$ , the error term will be autocorrelated due to misspecification of dynamic structure of the concerned variable. In this case the DF test is not valid, and lagged differences of the dependent variable should be added or augmented to the test model in order to mitigate autocorrelation problem, in the disturbance term. This is incorporated in the augmented Dickey-Fuller test (ADF).

The ADF test can be captured by the following specification of an equation

$$\Delta y_t = \mu + \gamma t + \beta y_{t-1} + \sum_{i=1}^k \lambda_i \Delta y_{t-1} + U_t \dots \dots \dots (3.6)$$

Where  $y_t$  is the variable of interest,  $t$  is the time trend,  $k$  is the lag length which is determined by a general to specific method where by a generous lag structure will be allowed and the insignificant lags will be eliminated sequentially based on Akaike Information Criterion (AIC) and  $U_t$  is a random variable assumed to be ‘white noise’.

Then we test the set of hypothesis:

$$H_0: \beta = 0 \text{ (i. e. } y_t \text{ series is integrated of order one or unit root)}$$

$$H_1: \beta < 0 \text{ (i. e. } y_t \text{ series is integrated of order zero or non – unit root)}$$

Where  $H_0$  and  $H_a$  are the null and alternative hypothesis respectively

### 3.5 Co-integration Analysis

When variables are found to be non-stationary at level, one option in order to get the short run dynamic is to estimate by differencing variables if their differences are stationary. However this will result in a considerable loss of long run properties of the data. Alternatively, economic variables may be combined together in levels provided that they are co-integrated. The issue of cointegration applies when two series are  $I(1)$ , but a linear combination of them is  $I(0)$ ; in this case,

the regression of one on the other is not spurious, but instead tells us something about the long-run relationship between them (Wooldridge 2004). Non-stationary economic series are said to be cointegrated if they can be transformed into a single series that exhibit stationarity (Engle and Granger 1987).

The existence of cointegration can be tested either by the Engle-Granger (1987) two-step approach or the Johansen (1988) maximum likelihood estimation procedure. The Engle-Granger (1987) two-step approach, although simple, has several limitations. One major limitation of this method is that it has no systematic procedure to identify the presence of multiple cointegrating vectors.

The Johansen (1988) maximum likelihood estimators overcome problems associated with the use of two step estimators. Most importantly it can detect the presence of multiple cointegrating vectors. Moreover, the test allows testing restricted versions of the cointegrating vector(s) and the speed of adjustment parameters (Enders, 1995). Hence the study used the Johansen maximum likelihood for the analysis.

Considering k-lags of  $Z_t$ , a general  $P^{\text{th}}$ -order VAR representing the interrelationships among the n variables in the model; as given in Johansen and Juselius (1990) is of the form.

$$\begin{aligned}
 Z_t &= \Omega + \partial_1 Z_{t-1} + \partial_2 Z_{t-2} + \dots + \partial_p Z_{t-p} + \varepsilon_t \\
 &= \Omega + \sum_{i=1}^p \partial_i Z_{t-i} + \varepsilon_t \dots \dots \dots (3.7)
 \end{aligned}$$

Where,

$Z_t$  is an (n\*1) vector containing the n-variables included in our model

$\partial_i$  is an (n\*n) matrix of coefficients;

$\Omega$  is a vector of deterministic terms like trends and intercepts; and

$\varepsilon_t$  are iid(0,  $\Sigma$ ) vector of error terms with  $\Sigma$  representing the contemporaneous covariance matrix.



### 3.6 Vector Error Correction Model (VECM)

The Granger representation theorem includes both the long run equilibrium relationships and short run dynamics (adjustment process). If some variables are co-integrated, the vector error correction model (VECM), is formulated as,

$$\begin{aligned} \Delta Z_t &= \beta_0 + \Pi Z_{t-1} + \theta_1 \Delta Z_{t-1} + \dots + \theta_p \Delta Z_{t-p+1} + \varepsilon_t \\ &= \beta_0 + Z_{t-1} + \sum_{i=1}^{p-1} \theta_i \Delta Z_{t-i} + \varepsilon_t \dots \dots \dots (3.8) \end{aligned}$$

Where,

$\Delta Z_t$  represents the first differences of the variables;

$\theta_i = -\sum_{j=i+1}^p \partial_j$  is an n\*n coefficient matrix in the error correction term (which contains the short run parameters); and

$= \sum_{i=1}^p \partial_{i-1}$  is an n\*n matrix of long run responses which contains information about the long-run relationships. And

$\varepsilon_t$ , the error terms are assumed to be Gaussian or well-behaved.

#### Lag Length Selection Criteria

Before estimating the VECM, one has to decide the maximum lag length, to generate the white noise error terms. To determine the optimal lag length different information criteria can be used. The objective of the information criteria (IC) method is to select the number of parameters which minimize the value of the IC. The most popular ICs are the Akaike (1974) information criterion (AIC), Schwarz's (1978) Bayesian information criterion (SBIC) and the Hannan-Quinn information criterion (HQIC). The lag length that is selected by most of these criteria was included in the VECM system.

The next concern in co-integration analysis is the determination of the rank ( $r$ ) of the long run matrix ( $\Pi$ ). This implies the determination of different linear combinations of the variables (or the number of independent co-integrating vectors) that are stationary.

We determine the rank of the long run matrix, that is, the number of co-integrating vectors by the two likelihood ratio tests which are the trace [ $\lambda_{\text{trace}}$ ] statistics.

### **Granger-Causality Test**

The granger causality test is applied to investigate the direction of causality between the variables. This concept involves the effect of past values of one or more of the variables on the current value of the other. A chi-square (Wald) statistic is used to test for the joint significance of all other lagged endogenous variables in each equation of the model. The null hypothesis being tested is that for X and Y in the vector of endogenous variables of the system, X does not Granger cause Y; or Y does not Granger cause X. This is checked by testing whether lagged values of the variables in the VECM model are statistically significant or not.

### **Diagnostic Test (Stability Test)**

The test for stability checks whether the roots of the characteristic polynomial lies inside the unit circle. If all roots lie inside the unit circle then the model is considered as stable and can be used for policy analysis.

## **3.7 Definition of Variables**

The dependent variable is per capita GDP and following are the explanatory variables that are used in this study with their definitions as of World Bank development indicator, 2017.

GDP per capita (PCGDP): is obtained by taking the ratio of GDP to population size. In other word it is the average annual national output, its size represents the growth status of the country and mostly used as a proxy for growth.

Foreign direct investment (FDI): is crossborder 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. Though there are mixed findings concerning the role of FDI

on the performances of the host economy, FDI is an essential determinant of economic growth in developing economies through technology transfer, by stimulating competition in the domestic market, and by its contribution to human capital development (Koojaroenprasit 2012; Gudaro et al., 2012; Juma 2012; Moyo 2013; Anti 2013; Brenner 2014).

Gross domestic saving (GSAVING) is the difference between gross domestic product and public and private consumption. According to Solow-Swan (1956), for an economy in order to add to its capital stock and to expand the steady state production level, it has to be able to save higher proportion of its national output for the investment purposes. Thus the rate of saving is crucial for the growth of an economy especially in developing country to expand the country's production frontiers. Where FDI has positive contribution for the growth of an economy, it will contribute to higher rate of saving.

Trade (TRADE): it includes all trade in goods and in services. The Volume of trade (imports and exports) is used to capture this variable to represent openness of the economy to the international competition. FDI inflows are expected to result in improved competitiveness of host country's exports. Increased export demand for the products of the country from the rest of the world leads to more domestic production and hence economic growth.

Growth of labor force (LBRG): The labor force is the supply of labor available for producing goods and services in an economy. Because both skilled and unskilled labour are required by an economy for production purposes as labour is the source of ideas; the size of available labour is analysed for its effect on the performance of the country's economy.

External debt stock (ED): is debt owed to nonresident creditors and repayable in foreign currency, goods, or services by the public. External debt affects the size of capital available for production in the country as it is repayable according to the agreed terms.

## 4. RESULTS AND DISCUSSION

In this chapter the results of the study and its analysis is presented followed by discussion for the outcome of the research in comparison with theories and other similar works done by others.

### 4.1. Result of Descriptive Statistics

Though there are increasing number of investment easing incentives are provided for the expansion of private foreign investment, even to the extent that there is no special treatments available for domestic private investors in economic sector open for foreign investors, the quantity of FDI that entered the country in the past decades was disappointedly small when compared to other countries in the region. The cumulative FDI inflow to Ethiopia for the period 1994 to 1997, a time of economic growth and rapid private sector development, illustrates this point clearly. The cumulative inflow during this period was equivalent to 0.2 per cent of total inflow to Sub-Saharan Africa. Compared to other countries in the region, the amount of foreign investment in Ethiopia during this period was equivalent to only 5.3 percent of FDI inflow to Uganda, 5.4 percent to United Republic of Tanzania, 34 per cent to Kenya, 0.9 per cent to Egypt and 1.8 per cent to Morocco. In comparison with other countries in the region, therefore, the total FDI inflow into Ethiopia in the past decade has been insignificant. (UNCCTD, 2002).

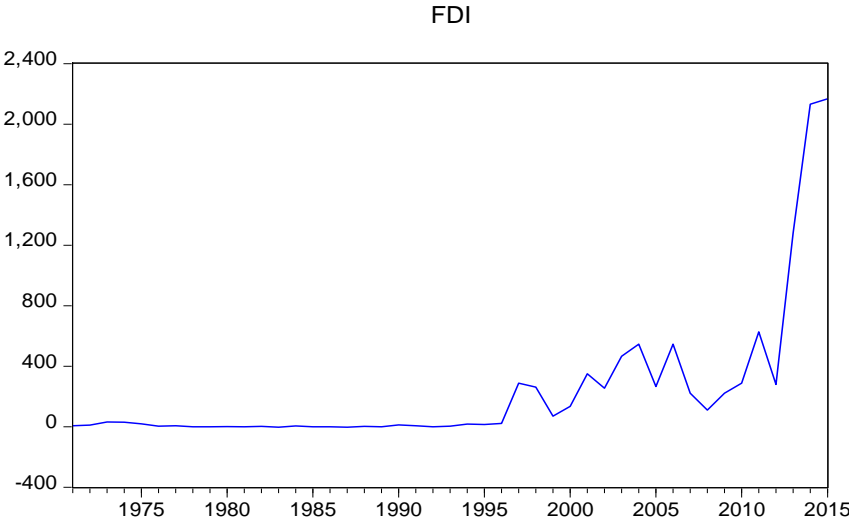
Sincede 1991, Ethiopia has opened many economic sectors for foreign investors. The inflow of FDI to Ethiopia has increased from an annual average of \$131 million in 1995-2000 to \$312 million in 2001-2006 although there are fluctuations. The total FDI inflow into Ethiopia has increased continuously from US\$ 135 Million in 2000 up to US\$545 Million in 2004. Since then, up to 2007 the yearly FDI inflows have varied between US\$ 545 Million and US\$ 265 Million (UNCTAD, 2008).

Ethiopia is one of the world's poorest countries. According to MoFED(2010), out of a population of more than 80 million, estimated 29.2 per cent of the population was living below the poverty line in 2009/2010. The Ethiopian economy has to grow at least at annual growth rate of 10% for more than two decades so that the country can attain the per capita income level achieved today by average Sub-Saharan African (SSA) countries. However, Ethiopia's gross domestic savings as

proportion of GDP is quite low, and it is unlikely to achieve this growth rate by mobilizing the meagre domestic savings (EEA, 2000 and 2007).

The government of Ethiopia is following the path of the East Asian countries that have successfully managed to use industrial parks stimulate investment both domestic as well as foreign direct investment. This has a considerable potential for job creation, to expand the export volume and value of commodities and can serve as a source of foreign exchange. Focusing on the manufacturing sector, Ethiopia is prioritizing FDI in specific sectors such as textile, leather and leather products, Agro-processing, and pharmaceuticals and chemicals. The imperative is to build on the country's agricultural foundations by moving toward new tradable activities in manufacturing that absorb large numbers of young and semi-skilled workers.

Figure 4.1 FDI Inflows in Ethiopia

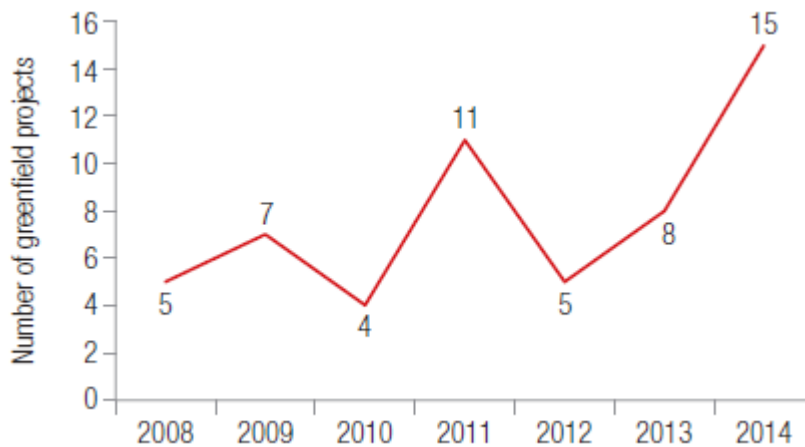


Source: Own Computation, 2017

Figure 4.2: Manufacturing FDI inflows (2008-2014)

Figure 4.2: Manufacturing FDI inflows (2008-2014)

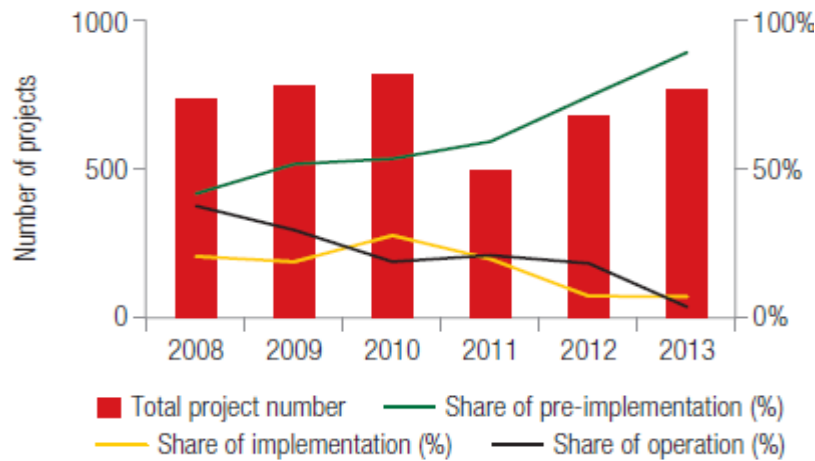
Figure 4.2: Manufacturing FDI inflows (2008-2014)



Source: World Bank (2015), Ethiopian Economic Update

FDI inflows into Ethiopia have reached the highest in 2013, driven by manufacturing FDI, and reached more than 2 percent of GDP for the first time since 2008. The country attracted 1.2 billion dollars in 2014 with the manufacturing sector being the largest recipient of FDI. For the first time Ethiopia is now among the top 5 landlocked countries in terms of FDI inflows (UNCTAD, 2015). Overall, FDI projects are on the increase again since 2011 (Figures 4.2 and 4.3). The manufacturing sector has the highest number of FDI projects under implementation. Manufacturing accounting for 41 percent of new FDI projects under implementation and 70 percent of FDI capital investments. Looking at investment inflow, Turkey is the largest source of FDI accumulated, followed by China and Saudi Arabia. FDI in leather manufacturing and textile production indicate areas where Ethiopia seems to have a comparative advantage. To this end, it seems, Ethiopia is successful in leveraging its access to the European and U.S. markets through the Everything But Arms (EBA) and Africa Growth and Opportunities Act, respectively, which provide preferential trade access to Ethiopian goods in these markets.

Figure 4.3: FDI inflows by number of projects (2008-2013)



Source: World Bank (2015), Ethiopian Economic Update

#### 4.2. Test of Stationarity

Stationarity test to identify the extent of exogenous shock to the system of equations is done before conducting empirical estimation of the model for the time series data. Using non-stationary time series data for estimation of parameters may end up with spurious regression as explained in the previous chapter. That is, the regression result may show a relationship between variables that actually does not exist. To avoid spurious regression which is associated with using non stationary data, we must transform the data in to stationary data by the use of the techniques called differencing. The non-stationary data has indefinite error and the variance and the mean is not constant and as a result it doesn't converge to its long run mean over time as the shock to the system of equation persists and the model reflects only the facts for the time considered and it is not used for forecasting purposes which is the primary purpose of the model. On the other hand stationary process has constant mean and variance independent of time in which it is measured. For visual observation of the presence of unit root, graphical sketch of each of the variables over time has been done. The result of which is presented in the annex for each of the variables considered for this study.

All of the variables have a trend over time. Therefore, all the series are examined for stationarity using the Augmented Dicky-Fuller test and the results are summarized in Table 4.1. The lag length

for each variable is automatically selected by Schwartz Information Criterion (SIC) and both intercept and trend are included in test equation for all variables. This is presented in Table 4.1.

Table 4.1. Unit Root Test Using Augmented Dickey Fuller method both at level and first difference

S.N.	Variables	Test Statistics			Order of integration
		Intercept only	Trend and intercept	None	
1	PCGDP	1.03267	1.5685	1.8205	I(1)
	DPCGDP	-3.6535*	-4.1178*	-3.2949*	
2	FDI	1.1693	-0.0407	1.6824	I(1)
	DFDI	-6.0098*	-6.5008*	-5.8352*	
3	GSAVING	-2.8599	-2.7904	-0.1262	I(1)
	DGSAVING	-9.0819*	-9.2054*	-9.1739*	
4	MDSTRADE	-0.4837	-1.3637	0.9945	I(1)
	DMDSTRADE	-6.8109*	-6.8239*	-6.6338*	
5	LBRG	-1.9723	-2.7991	0.1036	I(1)
	DLBRG	-7.4835*	-7.4386*	-7.5565*	
6	ED	0.0472	-3.8525	1.1542	I(1)
	DED	-3.5595*	-3.7252*	-3.2722*	

\*Rejection of null hypothesis at 5% level is indicated by \* and D represents first difference of the variable.

Source: Own Computation, 2017

The null hypothesis for unit root test states the variable is non stationary or has unit root problem and the rival hypothesis states the variable under investigation is stationary or has no unit root problem in the data generation process. The result from Augmented Dickey Fuller method of unit root test as depicted in table 4.1; analysis for all variables showed that all variables in the model fail to reject the null hypothesis and found to be non stationary in levels at 5% level of significance. The result support the visual observation from the graphical analysis (Annex D) that shows trending for all variables when drawn against time variable. As discussed in the previous section to deal with non stationarity problem and to transform the data I use the technique called differencing of the variables and I took first difference of all variable and see if they become stationary or not after



first differencing. The order of integration of the variables is also determined. The result from ADF method of unit root analysis for differenced variables as summarized in table 4.1 shows that the null hypothesis of the variables are non stationary is rejected at 5% level of significance indicating that all variables are integrated of order one I(1).

### 4.3.Lag Length Selection

Before estimation of model parameters the optimal lag length for the time series data was determined by the use of lag order selection criteria. The optimal lag length is determined using the sequential modified Likelihood Ratio test statistics (LR), the Final Prediction Error (FPE), the Akaike Information Criterion (AIC), the Schwarz Information Criterion (SIC), and the Hannan-Quinn Information Criterion (HQ). This is presented in Table 4.2.

Table 4.2 VAR Lag Length Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1202.962		1.65	58.97375	59.2245	59.0651
1	-1016.645	309.0132*	1.10*	51.64123	53.3965*	52.2804*
2	-985.1418	43.02900	1.54	51.86057	55.1205	53.0476
3	-946.9455	40.99104	1.91	51.75344	56.5180	53.4884
4	-892.5166	42.48115	1.61	50.85447*	57.1236	53.1373

\* indicates lag order selected by the criterion

Source: Own Computation, 2017

As shown in table 4.2, the result of lag length selection criteria, lag length one is suggested by LR, FPE, HQ and SC at 5% level of significance and this is an optimal lag order used by the model.

### 4.4.Granger causality test

To check the presence of causal relationship between variables and to understand the direction of causality between variables Granger Causality test was run. The Granger causality test undertaken for the variables foreign direct investment (FDI) and economic performance measured here by per capita GDP is presented in Table 4.3. As can be seen from the table the null hypothesis that FDI does not Granger cause per capita gross domestic product (PCGDP) can not be rejected at 5% level but the null hypothesis per capita GDP (PCGDP) does not Granger cause FDI is rejected at 5%

level of significance. The implication of the test result is that in Ethiopia the direction of causality is unidirectional and the causality runs from economic performance measured in this study by PCGDP to the inflows of foreign direct investment (FDI) but not from FDI to economic growth. Therefore it can be safely said that it is economic growth that leads the inflows of foreign direct investment not FDI that leads to economic growth.

Table 4.3: Pairwise Granger Causality Tests;

Null Hypothesis:	F-Statistic	Prob.
FDI does not Granger Cause PCGDP	3.54025	0.0670
PCGDP does not Granger Cause FDI	12.6823	0.0010

Source: Own Computation, 2017

#### 4.5. Diagnostic Tests

The stability of the VAR model test showed that (Figure 4.4) all roots of characteristic polynomial lie inside the unit circle indicating that the model is stable and further post estimation diagnosis is possible.

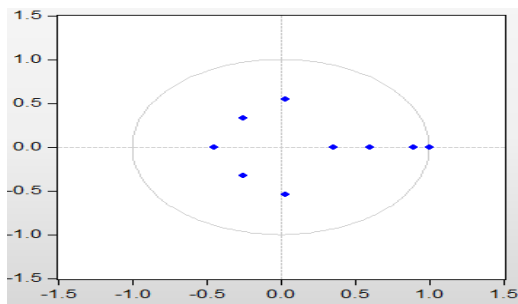


Figure 4.4: Inverse Roots of VAR Characteristic Polynomial

Source: Own Computation, 2017

#### 4.6. The Johansen Co-integration Test Result

The precondition for undertaking Johansen test of co-integration is that the variables are non stationary at level and they are integrated of same order. The result of unit root analysis is that all

variables are found to be non stationary at levels and they are integrated of same order. Conducting regression based on non stationary data may result in non sense regression in which the associationship between variables does not exist actually and the relationship is spurious as discussed in the previous section. However, if variables are cointegrated according to Granger representation theorem it is possible to have stationary relationship from non stationary variables. Cointegrated variables have the tendency to move together in the long run that means they do have interpretable long run relationship. The presence of cointegrating equation is checked by the use of Johansen test of co-integration method (Table 4.4).

Table 4.4: Johansen Cointegration Rank Test (Trace statistics)

Hypothesized No. Of CE(s)	Eigenvalue	Trace statistic	5% critical value	Prob.**
None*	0.599094	115.7661	95.75366	0.0011
At most 1*	0.516303	76.46293	69.81889	0.0134
At most 2	0.388023	45.23218	47.85613	0.0864
At most 3	0.283452	24.11661	29.79707	0.1956
At most 4	0.173060	9.784257	15.49471	0.2977

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

\*denotes rejection of the hypothesis at the 0.05 level

\*\*Mackinnon-Haug-Michelis (1999) p-values

Source: Own Computation, 2017

The hypothesized number of cointegrating equation that states there is none cointegration equation and there is at most one cointegrated equations are rejected at 0.05% level because as can be read from table 4.4 the probability value is 0.0011 and 0.0134, respectively and also the trace statistics is greater than the 5% critical value. However, the hypothesis at most two cointegrating equations is rejected at 5% level indicating that there are two cointegration eqations in the system. The result of Johansen test of cointegration reveals that the variables are cointegrated meaning that they have long run relationship and this justifies the application of Vector Error Correction Model (VECM) on our data to examine both long run and short run relatinsip between the variables.

#### 4.7. Vector Error Correction Model (VECM)

In the previous section it has been confirmed that the time series variables are cointegrated and this allows application of vector error correction model on the series. In the VECM there are long run relationship represented by long run cointegrating coefficients and there are short term coefficients represented by coefficients of lagged values of system variables. For estimation VEC coefficients the results of cointegration test and optimum lag order is used. The results of the VECM for long run as well as for the short run coefficients is presented in Table 4.5.

##### 4.7.1. Long run model

Table 4.5 long Lun Model, Dependent variable: PCGDP

Variable	Coefficient	Standard error	t-statistics
FDI	0.532190	(0.18465)	[2.88223]
GSAVING	-52.85015	(9.72255)	[-5.43583]
TRADE	-30.24151	(4.49868)	[-6.72230]
LBRG	179.9934	(59.6248)	[3.01876]
ED	-0.044179	(0.01265)	[-3.49321]
C	1173.450		

Source: Own Computation, 2017

From the above long run cointegrated equation model the long run equilibrium equation can be constructed as follows;

$$PCGDP = -1173.45 - 0.5322FDI + 52.8502GSAVING + 30.2415TRADE - 179.9934LBRG + 0.04418ED$$

The result of long run model indicates as there is negative long run relationship between inflows of foreign direct investment (FDI) and per capita Gross Domestic Product (PCGDP) in Ethiopia. This shows that FDI has adverse effect on the performance of the economy in Ethiopia. This means that a one USD increase in the inflows of FDI, other variables remain fixed, would result in a decline in per capita GDP by 0.53 USD in the long run. This finding is in line with other findings of Betelhem (2016) and Remla (2012) in Ethiopia, that has come up with the finding that FDI has adverse effect on the performance of the Ethiopian Economy. Similarly Ayodele et al., (2013)

studies about the impact of FDI on real gross domestic product found that foreign direct investment does not promote GDP growth in the long run. Moreover Hamadou's (2011) examines the impact of foreign direct investment flows on economic growth shows that foreign direct investment has adverse effect on the economic growth. Similar study by Falki (2009) in Pakistan found a negative relationship between FDI flows and economic growth. Louzi & Abadi (2011) analyzes the impact of FDI on economic growth in Jordan and found that FDI inflows do not exert an independent influence on economic growth. Also the direction of causation does not run from FDI to GDP growth but causation is running from GDP growth to FDI flows in Ethiopia.

The reasons for the negative association between foreign direct investment and economic growth could be seen from both the side of the investor and from the host country point of view. From the the investor side profit repatriation to the home country rather than reinvesting in the host economy would result in capital formation in the home country's economy and contributes less to capital formation in the host country's economy. But according to neoclassical growth models capital formation is a key element for economic growth and it is lost by the economy of the host country because of profit repatriation characteristics of the foreign investors. However when look at the way of profit making by the foreign investors it is obtained from lower cost of production following incentive packages provided by the host governments and lower labor cost in developing country's. Moreover foreign investors can access credit facility at a lower cost of capital which is most of the time negative in real terms that again maximizes the return on investment in developing economies. Therefore these all favors more the investor's country than the host country.

On the other hand foreign investors join the hosting country with better technology, marketing strategy and experience to the international markets than the domestic investors and hence the domestic investors face unfair competition from foreign investors and may end up with lesser market share. Moreover foreign investors may take away skilled workers from domestic firms and as a result this harms the productivity of domestic firms that significantly has an adverse effect on the long run growth of domestic economy.

From the host economy point of view; level of economic development, availability of infrastructural facility, human capital, institutional facilities and capacity and tax policy and administration efficiency all are less supplied especially for LDCs such as Ethiopia. However, the positive contribution of foreign investment towards economic growth of the host economy requires

abundance supply of these elements. For instant higher level of economic development entails higher level of bargaining power on terms of foreign investment and also there is fair competition between domestic and foreign investors that leads to high performance of domestic firms. Likewise efficient institutional facilities means lower level of cost of production which is an incentive for more production for producers and investors, a way towards economic growth.

On the other hand Gross Domestic Saving (GSAVING) and trade (TRADE) have positive long run relationship with per capita Gross Domestic Product (GDP) in Ethiopia which is expected and it is in line with economic theory. The higher the proportion of national out put the economy saves and invest, the better would be the performance of the economy. Trade entails similar thing which means by opening its door to international markets and competition, the performance of the domestic econmy improves as well. According to the long run equation a one USD increase in Gross domestic Saving, other factors remain constant, per capita Gross Domestic Product (GDP) increases by 52.85 USD in the long run. For trade a one USD increase in volume of exports and imports, other factors remaining the same, per capta GDP would increase by 30.24 USD.

The long run associationship between rate of labor growth (LBRG) and per capita GDP is negative and this is unexpected as labour is a major input in the growth models and hence this is not in line with economic theory. The result from long run models shows a one percent increase in growth rate of labour supply, other factors remain the same, results in decline of per capita GDP by 179 USD in the long run indicating as there is adverse relationship between size of labour supply in the economy and the performance of the economy in Ethiopia. The result also shows as there is positive relationship between economic perforamance and stock of external debt in Ethiopia.

#### 4.7.2. Short Run Model

Our target model is equation in which D(PCGDP) is dependent variable and the short run impact of the independent variables such as FDI, GSAVING, TRADE, LBRG and ED on the performance of the economy measured in this study by PCGDP is addressed by the short run coefficients of the independent variables. Table 4.6 presents this relationship between variables as follows:sh

Table 4.6: Short Run Coefficients, Dependent Variable D(PCGDP):

variables	coefficient	Standard error	t-statistics	Prob.
-----------	-------------	----------------	--------------	-------

CointEq1	-0.047960	0.022629	-2.119386	0.0412
D(PCGDP(-1))	0.496384	0.139214	3.565613	0.0011
D(FDI(-1))	0.038058	0.016877	2.255076	0.0305
D(GSAVING(-1))	-1.021356	1.103107	-0.925890	0.3608
D(TRADE(-1))	-1.533901	1.145338	-1.339257	0.1891
D(LBRG(-1))	23.89118	7.967763	2.998480	0.0050
D(ED(-1))	-0.003971	0.002989	-1.328462	0.1926
C	6.394403	4.220198	1.515190	0.1387

F-statistic 4.573532

Prob(F-statistic) 0.001034

Source: Own Computation, 2017

In the short run equation the impact of one period lagged values of the independent variables was analyzed. As can be read from the table 4.6, the coefficient of error correction term is negative and significant at 5% level of significance. This shows result from VEC model is in line with our expectation. Therefore we can say that there is a long run causality running from FDI, Gross Domestic Saving (GSAVING), Trade (TRADE), Growth of Labor Force (LBRG) and External Debt Stock (ED) to Growth in Per Capita Gross Domestic Product (PCGDP). The negative sign of the error correction term tells us that there is adjustment towards long run equilibrium when the economy faced deviation from the equilibrium in the short run. The speed of adjustment as shown by the value of the coefficient of error correction term is -0.04796, 4.796% of deviation of per capita GDP from long run equilibrium adjusts every year towards long run equilibrium value.

The remaining coefficients of D(PCGDP) equation are short term coefficients. As can be seen from the result of the analysis the coefficient of one period lagged FDI is positive and significant showing that in the short run the flow of FDI has positive significant impact on the performance of the Ethiopian economy as measured by per capita GDP in this study. This means that a one USD increase in one period lagged net inflows of FDI, increase the per capita GDP by 0.038 USD showing that inflows of foreign capital in the form of foreign direct investment has got positive contribution to the performance of the economy in Ethiopia in the short run and this is contrary to the long run outcome in which FDI has got adverse effect on the performance of the economy in Ethiopia. This may be due to the fact that inflows of foreign capital creates employment opportunity

in the host economy and increased in the volume of export. According to Betelhem (2015), in her analysis on the impact of FDI on economic growth of Ethiopia, one period lagged FDI has negative significant effect on the economic growth of Ethiopia. Meaning that in the short run inflows of FDI adversely affects the economic growth in Ethiopia. However; according to Remla (2012), the short run impact of FDI on economic growth of Ethiopia is not significant meaning that FDI doesn't have a major impact on per capita GDP in the short run.

Similarly the coefficient of one period lagged per capita GDP on the current per capita GDP is positive and significant implying that the impact of previous year output is positive and significant in determining the current outcome. As shown in Table 4.6 a one USD increase in one period lag per capita GDP increases the current per capita GDP by 0.4963 USD.

The short run coefficients of Gross Domestic saving(GSAVING) and Trade (TRADE) are negative indicating that the one period lagged values of GSAVING and TRADE has negative impact on the performance of current period per capita GDP of Ethiopia but these coefficients are not significant and according to the result these variables have no short run impact on per capita GDP. When we look at the short run coefficient of growth in quantity of labour supply, it is positive and significant at 5% significance level. This shows that one period lagged labor supply has contributed positively towards the performance of the current per capita GDP. As shown in the table a one percent increase in labour supply increase per capita GDP by 23.89 USD in the short run, other factors remain the same. Finally, the short run coefficient of external debt stock is negative and not significant. This shows that one period lagged size of external debt has no short run relation with the performance of the economy in Ethiopia.

### **Post Estimation Diagnostics**

To see how well the Vector Error Correction Model (VECM) it was checked for diagnostic testing for autocorrelation (serial correlation) and normaly distribution of disturbances. The LM test for residual autocorrelatain indicates that the model is free from serial correlation problem because the p-value is 0.5404 at lag 1 and this is desirable. Meaning that the error terms has no correlation with one another that means the error that occurs in a given time period has no relationship with the error that occurs in the other time. Therefore, the sample used for this study is efficient in the sense that it provides maximum information about the variables and the test statistics used in the model



did not suffer from estimation bias. The Jarque-Bera test for normality also rejects the null hypothesis that residuals are multivariate normal. Finally test of residual Heteroskedasticity fail to reject the null hypothesis that residulas are homoskedastic.

### **Impulse response functions**

From impulse response functions we observe the response of a variable to a one S.D. shock in the other variables that represent the short run relationship. As can be seen from the figure a positive shock in PCGDP results in a positive response of itself and FDI. Response of FDI to positive shocks in it self is almost flat but response of FDI to a positive shock in PCGDP is positive. Similarly the response of FDI to shock in gross domestic saving (GSAVING), Trade, growth in labor supply(LBRG) and to external debt(ED) was analyzed using using impulse response functions and the result is depicted in the figure. For the shock in GSAVING, FDI responds negatively, for the shock in trade almost flat, for the growth in supply of labour FDI responds positively and for the shock in External debt the respose of FDI is negative (Annex E).

## **5. CONCLUSION AND POLICY IMPLICATION**

### **5.1 Conclusion**

Ethiopia has liberalized its economy since 1992 and issued favorable investment policy for foreigners. Since then there is sharp increase in the inflow of foreign direct investment from very lower level in earlier times especially in 1970's and 1980's. The important question to be addressed in this study was to see whether the increase in inflows of foreign capital is favorable for the

performance of the Ethiopian economy. To this end the study employed time series data for the period 1971 to 2015 and examined the impact of FDI on Ethiopian economic performance using vector error correction model.

The results from vector error correction model shows as there is negative impact of FDI on economic growth measured by per capita GDP in this study in the long run model but there is positive relationship in the short run in Ethiopia. The negative long run relationship may be due to lower level of institutional facility and capacity development, lower level of technological development in the country, lower level of competitive capacity by domestic investors with foreign investors, lower level of skilled man power, lower experience by domestic firms and as a result the market share by domestic firms is getting smaller, those foreign firms take away skilled and experienced workers from domestic firms as they can afford to pay favorable employment benefits that leave domestic firms less productive and competitive. Moreover the profit repatriation which is made by lower cost of production in the host country induced by favorable investment incentive packages and lower labour cost made capital creation and R&D in the investors country for latter sell in the host country. The positive short run contribution of FDI to the economic growth may be due to employment opportunity that leads to increased labor income that creates demand, tax payments made by foreign investors that allows construction of infrastructure facilities and foreign exchange earning from increased volume of export.

In the long run gross domestic saving and volume of trade both export and import has positive relationship with economic growth. Because what is saved by the economy is used for investment it has direct impact on the performance of the economy therefore more size of saving is essential to achieve higher rate of economic growth. Higher rate of transaction with the rest of the world also benefits the country in the long run. For the case of Ethiopia importing capital for the purpose of construction of infrastructure facilities plus for productive industries has with no doubt leads to better economic performance and the result from the long run cointegrated vector error correction model confirms this fact. In the short run the relationship between gross domestic saving and economic performance as well as that of volume of trade with economic performance is negative as these are possible only at the expense of other economic activities such as consumption, however it is not significant.

The result of the analysis shows that there is negative long run relationship between size of labour supply and economic growth in Ethiopia. This may be due to lower marginal product of labour in capital poor countries in which case each additional unit of labour contributes more to cost than to the output in microeconomic theory which can safely be applicable to the aggregate economy by relative comparison of national capital and size of work force in the economy. However, in the short run according to the result from the study there is positive and significant relationship between size of labor growth and economic growth and this is due to stimulated demand.

Finally there is positive long run impact of external debt stock on economic growth in Ethiopia. This is mainly because the debt is used for construction of infrastructure facility and used to expand productivity of domestic resources which has long term effect for the growth of the economy. However in the short run the relationship between external debt stock and economic growth is negative that is most probably related with debt servicing that take away scarce resources from productive activities, but it is not significant.

The pairwise granger causality tests shows as there is unidirectional causality that runs from Ethiopian economic performance to the inflows of FDI but not from FDI to the Ethiopian economic performances. Therefore it can be safely said that in the case of Ethiopia it is the growth of the economy that leads to larger size of inflows of FDI not FDI that leads to economic growth. Thus attention must be given to encouraging domestic investors not to the attraction of foreign investors given that the goal of every effort is to bring economic growth in the country.

## **5.2 Policy Implications**

Now a days countries rely on foreign direct investment in order to achieve the desired level of economic growth and in order to remain competitive in international markets. To attract more foreign capital investment countries have liberalized most of the economic sectors for foreigners to invest, backed up with investment incentive packages. There is common understanding that FDI will do more good than harm to the host economies through both tangible and intangible channels such as technology transfer and skill transfer. However, the effectiveness of capital inflows in the form of direct investment depends heavily on the characteristics of both domestic and foreign firms involved in production, capacity of domestic firms to supply relevant basic raw materials in desired

level and quality meeting standards put in place by foreign investors rather than being remaining simply a market place and most importantly it requires close follow up and taking necessary policy measures to ensure that it can bear fruit and contribute positively for the performance of the economy.

Moreover while providing various incentive packages and conducive investment policy there should be strong negotiation on terms of investment especially on the involvement of local content on the final output. It is this part that bring about the active participation of local labor and employment of local resources along the value chain that has multidimensional positive effect on the economic growth of the country. Because it is only in that case that full employment can be achieved where the economy is in equilibrium.

Furthermore the foreign capital should be channeled to sectors where the capital can have return not only from the investor point of view but also from the host country point of view. For that to be realized what ever the country sacrificed meaning that all economic and social costs has to be included while analyzing viability of every prospective investment before commencement of production.

According to the conclusion driven so far the direction of causality is unidirectional that run from economic growth to inflows of FDI and also that in the long run FDI adversely affects the Ethiopian economic performances, thus attention should be given to encouragement of domestic investors through creating conducive environment such as providing subsidies and market arrangements.

Finally the area of foreign direct investment, its role and costs, requires more and frequent investigation on its economic as well as social consequences by researchers as there is excessive opportunities available for its expansion to developing countries where capital is scarce resource and other economic resources such as labor and land are abundant in relative terms.

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## ANNEXES

### A. Test of autocorrelation

Null Hypothesis: no serial correlation

Lags	LM-Stat	Prob
1	34.49134	0.5404

Probs from chi-square with 36 df.

### B. Test for normal residual normal distribution

Null Hypothesis: residuals are multivariate normal

Component	Jarque-Bera	df	Prob.
1	47.42513	2	0.0000
2	2.218928	2	0.3297
3	0.043160	2	0.9787
4	20.91708	2	0.0000
5	0.729835	2	0.6943
6	196.2869	2	0.0000
Joint	267.6210	12	0.0000

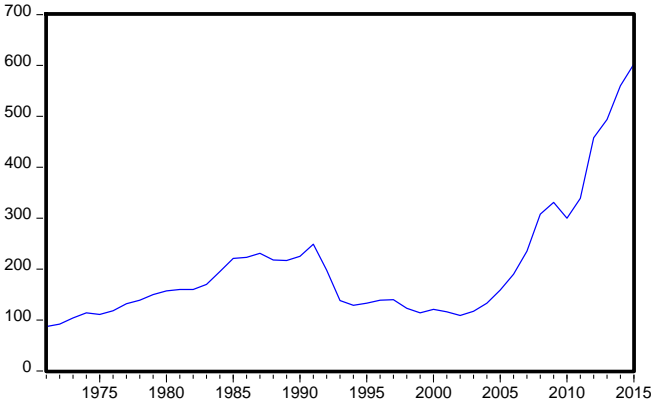
### C. VEC Residual Heteroskedasticity Tests: No Cross Terms (only levels and squares)

Joint test:

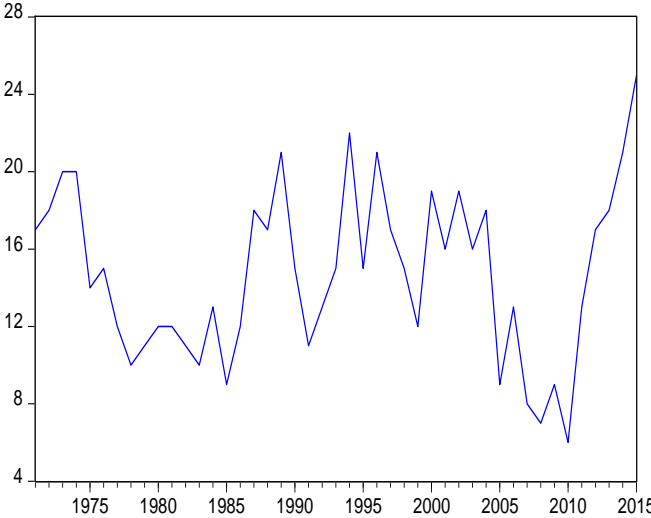
Chi-sq	df	Prob.
354.0042	336	0.2394

D. Graphical demonstration of trend variables agianst time

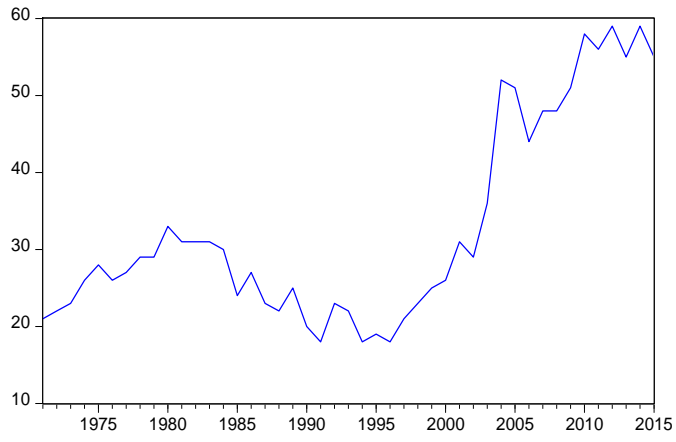
PCGDP



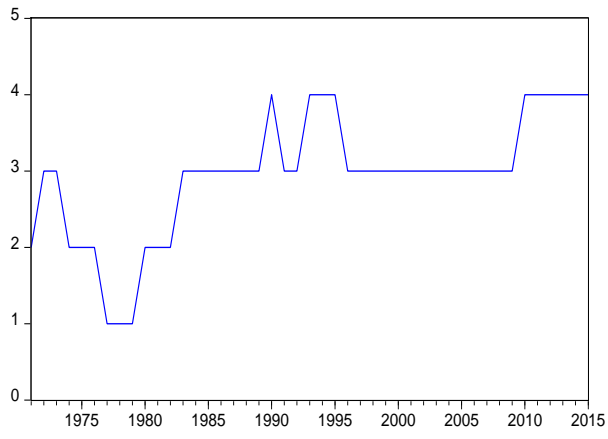
GSAVING



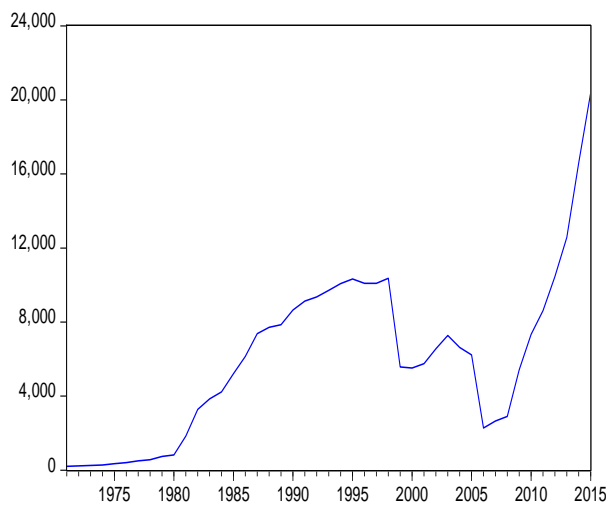
TRADE



LBRG



ED



E) Response to Cholesky one S. D. Innovations

