

# **The Link between Foreign Direct Investment and Economic Growth in Ethiopia**

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## ***Abstract***

*Foreign direct investment plays an important role in economic growth. It has a great importance by transferring technologies and establishing marketing and procuring network for efficient production and sales internationally. It affects Ethiopian economic growth positively or directly. Therefore, it can be generally viewed as an engine for domestic country economic growth. To analyze the relationship that exists between foreign direct investment and economic growth, OLS estimation technique is used. The data set comprises of annual time series data from 1981 to 2010 (i.e. for 30 year data). Foreign direct investment has shown some significance level since 1992. Before this time, the government of Ethiopia did not give an incentive for foreign investors. Due to this fact, the role of FDI on Economic growth was not much. But after the present government came to power, the government encourages foreign investors and as a result the share of FDI on GDP has increased. Accordingly, foreign direct investment and economic growth are positively linked.*

## **Introduction**

### **Background of the Study**

FDI plays an important role in economic growth. The growth of international production is driven by economic and technological forces (Louzi and Abadi 2011). It is also driven by on the ongoing liberalization of FDI and trade policies. In this context, globalization offers an unprecedented opportunity for developing countries to achieve faster economic growth through trade

and investment. In 1970's, international trade grew rapidly than FDI and thus international trade was by far greater than other international economic activities (Ibid). This situation changed dramatically in the middle of 1980's when world FDI started to increase sharply. In this period, the world FDI increased its importance by transferring technologies and establishing marketing and procuring net work for efficient production and sales internationally through FDI. Foreign investors benefits from utilizing their assets and resources efficiently, while foreign receipts benefits from acquiring technologies and getting involved in international production and trade net works. While global FDI flows increased by 25%, from 1990 to 2009, developing countries as a group show an increase of 22% at constant price (IBID).

FDI flows to less developing countries increased by almost 5% of GDP. However, FDI provides much needed resource to developing countries, such as capital, technology, managerial skill, entrepreneurial ability, brands and access to markets. These are essential for developing countries to industrialize, develop and create jobs- attacking the poverty situation in their countries. FDI flows to developing countries started to pitch up in the mid 1990's largely as result of progressive liberalization of FDI Policies in most of these countries (Ibid).

The bulk of FDI in LDC's represent 1.3% of total FDI while 30.7% goes to developing countries as whole (Cleric and Maiguy 2005). In Ethiopia the gap between domestic investment and saving has remained wide due to the low level of income and domestic savings. FDI as source of capital and other business know how is, therefore, disparately essential to finance growth and development.

Between 1970's and 1997 gross domestic investment as a proportion of GDP rose from 12% to 19% ,while gross domestic saving remain as the same rate. This saving gap can be filled by loans and development assistances from multi lateral agencies, such as World Bank, bilateral sources, or by private foreign investment. Of these sources of finance, FDI is by far the most important one. In recent years, Ethiopia has started encouraging the flow of FDI by improving the investment climate and by providing different incentive packages (Getnet and Hirut 2006).

### **Statement of the Problem**

According to World Bank, among sub African countries, Ethiopia has liberalized its economic policies the most. Non tariff barriers have been eliminated and tariffs have been reduced progressively on a wide range of commodities: the maximum rate of 35% in January 2003. This average tariff rate has also been reduced from 29.1% to 20% and weighted average tariff rate from 41.6% to 17.5%. The country also enhanced the role of private sector through lifting investment restrictions such as licensing and investment capital ceiling. In spite of the liberalization policies, Ethiopia is still among the marginalized low income developing countries in the ongoing liberalization process. The country has not benefited from international trade or from attracting significance flows in FDI. FDI flows to a country remain at depressing low level. Annual average FDI flows to the country amounted to only US\$ 218.5 million for the period 1997 to 2001. According to UNCTAD, FDI performance index which ranks countries by their performance in attracting inward direct investment and their potential thereof, Ethiopia ranks among underperforming countries (Alemayehu 2000).

FDI inflows to Ethiopia are the lowest by a wide margin both in actual quantity and as a proportion of GNP. The amount of FDI coming to Ethiopia is quite small. It is small in absolute quantity; it is significantly small compared with domestic investment and small compared to FDI inflows of in comparable neighboring countries (Berhanu 1999).

Even though, the contribution of FDI is high for the country's economy, its amount is low. Based on these general facts, the researcher addresses the following basic research questions:

- ❖ What are the policies and incentives that promote the foreign investors to invest in the domestic country?
- ❖ What type of relationship exists between FDI and economic growth?
- ❖ What are the factors that contribute for low level of FDI in the country?

### **Objective of the Study**

The general objective of this study is to examine the link between FDI and economic growth in Ethiopia. Based on the above general objective, the specific objectives of the study are:

- ❖ To assess the policies and incentives that promotes the foreign investors to invest in the domestic country;
- ❖ To examine the relationship that exists between FDI and economic growth, and
- ❖ To assess the trend of FDI in the country.

## **Hypothesis of the Study**

GNP is a function of domestic consumption, investment, government expenditure and net export. This shows that, if one of the above variables changes being the rest constant, there is no doubt for GDP to change. Taking investment as one component of nations output, if there is increment in investment, there will be increment in national output. However, investment has two components that are FDI and domestic investment. If either of this changes, there will be changes in nation's total investment which in turn leads to change in the nations GDP. Therefore, investment in general and FDI in particular have the same direction with GDP.

Based on this theoretical aspects and the real feature of the country, the writer hypothesized the following tentative prediction which will be either proved or disproved in this study i.e.,

- FDI has a positive relationship with economic growth of the country.

## **Significance of the Study**

In fact, the significance of the study can be to use the findings as one source of information related to the link between FDI and economic growth in the country. Therefore, the study can be useful to those who are interested to know the impact of FDI in Ethiopian economy. Readers of this paper may conduct further study in relation to FDI and economic growth.

## **Scope of the Study**

The study focuses on analyzing the impact of FDI on the economic growth of Ethiopia at national level and it deals with the link between FDI and Ethiopian economic growth, even though the problem is global.

### **Limitations of the Study**

Due to lack of adequate source, the study did not include sufficient data. It did not also incorporate variables which were very critical for determining economic growth. However, the student researcher has tried her best to minimize those limitations.

### **Organization of the Study**

The study is organized into five chapters. The first chapter is composed of background, statement of the problem, objective of the study, hypothesis of the study, scope and limitations of the study. The second chapter reviews the theoretical and empirical literature of the study. Chapter three discusses the methodology, data sources and estimation techniques. The main part of the study is examined in chapter four which examines the analysis and interpretation part of the study. Finally, conclusions and recommendations part of the study are found in chapter five.

### **Literature Review**

#### **Theoretical literature**

#### **Definition and concept of FDI**

According to Encyclopedia Britannica, FDI is an investment made by a company based in one country into a company or entity based in another country. FDI differs substantially from indirect investment such as portfolio flows, where in overseas institutions invest in equities listed on an actions stock. Exchange entities making direct investment typically have a significant degree of influence and control over the company into which investment is made. Open economies with skilled work force and good

growth prospects tend to attract large amount of FDI than closed, highly regulated economies.

Foreign direct investment is a component of countries national financial account. It is investment of foreign assets into domestic structures, equipment and organization. It does not include foreign investment into stock markets. It is thought to be more useful to a country than investment in the equity of its companies because equity investment is potentially “hot money”, which can leave at the first sign of trouble, whereas FDI is durable and generally useful whether things go well or badly (Dictionary definition).

### **2.1.2. Types of Foreign Direct Investment**

According to Chrysschoidis, Millar and Clegg (1997), there are five different types of foreign direct investment:

- ◆ The first type of FDI is taken to gain access to specific factors of production such as resource, technical knowledge, material knowhow, patent or brand name owned by a company in host country.
- ◆ The second type of FDI is developed by Raymond Vernon in his product cycle hypothesis. According to the model, the company shall invest in order to gain access to cheaper factors of production like low cost labor.
- ◆ The third types of foreign direct investment involve international competitors under taking mutual investment in one another. For example through cross share holdings or through the establishment of joint venture, investors can get access each other's product ranges. As a result of increased competition among similar products and R and D induced specialization this type of foreign direct investment is emerging.

- ◆ The fourth types of FDI concern the access to customers in the host country market. In this type of FDI, there are not observed any underlying shift in comparative advantage either to or from host country.
- ◆ The fifth type of FDI relates to the trade diversionary aspect of regional integration. This type occurs when there are location advantages for foreign company in their home country, but the existence of tariff or other barriers of trade prevent companies from exporting to host countries. The foreign company, therefore, jumps the barriers by establishing a local presence within the host economy in order to gain access to the local market. The local manufacturing presence need only be sufficient to circumvent the trade barriers since the foreign company wants to maintain as much of the value added in its home economy.

### **Contribution of FDI to Host Countries**

According to economic theory, the three principal contribution of foreign direct investment to host country are:

1. The financial capital invested by foreign firms
2. The export market access provided by them
3. The faster technology development that is expected to occur through technology transfer as a part of FDI package. Each of this is believed to help the host country to achieve faster industrial growth than is feasible otherwise and those contribute to the host countries economic growth and development. The first two aspects are usually examined by analyzing:
  1. The share of FDI in total external capital inflows into a host economy and gross domestic capital formation.



2. The extent and pattern of foreign ownership in various sectors in terms of the industrial composition of FDI in flows and source of FDI.
3. The export orientation of foreign invested firm.

In more depth studies, FDI's export contribution has also been sought to be examined by relating the ownership structure and export orientation of firms at the industry level. But it has been well understood that the role played by foreign enterprise could be more important than suggested by the average share of ownership in particular industries since domestic partners in foreign invested companies generally rely heavily on the technological and managerial expertise, marketing network etc, of their foreign partner. This is why, the above mentioned third aspects of whether FDI contributes to technological up gradation and skill formation in the host country (Smith and Tadro 2003)

### **Factors Affecting FDI Inflows**

Foreign direct investment plays an important role in the development of a nation. It must be understood that FDI is vital especially for under developing countries. A typical characteristics of this developing and under developed economics is the fact these economies do not have the needed value of selling and income in order to meet the required level of investment needed to sustain the growth of the economy (Rhysrodriguez 2010).

In such case FDI plays an important role of bridging the gap between the available resource or funds and the required resource or funds. However, in order to attract such investment, the government of such economies must take their policies more investor friendly in addition to these policies. Below

are some of the factors which affect foreign direct investment to a large extent (Rhysrodrigues 2010).

- A. **Size of the market:** This is true as studies conducted over time show that there is a strong correlation between the size of the domestic market and FDI that these countries attract.

This is due to the fact that the investment must justify the returns which are to be derived through sales made within the economy. This is the reason why that even though some third world African countries although blessed with abundant natural resource still lack the needed FDI on account of small and fragmented markets.

- B. **Labor cost:** Labor cost forms the major chunk of total product costs of many countries and hence MNC's try to find economies which exist in their cheaper labor cost.

- C. **Infrastructure:** Only when a country has an adequate system of transportation like ports, air ports, road ways and rail ways, power, water supply, ware houses and other kind of infrastructure can the economy attract FDI.

- D. **Openness:** The host country must bear in mind that its policies must be open and investor friendly; foreign investors must be able to freely set up facilities without much governmental hassles. Also, profits, dividends and gains made from operation during a year with in the country must be freely reportable to the home country (Rhysrodrigues 2010)

### **The interaction between FDI and Economic Growth**

Foreign direct investment may affect economic growth directly because it contributes to capital accumulation and transfer of new technologies to the

receipt country. In addition, FDI enhances economic growth indirectly where the direct transfer of technology augments the stock of knowledge in recent country through labor training and skill acquisition, new management practice and organizational practice. Theoretically, however, in the context of new classical or endogenous growth model the effect of foreign direct investment on the economic growth of the receiving country differ in recent growth model from their conventional counter parts (Mohammed ND).

Foreign direct investment can be expected to benefit the host country by transforming resource, increasing employment opportunities, improving the balance of payment and transferring technology.

Among other mote that FDI brings much needed physical capital, new technology, managerial and marketing talents and expertise, international best practice of doing business as well as increased competition. This resource may have the potential to be diffused into indigenous firms there by creating more innovative and productive growth. FDI contributes more jobs to the local economy by directly adding new jobs and indirectly when local spending increases due to purchase of goods and services by the new increase in employees. All of these in turn are expected to have positive multiplier effect for an economy (Ibid)

### **Theories of Foreign Direct Investment**

According to Nirvas, there are four theories of foreign direct investment. These theories can be discussed as follows:

#### **Theories of Monopolistic Advantage**

##### **Horizontal Foreign Investment**

It is explained by monopolistic advantage theory. The theory states that the investing firm possesses relative monopolistic advantage abroad against the competitive local firms. The firm enjoys the monopolistic advantage on two counts.

1. Superior knowledge and advanced technology
  2. Economies of scale
- ◆ Superior knowledge: It refers to all intangible skills, intellectual capital plus advanced technology possessed by the firm that counter a competitive advantage. This permits a firm to create unique product differentiation. The marginal cost of transfer its superior knowledge asset to foreign countries will be much lower in comparison to the local firms which need to invest the full cost to create such asset.

### **Theory of Oligopoly Advantage**

Vertical FDI is explained by the oligopoly theory of advantage; oligopolistic big firms tend to dominate in the global market on account of entry barriers. The big firm intends to retain their monopoly power by sustaining these entry barriers. They do not want new competitor to enter by allowing the market vacuum. Thus, they want growth maximization of a firm.

A firm relative rate of growth determines its relative size and relative market power. Through vertical direct foreign direct investment, they tend to capture and enlarge market share into the global market. The oligopoly theory explains the defensive investment behavior of multinational firm.

### **Product Life Cycle**

Vermon (1911)'s product life cycle model (PLCM) can explain both trade and foreign direct investment. Bu adding a time dimension to the theory of monopolistic advantage, the PLCM can explain firms shift from exporting to FDI. When a firm innovate a product initially, it produces at home, enjoying its monopolistic advantage in export market, thus specialize and export. Once the product becomes standardized in its growth product phase, the firm may tend to invest a board and export there to retain its monopoly power. The rivals from the home country may also follow to invest in the same foreign countries oligopolistic market.

### **Eclectic Theory**

Propounded by Dunning (1988) is autholietic and analytic approach for foreign direct investment and organizational issue of the MNOs relating to foreign production. Eclectic paradigm considers the significance of three variables:

- ⇒ Country specific i.e., location
- ⇒ Company specific i.e., relating to ownership
- ⇒ Internalization relating to trade & FDI.

### **Empirical Literature**

#### **The Trends of FDI in Developing Country**

The growth of foreign direct investment in developing world was extremely rapid during the past decades.

It rose from an annual rate of \$2.4 billion in 1962 to \$11 billion in 1980 and \$35 billion in 1990 before surging to our \$185 billion in 1999. Almost this total goes to Asia. The following Table shows both the rapid recent growth

of FDI and its concentration among nine recipient nations that together account for 71% of all investment follows.

**Table 1: FDI in Developing Countries (1970-1999) and Major Recipients**

*Foreign Direct Investment*

Year	Net FDI (billion of US dollar)	Recipient	Major recipients of FDI, 1997 FDI Received (% of low and middle income LDC total)
1970	3.1	China	21
1980	10.9	Brazil	18
1990	23.7	Argentina	13
1991	35.1	Mexico	6
1992	42.5	South Korea	5
1993	53.2	Chile	5
1994	78.1	Poland	4
1995	96.3		3
1996	118.9	Thailand All other LDEs (low and middle income countries)	25
1997	119.4		
1998	170.9		
1999	185.4		

*Source: United Nation Development Program, Human Developments Ret Out 1994*

Africa received less than 3% of the total and least developed countries got under 2%. This is not surprising given the fact that private capital gravitates toward countries and regions with the highest financial returns and the greatest perceived safety (Jodaro 2003).

## **Foreign Direct Investment Trends in Ethiopia**

### **Total Inward and Outward Flows of FDI**

The government of Ethiopia has recognized the importance of FDI for the country and opens many economic sectors for foreign investors. Despite the numerous attempts by the government to encourage foreign investors, the flows of FDI are quite low. The average annual FDI flow to Ethiopia from 2003 to 2006 was only \$399 million, which was only 1.56% of FDI flows to Africa. Ethiopia accounted for only 1% of African inward FDI stock while representing to 9% of the population of the continent. Ethiopians per capita inflows were \$5 in 2006 compared with \$39 for African countries as a whole. Foreign direct investment as a percentage of GDP of Ethiopia was 0.81% in 2006 compared with 1.6% for African countries as a group. Foreign direct investment to Ethiopia increased in absolute terms from an annual average of \$131 million in 1995 to 2000 and \$312 million in 2001 to 2006, although there are fluctuations. The unstable political environment of the country may be one of the reasons for fluctuation. Due to investment friendly environment created in the country, the inflow of FDI has been increasing over the last years. Accordingly, out of the total investment projects licensed between 1992-2009, FDI shares 15.2% (Yared 2006).

### **Foreign Direct Investment to Ethiopia Enhanced**

The flow of FDI to Ethiopia has shown a notable increase in the last nine months. According to Ethiopia investment agency (EIA), the increase in foreign direct investment is due to improvement with in the financial sector, enhanced promotion and better licensing procedures. An estimated 61 billion Birr, making up 95% of a nation's capital budget is covered from FDI.

The lead in FDI activities has been taken by India and China companies. Europe, Middle East and USA are also engaged in investment effort.

African investors from countries such as Egypt, Kenya, Nigeria and South Africa are also engaged in investment in Ethiopia in areas such as in the manufacturing and agro processing sectors. Significant investment also comes from Ethiopian Diaspora from Europe and USA who are engaged in the range of investment sectors.

The EIA issues licenses to foreign investment projects on the basis of feasibilities of projects and the priorities set by the development agenda of the nation (Meron 2012).

Since 1992, Ethiopia has made considerable progress in economic and social environment. This is due to the favorable policies and strategies that are instrumental in improving the national economy. The rural development policy and strategy, the industrial development strategy and other sectarian policies and strategies have initiated a new push toward creating frame works conducive to economic and social development. Major positive changes regarding foreign investment have been introduced through investment proclamation number 280/2002 and regulation number 84/2003.

Due to investment friendly environment created in the country, the inflow of foreign direct investment have been increased over the last eight years. China, India, Sudan, Germany, Italy, Turkey, Saudi Arabia, Yemen, the United Kingdom, Israel, Canada and the United States are the major source of foreign direct investment in Ethiopia (EIA 2010)



## **Sectoral and Regional Distribution of Foreign Direct Investment in Ethiopia**

The largest foreign direct investment receiving regions in the country are Addis Ababa, Oromia and Amhara regions. From the period June 1992 to June 2005 in terms of planned capital, Addis Ababa, Oromia and Amhara regions have attracted 36%, 28% and 15% of the total FDI inflows to Ethiopia respectively. In other words, these three regions accounted for 80% FDI flows to the country. Conversely, Gambella, Afar, Somali and Benshangule Gumze regions' performance in attracting FDI is poor. In general, foreign direct investment flows to Ethiopia have been unevenly distributed among the regions.

Even though, the incentive system encourages foreign investors to invest in the least developed regions of a country by providing special benefits including provision of land free of any charge, their performance in attracting FDI is poor. The FDI flow to Ethiopia is fairly diversified into three main sectors: primary, secondary and territory sectors.

Secondary and territory sector accounted for about 36% each of the total FDI inflows to Ethiopia in July 1992 up to July 2005, while the primary sector accounted for 28%. Unlike many African countries, FDI flows to the mining and queering sub sector are very small, as the country does not have some important or sufficient deposits of some minerals such as petroleum (Yared 2006).

### **Data Source, Model Specification and Estimation Techniques**

This chapter discusses the types and sources of data, the model specification and the estimation techniques.

### **Data Source and Description**

The writer have used secondary source of data, limited from 1981 to 2010. Five variables or determinants of real gross domestic product are used as independent variable. The data set comprises of foreign direct investment, trade deficit, government expenditure, domestic saving and human capital investment on education.

The data were drawn from international monetary fund, central statistical authority, national bank of Ethiopia and World Bank.

### **Method of Data analysis**

After collecting the required data, it is analyzed by applying econometric model.

### **Model Specification and Estimation Techniques**

Before specifying the model, it is advisable to say something regarding the theoretical relationship between each independent variable and dependent variable.

### **Government Consumption Expenditure and Gross Domestic Product**

Economic growth as measured by shift in aggregate demand or total output is responsible for change in government expenditure. This means increase in government expenditure on goods and services shifts the aggregate demand curve to the right. A decrease in government purchase on goods and services shift the aggregate demand curve to the left. Government expenditure on health, education and other social utilities including expenditure on infrastructure development increase human efficiency for production

(Mankiw 2000). Therefore, government expenditure on consumption and economic growth has positive relationship.

### **Domestic Saving and Economic Growth**

The relationship between saving and economic growth has received considerable attention in the theoretical and empirical literature. The theoretical underpinning of the relationship between saving and growth can be traced to the growth model of Harrods and Domar. It is argued in the literature that an increase in the saving level alters the national investment level and ultimately produces economic growth. Positive relationship between GDP and domestic saving is a widely accepted fact that was documented in the vast empirical literature. It is explained that the impact of domestic saving on economic growth is through investment (Salih Katircioglu 2006).

### **Human Capital and Economic Growth**

Human capital is a term economists often used for education, health and other human capacities that can raise productivity when it increases. After an initial investment is made, a stream of higher future income can be generated from both expansion of education and improvement in health. Both health and education are a pre-request for self sustaining growth and development. Thus, both health and education can be seen as a vital component of growth and development. Thus, both health and education can be seen as a vital component of growth and developments i.e., as input in aggregate production function. Their dual role as input and output gives health and education their central importance in economic development. It implies that the higher capital (human) investment, the higher will be the economic growth (Todaro

2009). Therefore, human capital investment and economic growth are positively linked.

### **Trade Deficit and Economic Growth**

Balance of trade includes only those transactions arising out of export and import of visible items. It does not cover the exchange of invisible items. Merchandise exports i.e., sale of goods abroad are credit entries because all transactions giving rise to monetary claims on foreigners represent credit. On the other hand, purchase of goods from abroad is debit entries because all transactions giving rise to foreign money claims on the home country represent debit. Having national output  $Y=C+I+G+X-M$ , trade deficit occurs when import is greater than export ( $M>X$ ). This trade deficit deteriorates the nation's output. Therefore, trade deficit and economic growth have negative relation (Cherunilam 2006).

Based on the above theoretical relationships, the following model is specified. The model is driven from Solow growth model.

That is:

$Y=f(K, L)$ , by taking this model as introduction.

$RGDP = f(FDI, GCE, DS, HC, TD)$

$RGDP = A + B_1 FDI_t + B_2 GCE_t + B_3 DS_t + B_4 HC_t + B_5 TD_t + U_t$

(+)            (+)            (+)            (+)            (-)

Where

RGDP = Real Gross Domestic Product

FDI= Foreign Direct Investment

GCE= Government Consumption Expenditure

DS= Domestic Saving

HC= Human capital investment expenditure on education

TD= Trade Deficient

Ut= Stochastic disturbance term

The coefficients  $B_i$ 's are the parameter estimators and  $t'$  is time. Except trade deficit, it is expected that all variables would have positive sign. This expectation is driven from the theoretical part (Economic theory).

### **Estimation techniques**

Given the classical assumption, ordinary least square (OLS) estimation technique is used in the study. The reason why the researcher uses this method of estimation technique is that:

First: The estimators obtained by the method consider the best linear unbiased property (BLUE).

Second: It is intensively appealing and mathematically much simpler than the other estimation techniques.

Third: It is one of the most commonly used methods in estimating econometric models (Gujarati 2009).

### **Discussion and Interpretation of Results**

#### **Over view Profile of FDI Growth Rate in Ethiopia**

Since the reform period begun in 1991, the government has made numerous pronouncements indicating its interest to attract private investment particularly FDI. In the last six years alone, it has revised its investment code three times to make it more attractive for foreign investor to invest in Ethiopia. The degree to which this policy has achieved its intended objective is not easy to determine. However, there is no detail comparable data for the pre EPRDF period to make a meaningful comparison. It is also analytically meaningless to compare with the past since the polices pursued by Derg had no intention of increasing foreign investment (Berhanu 1999). According to

Berhanu (1999), the Ethiopian federal democratic government tries to increase economic growth through;

- Saving from population as a result of high interest rate
- Increasing income from the rural population
- Increasing government spending
- Opening for FDI

Here the concern of the study is on the side of FDI.

The following Table 2 shows the trends of FDI growth rate from 1992-2010.

Year:	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
FDI growth rate	0	0.04	0.25	0.19	0.26	3.24	3.23	0.89	1.65	4.28	3.27	5.43
Year:	2004	2005	2006	2007	2008	2009	2010					
FDI growth rate	5.42	2.15	3.6	1.14	0.41	0.69	0.97					

As shown in the Table above, the rate of FDI does not have a stable growth rate. It rather shows some sort of fluctuations even though it shows improvement, compared to the previous year's which ears at zero level. One reason for these fluctuations of FDI may be political instability within the country. For example, from 1991 to 1994 there was Ethio Eritrean war. This war affects those foreign investors to invest within the country.

The other reason maybe the existence of market size, infrastructure and factors related to production. Generally, the growth of FDI in Ethiopia is very low. This is due to the fact that the country's economic development is low, compared to other comparable countries.

### **Econometric Analysis**

In this section, the results of the regression can be analyzed. The parameters of OLS model are estimated and the results are presented as follows:

**Table 3: Regression Result Table**

<b>Variables</b>	<b>Coefficient</b>	<b>Standard error</b>	<b>t-statistic</b>	<b>p-value</b>
FDI	0.1152552	0.1000109	1.15	0.260
GCE	3.063223	0.3672691	8.34	0.000
DS	-0.1072495	0.1906753	-0.56	0.579
HC	0.1544306	0.7654353	0.20	0.842
TD	-0.1523031	0.803036	-1.90	0.070
Constant	36294.01	1530.225	23.72	0.000

From the above result, we can observe that except human capital and domestic saving, the remaining variables are significant at 5 percent level of significance. This is due to the fact that both human capital and saving has a long run effect on gross domestic product of Ethiopia. In the short run (at present movement) these two valuables do not have so much effect.

Number of observation =30

F (5, 24) =343.59

Probe>F =0

R-squared =0.9862

Adjusted R-squared =0.9834

The predicted model can be formulated as follows;

$$\begin{aligned}
 \text{RGDP} = & 36294.01 + 0.1152552\text{FDI}_t + 3.063223\text{GCE}_t - \\
 & 0.1072495\text{DSt} + 0.1544306\text{HL}_t - \\
 & \quad (0.260) \quad (0.000) \quad (0.579) \quad (0.842) \quad (0.070) \\
 & 0.1523031\text{TD}_t \\
 & (0.000)
 \end{aligned}$$

Key; numbers in the parentheses are t-values.

As shown from the regression result, the coefficient of FDI is statistically significant at 5 percent level of significance. This shows that a unit change in FDI leads to 0.1152522 unit change in the future real gross domestic product. Both FDI and RGDP have a positive link. The higher inflow of FDI to Ethiopia will lead to improvement in technology, skill, technical knowhow, capital, which in turn leads to improvement in real domestic product of the country.

The coefficient of government consumption expenditure is positive. This indicates that government consumption and real gross domestic product are positively linked in Ethiopia. A unit change in GCE holding the other variables constant as compared to the previous year government expenditure, real gross domestic will increase by 3.063223 units. This value indicates that government consumption expenditure has a multiplier effect on real GDP.

The coefficient of domestic saving to real gross domestic product is negative, which shows that domestic saving and real GDP in Ethiopia have inverse relationship in the short run. But most researchers prove that domestic saving and real gross domestic product have positive relation or linkage. This study on the contrary proves their inverse relation. One rationale behind this is that high saving level is associated with higher saving or deposit rate banks



would pay higher interest for the savers who save their money in bank. So, if the bank pays higher interest rate for savers, saving levels would increase. But in order to compensate that interest rate, the bank lends at higher interest rate. This higher interest rate in turn leads to lower investment, since investment and interest rate have inverse relation. Therefore, output will decrease. This is the postulate of economic theory. But when we see empirically, in Ethiopia higher growth is achieved due to higher consumption of the people. National income has two components i.e., consumption and saving. In Ethiopia, the level of consumption is higher than that of saving. Consumption and saving have inverse relationship. The higher consumption means the lower saving and vice versa. Therefore, in Ethiopia saving and economic growth would have inverse relationship in the short run. However, in the long run this higher income would provide higher consumption and higher saving. So this saving rate has a positive impact on the long run economic growth on the country.

Human capital investment on education and economic growth has positive relationship. Holding other variables constant in human capital changes by one unit, real domestic product will change by 0.1544306 units positively. Investment on education increases peoples know how and consequently production level. The majority of the people in the country are uneducated. By taking education as one prerequisite for development, if the government increases its expenditure, it is clear that the nation's output would increase. This is due to the fact that education makes people especially the rural people flexible to adopt new technologies and produce more output.

The coefficient of trade deficit is negative. This indicates that as trade deficit increases, real gross domestic product decreases. In Ethiopia there is no trade surplus starting from past to the present government. As the country's import

increase by greater amount than its export, trade deficit would increase. This would have a direct impact on the nation's total national income. Having this general economic theory, the regression result shows that a unit increase in a country's trade defect or trade balance in absolute value will lead 1.90 unit decreases in nations output on average.

## **Tests**

### **Stationary Test**

For OLS regression results to be on time series, all the variables have to be stationary. That means the mean and variance of the variables should be constant over time and the value of the co variance between the two time periods, not the actual time at which the co variance is computed. In the contrary, if the variable follows a random walk, OLS regression may be inconsistent, since the variables do not have constant mean and variance (Gujarati, 2009). For mostly unit root test is used as test of stationary for time series data. The existence of unit root is formally checked by DF and ADF test using OLS moldering approach. If the absolute value of calculated test statistics is greeted than that of critical value, then accept the null hypothesis of stationary of variable.

**Table 4: ADF test for both constant and trend**

<b>Variables</b>	<b>t-statistics</b>	<b>t-critical</b>	<b>D-leg</b>
RGDP	2.741	0.3035	1
FDI	1.746	0.3990	1
GCE	2.425	0.8179	1
DS	-0.4514	0.4992	1
HC	-2.856	0.0244	1
TD	1.302	0.0355	1
DRGDP	-2.294	0.8882	1
DFDI	-5.316**	0.0257	1
DGCE	-3.584	0.8345	1
DDS	-2.095	0.8710	1
DHC	-2.205	0.8452	1
DTD	-5.632**	0.0927	1
DDRGDP	-5.060**	0.1989	1
DDFDI	-8.040**	0.0000	1
DDGCE	-5.420**	0.1721	1
DDDS	-1.813	0.2520	1
DDHC	2.104	0.0034	1
DDTD	-7.481**	0.0091	1

“\*\*” Denotes rejection of the null hypothesis at 5 percent level of significance.

The result shows that RGDP, FDI, GCE, HC and trade deficit are stationary at their level. But domestic saving becomes stationary at its first difference that is I (0). After these, it is possible to predict the future trends of the variables (both dependent and independent).

#### **4.2.3 Co-Integration Test**

The fact that there is a unit root in some of the variables and not in others implies we should check whether the variables are co integrated or not. We can determine it by testing the stationary of the error term. If this error term

is stationary, then all variables included in the model are stationary (Gujarati 2009).

The existence of co integration is formally checked by ADF test. If the absolute value of the residual calculated test statistics are greater than that of critical values, then reject the null hypothesis of non stationary (No co-integration).

**Table 5: Co integration Test Results**

Test statistics	Critical values (at 5 percent)
-4.336	-2.989

HO: There is no co-integration

HA: There is co-integration

The regression result shows that there is co-integration of residuals. Since the value of the residual calculated test statistics are greater than that of the critical value at 5 percent level of significance; therefore, we fail to accept the null hypothesis of no co-integration. So it the error term is stationary. We can conclude that all the variables including in the mode are stationary.

### Overall Level of Significance Test

The overall significance of the variable is tested by F-test. If calculated F-value is greater than critical value, then the explanatory variable including in the model are jointly statistically significance and explain the explained variable (Gujarat 2009).

**Table 6: Table of Overall Significance Test**

F-calculated	F-critical	Adj.R <sup>2</sup>
343.59	0.000	0.9834

HO= All slope coefficients are simultaneously zero

HA= Not all slope coefficients are simultaneously zero

The result shows that F calculated is greater than F critical. As a result, we reject the null hypothesis and accept the alternative one. The goodness of fit of the model is measured by coefficient of determination, which shows the percentage of explained variable is expressed by the explanatory variables since the model possesses multiple regression analysis adjusted R-square is taken in to account in order to measure the explanatory power of independent variables. The reason behind this is that, if we use an adjusted R-square is 0.9834 which implies that 98.34 percent of variation in dependent variable is due to the variation of explanatory variable included in the model and the remaining variation (1.64 percent) is explained by variables which are not included in the model. In general, even if all variables are not significant when tested independently, they are significant when tested jointly.

### **Diagnostic Tests**

In this section, the validity of the model has been tested, that means multicollinearity, heteroscedasticity and autocorrelation tests have been under taken.

### **Multicollinearity Test**

The term multicollinearity refers to the existence of linear relationship among some or all explanatory variables of a regression model. If multicollinearity is perfect, the regression coefficients remain indeterminate and their standard error tends to be large. As a result, the population value of the coefficients cannot be estimated precisely (Gujarati 2009). The existence

of multicollinearity among independent variables is examined by variance inflating factor (VIF) or alternatively by correlation coefficient, having the decision rule of the following:

- ✓ If  $VIF > 10$  or tolerance ( $1/VIF$ ) closer to zero, the explanatory variables are correlated, then accept the alternative hypothesis of multicollinearity.
- ✓ If  $VIF < 10$  or tolerance greater than zero, then accept the null hypothesis of no multicollinearity.

**Table 7: Table of Multicollinearity Test**

Variable	VIF
FDI	11.35
GCE	17.41
DS	15.68
HC	5.39
TD	7.25

*Mean VIF = 11.42.*

Since multicollinearity is not a problem of kind rather a problem of degree, this result shows the existence of multicollinearity problem, because  $VIF > 10$ ,  $11.42 > 10$ . But this does not show perfect multicollinearity; therefore, the coefficients can be estimated precisely. Alternatively, we can use their correlation coefficient to see their degree of co-linearity.

**Table 8: Table of Correlation Coefficient**

	FDI	GCE	DS	HC	TD
FDI	1				
GCE	0.9240	1			
DS	0.9116	0.7381	1		
HC	0.7174	0.8307	0.8705	1	
TD	-0.8912	-0.9126	-0.8328	-0.7011	1

The correlation coefficient matrix shows that all the variables have the correlation coefficient of above 0.5 which shows higher multi collinearity.

### **Heteroscedasticity Test**

A critical assumption of classical linear regression model is that the disturbance ( $U_t$ ) has all the same variance. If this assumption is not satisfied, there will be a problem of heteroscedasticity (Gujarati 2009). The nature of the error term can be judged by Breusch-Pagan test by using the decision rule.

If critical value is greater than statistical value, the result fails to reject the null hypothesis of homoscedasticity; otherwise there is a need to reject.

Given  $H_0$  = the variance is constant

$H_A$  = the variance is not constant

The result shows that  $\text{Chi}^2(1) = 1.87$  and

Prob7  $\text{Chi}^2(1) = 0.1719$

Where  $\text{Chi}^2$  is statistical value and prob7 $\text{Chi}^2$  is critical value. Therefore, it shows that there is heteroscedasticity problem. The solution is left for the coming generation since it is beyond my capacity.

### **Autocorrelation Test**

The classical model assumes that the disturbance term relating to any observation is not influenced by the disturbance term relating to any other observations. However, if there is such dependency, we have autocorrelation problem (Gujarati 2009).

The nature of autocorrelation of the disturbance term is judged by Durbin and Watson 'd' statistics by using the decision rule.

If the calculated value of S turns out to be sufficiently close to two (2), we fail to reject the null hypothesis of no autocorrelation and it is close to zero or four, we reject the null hypothesis of no autocorrelation.

$H_0$  = There is no serial correlation

$H_A$  = There is serial correlation

From the regression output we have d statistics of 1.646252 which is close to two (2). Therefore, there is no autocorrelation problem. The absence of autocorrelation shows that the error term of one observation does not influence by the error term of the other observation.

### **Conclusions and Recommendations**

#### **Conclusions**

This paper has examined the relationship between FDI and GDP using time series data from the Ethiopian economy. In Ethiopia, foreign direct investment has increased since 1992. The econometric result shows that FDI inflows to exert an independent influence on economic growth. But some literatures show that FDI does not have an independent impact on gross domestic product (el, Jordan). That is the direction of causation is not towards from FDI to GDP growth, but GDP growth to FDI. That is the direction of growth impact of FDI on such economy has not existed so far. However, the result shows that in Ethiopia FDI and economic growth have



positively linked and the direction of causation goes from FDI to GDP. The impact of HC, GCE and FDI on GDP is found to be positive. But the impact of domestic saving and trade deficit on economic growth of Ethiopia is found to be negative. Foreign direct investment has been affected by different factors which include the availability of labor (cost of labor), raw materials, and the existence of infrastructure, higher demand for the product and political stability of the host country. Until 1972 in Ethiopia those factors were abundant; as a result, there was no free inflow of foreign direct investment to the country. However, after 1992 the present FDRE government partially liberalizes its economic policy and some sort of improvement in FDI inflow has been observed. In conclusion, foreign direct investment, according to the finding, is a vital component of RGDP.

### **Recommendation**

In general, the research recommends the following in order to increase the share of foreign direct investment to real gross domestic product:

- ◆ The Ethiopian investment agency and the government should concentrate on matters that hinder the inflow of foreign direct investment to the country and implement ways and strategies that should encourage foreign investors to invest in the country.
- ◆ The government of Ethiopia should open its economy to foreign investors. If the economy is not open, there will not be a chance for those investors to invest within the country, even though there is some sort of liberalization.
- ◆ Since foreign investors are attracted by the countries social economic condition, the government should harmonize its social as well as economical aspects.

- ◆ As economic development is generated from investment i.e., both domestic and foreign investment, the concerned body should treat foreign investors as domestic investors which encourage their intention towards the country.
- ◆ In general, the Ethiopian government, in particular the Ethiopian investment agency should do what the past government did not do. That means, it must make the countries environment suitable for foreign investors.

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