

Determinants of Foreign Direct Investment in Ethiopia

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Abstract

Economic growth among others depends of investment which in turn relies on savings. In developing countries low domestic savings so that low investments are resulting low economic growth. Under such condition the role of FDI is indispensable. In light of this, many developing countries make considerable efforts to attract FDI. Understanding this, the government of Ethiopia has opened several economic sectors to foreign investors. It has also made a range of policy reforms and issued several incentives. Considering this fact, this study tried to identify factors that determine the flow of FDI in Ethiopia based on secondary data for the period 1991 to 2018 employing Autoregressive Distributed Lag (ARDL) model. The findings displayed FDI inflows to Ethiopia are increasing, despite the fluctuation. The findings also revealed incentives to foreign investment and enhancing economic growth are important in attracting FDI, while higher inflation and effective exchange rate have significant and negative effect on the inflow of FDI. The findings of the research suggest the need to curb inflation and reduce effective exchange rates, and enhance incentives for investors especially for investors in production of import substitute and exportable items.

Key words: Determinants of FDI, ARDL, Ethiopia.

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Introduction

Economic growth among others depends on the rate of investment which largely depends on savings. In developing countries low domestic savings are resulting in low investment and low economic growth. Under such condition, the role of FDI to enhance economic growth is indispensable. FDI is a reliable source of capital without undertaking any risks like debt (Demirhan & Masca, 2008). FDI flows are also less volatile than other forms of capital flows. Policy makers strongly believe that foreign direct investment is important to ensure long-run economic growth and development than any other forms of capital. This argument is based on the idea that FDI brings with it managerial skills and technology which can be adopted by the host country. This quality of FDI attracts policy makers to identify the factors that determine FDI flows. Cognizant of its contributions, many developing countries make considerable efforts to attract FDI. They have been trying to attract foreign investments

offering a number of incentives like income tax holiday, import duty exemptions, subsidies to foreign firms, and market preferences (Bouoiyour, 2007). Despite a number of efforts made to attract FDI, what pulls FDI into countries, remains an open question (Yu & Walsh, 2010).

The intuitive answers to this question from the host country's side are stable economic conditions, strong institutions, political stability, flexible regulations, and good development indicators especially the labor force. Equally higher inflation, poor institutions, lower development indicators are challenges for attractions of FDI in developing countries. From the perspective of the investing firm, Dunning (1993) outlines three motives for a firm to engage into investment: access to resources, access to markets, and seeking for efficiency.

It is important to note that to attract and reap the full benefits of FDI for development, among others, depends on the national policy framework and macroeconomic environment of developing countries. The factors that may hold back the full benefits of FDI in developing countries include, among others, low level of education and health, low level of technological capacities, insufficient openness to trade, poor infrastructure, weak competition and inadequate regulatory frameworks (OECD, 2012). Conversely, better technological capacity, access to better educational and infrastructure achievement may enable to get better benefit from foreign direct investment. Hence, in order to benefit from FDI, host countries need to establish a transparent, broad and effective policy environment for investment and build human and institutional capacities to implement them (OECD, 2012). Thus, the growth effects of FDI motivated policy makers including academia to identify determinants of its flow.

Developing countries received one-third of the global capital flows in 2018. The flow was concentrated in a small number of countries. Asia received three-quarters of the capital flows to developing countries. The least developing countries received 3% of the total flows. Compared to the rest of the regions the inflow of FDI in Africa was the lowest in the world. According to UNCTAD's world investment report, in 2019 the volume of FDI in Africa was 46 billion. In Ethiopia, since recently especially after 2016 the inflow of FDI contracted because of the political instability in the country (UNCTAD, 2018). However, the prospects remain positive due to a number of economic reforms that facilitate investment.

Literature Review and Problem Statement

Overview of FDI in Ethiopia

In the imperial era the Ethiopian economy was characterized by a mixed economy in which both the public and private sector worked together. During this time there was no restriction on private business. During this regime the government developed a comprehensive plan for three successive five-year plans to promote industrial development and encourage manufacturing sector. Furthermore, a number of basic proclamations and economic policy measures were taken. For example, Proc.No 60/1944 and 107/1949 were legislated to promote foreign investment in Ethiopia. Later the government also offered investment incentives which included import-export income tax exemptions and income tax holidays. It was also possible for foreign investors to own the land required for their investment. When the Derg came to power in 1974 it proclaimed a socialist (command) economic system where the market system was blocked and the production and distribution process was highly controlled by the socialization system. The regime did not open for both domestic and foreign investors until 1991. In 1975 the regime nationalized major industries. In this period, the environment was not encouraging for private investment in general and FDI in particular. As a result, there were no foreign direct investment inflows during that time (Haile & Assefa, 2006).

In 1991 the Ethiopian People Revolutionary Democratic Front (EPRDF)-led government took power and the command system was replaced with a free market system and many macroeconomic reforms were made. The government implemented a sequence of reform measures in order to encourage private sector involvement in the economy which is supposed to have an important role in the

development process of the national economy (Haile & Assefa, 2006). The privatization program was initiated in 1994. Further, as the existing proclamation enacted a higher capital requirement for foreign investors, proclamation No 37/1996 was legislated to rectify this problem.

In spite of its constraints and drawbacks, Proc No 37/1996 and Regulations No 7/1996 provide attractive provisions for foreign investors. Foreign investors were allowed to invest in building construction equipment, and in hotels whose standard was below the four star and five grades. Foreign investors were allowed to repatriate capital from sale, liquidation or transfer of residence to their home country, in addition to profits, dividends, interests and payments arising from technology transfer. Investment incentives were also extended to additional sectors such as education, hotels, tourism and health. The period of incentives was extended from 3 to 5 years (Abate, 2009).

Effects of FDI on Economy

Foreign direct investment (FDI) is an integral part of international economic system. Its effect on the economy remains a lively debate in the literature. Scholars like Helpman et al. (2004) argued that FDI makes a contribution to the development process by enhancing factor productivity and income growth in host countries, beyond what domestic investment normally would. First, it serves as a conduit for technology transfer and human capital formation especially from developed to developing countries. Second, through intra-industry linkages, it plays an important role in creating a competitive business environment which leads to efficiency of resource use in the recipient economy. Third, FDI is direct and debt-free source of capital stock for the host economy, especially in markets where capital is relatively scarce (Bruno, Campos, & Estrin, 2018). Fourth, foreign firms bring not only financial capital but also managerial

techniques as well as entrepreneurial skills that lack in LDCs. Foreign firms may possess productivity advantages over domestically oriented firms due to better managerial and marketing skills (Blomström & Kokko, 2003). Some of these firm-specific advantages are expected to spillover to domestic firms in the host country. Fifth, FDI is also helpful to reduce shortage of hard currency and budget deficit problems in developing countries through export earnings and from profit-tax, respectively. Last, FDI can also play an important role by creating employment opportunities and by integrating the host-country economy into the world economy (OECD, 2012). Above all, FDI contributes to economic development and poverty reduction efforts of developing countries like Ethiopia (Habtamu, 2019).

Although positive spillovers are expected, there may also be negative externalities or adverse effects of FDI for the host economy. Fierce competition from foreign firms with superior technology, management, and economies of scale may crowd out domestic producers out of market and leading to private monopoly market power as well as employment losses (Bruno et al., 2018). FDI may concentrate in sectors with limited forward and backward linkages to the rest of the economy. It might inhibit the development of indigenous skills because of multinational companies' dominance over local enterprises (Todaro, 1992). Further, it can also hinder the growth of domestic enterprises and domestic investment by importing the input and intermediate product from their subsidiaries in other countries and this will have an adverse impact to sustain the growth (Habtamu, 2019). Even if they are provided tax holidays and duty-free incentives, tax revenue collected from them might be low as they are sophisticated and often engaged into tax avoidance and tax evasion (Thomas & Peter, 2000). Despite a perineal debate on the relationship between

FDI and economic growth, it is still recommended that developing countries need to attract FDI (Nwankwo, 2006).

Determinants of FDI

FDI has both micro and macro-level theoretical foundations. However, it is important to note that these theories are not self-contained to explain all types of FDI. The micro theoretical explanation of FDI is basically steamed from traditional trade theories: theory of differences in factor endowment and the theory of comparative advantages. In this regard, one of the earliest theories of FDI is the classical theory. This theory argues a difference in interest rate between countries is the main factor behind movement of Multinational Corporations (MNCs). The theory argues capital moves from places where the rate of return is low to places where the rate of return is high. So according to the classical view FDI arises because of differences in return to capital. However, the existence of risk and barriers to capital movement may erode the legitimacy of this theory so that capital can flow in any direction (Hosseini, 2005).

From the perspective of investing firm, United Nations (2007) and Dunning (1993) outline three motives for a firm seeking to engage in investment. The first type of FDI is called market-seeking FDI that aims to serve regional and local markets. It is also called horizontal FDI (Bouoiyour, 2007). Foreign firms often produce import-substitute goods. So the level of horizontal FDI depends on the size of local and regional market and growth rate of the host countries. The second type of FDI is called resource-seeking. Here firms invest abroad to get resources not available in the home country, such as natural resources, raw materials, or low-cost labor. This type of FDI is often engaged in export. Low-cost labor is the main driver for export-oriented FDI. Often FDI in the resource sector is attracted to countries that are endowed with natural resources. The third

type of FDI, called efficiency-seeking, takes place when the firm can gain from the common governance of geographically dispersed activities in the presence of economies of scale and scope (Bouoiyour, 2007).

Studies so far done suggested a number of macro variables that determine FDI (Yu & Walsh, 2010; Artige & Nicolini, 2006; Singh & June, 1995). Among these factors the most frequently identified factors include the size and the growth of potential host market, the degree of openness of the host economy, economic stability, labor cost, political stability, the quality of institutions, infrastructure development, and investment incentives (Yu & Walsh, 2010).

The volume of domestic market is an important determinant of FDI. The larger the host country's market, the higher the foreign direct investment because of higher potential demand and lower costs because of scale economies. Commonly the GDP and population size are taken as indicators of domestic market. Market size as measured by GDP or GDP per capita is the most robust FDI determinant (Artige & Nicolini, 2006). It is especially important to attract horizontal FDI. So FDI moves to countries that have expanding market and higher purchasing power. This large market enables to use economies of scale and efficient utilization of resources (Chakrabarti, 2001). Some argue it is GDP growth rate that is important than actual GDP in attracting FDI. Because the current size of GDP may be small but firms may engage into investment looking at the potential. So domestic market commonly measured in terms of population and GDP growth rate is an important determinant of FDI (UNCTAD, 1998).

The exchange rate has important effect on FDI inflows. A weaker real exchange rate may increase FDI as it enables firms to take advantage of relatively low prices in host markets to purchase facilities. A weaker host

country's currency tends to increase inward FDI as depreciation makes host country's assets less expensive relative to assets in the home country. On the other hand, a stronger real exchange rate may help to strengthen the incentive of foreign companies to produce domestically. Exchange rate is a barrier to entry in the market that could lead to more horizontal FDI. It is important to note that erratic exchange rate may lead to uncertainty which decreases the inflow of FDI.

Incentives for investment are important policy instrument to attract FDI. Tax incentive is one of the common types of incentive given to attract FDI. Tax incentives provide relief to firms and facilitate their performance and remain in business. So the amount of tax incentive given to a firm is an important determinant of FDI.

Export orientation is very important in attracting FDI. There is complementarity between trade and FDI flows (Singh & Jun, 1995). Mostly openness is measured by the ratio of exports plus imports to GDP, in determining FDI. The basic premise behind openness is that export-oriented foreign firms engage into the production of tradable goods prefer to invest in open economy.

Political stability and economic stability are the key concerns of potential foreign investors. Foreign companies invest confidently if they are able to operate profitably without excessive risk (Marr, 1997). Political stability is qualitative in nature. Some used number of strikes and riots, and work days lost as proxy variables (Demirhan & Masca, 2008). The potential for political instability significantly affects FDI inflows (Schneider & Frey, 1985). Political instability (which measures the probability of a change of government) was found to be significant in affecting FDI (Edwards, 1990). Inflation is another factor that affects FDI. Unpredictable and high inflation decreases the inflow of FDI

(Birhanu, 1998). It may reduce return from investment and competitiveness of business.

Institutional quality is a likely determinant of FDI, particularly for less-developed countries, for a variety of reasons (Yu & Walsh, 2010). First, good governance is associated with higher economic growth, which should attract more FDI inflows. Second, poor institution leads to corruption which in turn decreases the inflow of FDI as it increases the cost of investment and reduce profits. Third, the high sunk cost of FDI makes investors highly sensitive to uncertainty, including the political uncertainty that arises from poor institutions. However, it is hard to measure institutional factors, and empirical results are vague.

Adequate and efficient infrastructure helps to access natural resources and potential market easily. Infrastructure has a wide dimension ranging from roads, ports, power supply, railways and telecommunication systems (Demirhan & Masca, 2008). In low income countries infrastructure is constraining FDI. So well-developed and good quality infrastructure increase the productivity of potential investments in a country and thus stimulate FDI flows to the host country (Jordaan, 2004).

Realizing the role of FDI and its spillovers, the government of Ethiopia has opened several economic sectors to foreign investors. The government has made a range of policy reforms, including devaluation of domestic currency, deregulation of domestic prices, and liberalization of foreign trade. To attract and encourage foreign investments the government has issued several investment incentives, including tax holidays, duty free import of capital goods, and export tax exemption. In recent days it is also constructing industrial parks to attract foreign investors. Despite a number of factors identified in determining the inflow of FDI in different countries, there is still a lively debate on the factors that affect inflow of FDI. Thus, this research has tried to fill this

gap by providing empirical evidence to the debate. Therefore, the study aimed at identifying factors that determine the flow of FDI in Ethiopia. Doing this research is important in the age of economic globalization where competition to attract foreign investment is high. Accordingly, this study tried to answer the following research question: what is the trend of foreign direct investment in Ethiopia? And what are the determinants of foreign direct investment inflows in Ethiopia?

Materials and Methods

Data Type and Sources

This study entirely depends on secondary data sources. The empirical analysis was made based on time series data collected in Ethiopia between 1992 and 2018. As a dependent variable the volume of FDI flows over the period was taken. As explanatory variables, tax incentives, per capita GDP growth rate as a proxy to market size, the ratio of exports plus import to GDP was used as a proxy to openness, and an indicator to macroeconomic instability inflation and real effective exchange rate were used. To achieve the objectives data was collected from different sources. The major data sources used were Ethiopian Investment Authority (EIA), National Bank of Ethiopia (NBE), the World Bank (WB), and the United Nations Conference on Trade and Development (UNCTAD).

3.2 Method of Analysis

To analyze the data obtained both descriptive and econometric analysis were used. As descriptive analysis mean, standard deviation, percentages, and graphs were used. And as an econometric analysis appropriate Auto-regressive Distributed Lag (ARDL) model was used.

Model Specification

To identify the factors that determine foreign direct investment, Auto-regressive Distributed Lag (ARDL) model was used. The model includes macroeconomic variables that have the potential in influencing foreign direct investment in Ethiopia. The model is specified as follows:

$$FDI_t = \delta_0 + \delta_1 OPEN_t + \delta_2 REAL_EFF_EX_RATE_t + \delta_3 TAX_INC_t + \delta_4 REAL_GDP_PCA_t + \delta_5 INF_t + U_t \dots \dots \dots (1)$$

Where FDI_t is Foreign Direct Investment flow at time t , OPN_t is sum of real import and export as a percent of real GDP at time t , $REAL_EFF_EX_RATE_t$ is real effective exchange rate at time t , TAX_INC_t is tax incentive to total revenue ratio at time t , $REAL_GDP_PCA_t$ is real per capita income at time t , INF_t is inflation rate at time t , for $i=1, \dots, 5$ are coefficients, is the constant term, U_t is random error at time t .

Equation (1) does not allow policy makers understand the short run and long run effects of the macroeconomic variables on foreign direct investment. Often there is a need to understand the long-run and short-run effects of variables. Hence, we re-specify the model to account for both short-run and long-run determinants. To realize this, we used the ARDL approach advanced by Pesaran et al. (2001). It is a suitable approach because: first, it allows to understand the long-run and short-run determinants of foreign direct investment; second, it does not impose the restrictive assumption that all variables in the study should be integrated of the same order-variables are integrated of order zero, one, or a mixture of both; third, it is best for finite samples (Pesaran et al., 2001).

The ARDL specification of Eq. (1) takes the form:

$$\Delta FDI_t = \beta_0 + \lambda_1 OPEN_{t-1} + \lambda_2 REAL_EFF_EX_RATE_{t-1} + \lambda_3 TAX_INC_{t-1} + \lambda_4 REAL_GDP_PCA_{t-1} + \lambda_5 INF_{t-1} + \lambda_6 FDI_{t-1} + \beta_1 \sum_{i=1}^n \Delta OPEN_{t-i} + \beta_2 \sum_{i=1}^n \Delta REAL_EFF_EX_RATE_{t-i} + \beta_3 \sum_{i=1}^n \Delta TAX_INC_{t-i} + \beta_4 \sum_{i=1}^n \Delta REAL_GDP_PCA_{t-i} + \beta_5 \sum_{i=1}^n \Delta INF_{t-i} + \epsilon_t \sum_{i=1}^n \epsilon_{t-i} + \epsilon_t \dots \dots \dots (2)$$

Where, ϵ , λ , and β are the white-noise error term, the long-run coefficients, and the short-run coefficients of the model, respectively. And Δ is the first-difference operator and t denotes time period; n is the maximum number of lags in the model to be selected by the Akaike Information Criterion (AIC).

To test whether there is a long run equilibrium relationship between the variables; bounds test for co-integration was carried out as proposed by Pesaran, Shin, and Smith (2001). To get reliable estimates for equation eq (2), the coefficients $\lambda_1, \lambda_2, \lambda_3, \lambda_4$, and λ_5 must be jointly significant. This means the variables in eq (2) should be cointegrated for the results to be reliable. To ensure the presence of cointegration we test the hypothesis that $\lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = 0$. Pesaran et al. (2001) have derived two sets of critical values under this null hypothesis. The first set of critical values are derived by assuming that the variables in Eq. (2) are integrated of order zero, $I(0)$, while the second set are derived by assuming that they are integrated of order one, $I(1)$. We can reject the presence of cointegration if the calculated F statistic is smaller than the first set of critical values. The presence of cointegration is failed to be rejected if the calculated F-statistic is larger than the second set of critical values. The test is inconclusive if the calculated F-statistic lies in-between both sets of critical values.

Table 1 Definitions of variables

Variables	Definitions
Foreign direct investment	Refers to direct investment by a resident of another country in an enterprise inside in a host country.
Real effective exchange rate	Refers to the weighted average of a country's currency in relation to an index or basket of other major currencies.
Tax incentives	Refers to summation of all tax incentives granted by the government for foreign investments yearly. It is measured in terms of foreign revenue the country sacrificed in granting incentives to attract FDI.
Openness	Refers to the ratio of trade (export plus import) to GDP as a proxy to trade liberalization.
Real GDP per capita	Refers to per capita income that serves as a proxy for market size.
Inflation rate	Refers to the change in average price level of a basket of selected goods and services in an economy (consumer price index or CPI).

despite the fluctuations. As Figure 4.1 shows, the inflow of FDI from 1991 till 1996 were nearly steady and the inflow of FDI from 1997 to 2012 were moved with fluctuation relative to the previous period but starting from 2012 due to favorable environment, low wage and cheap power energy it started to increase exponentially. In general, after 1996 FDI inflows to Ethiopia has been fluctuating until 2012 and then progressively raised up till reaching 3.9 billion US\$ in 2016 which is the highest peak within the study period. Probable explanation of the trends of foreign investment inflow in Ethiopia was associated with economic and none economic aspects, such as; drought, war and political instability. For instance, the sharp decline in FDI inflow in 1999 is probably associated to the border conflict between Ethiopia and Eritrea (1998-2000).

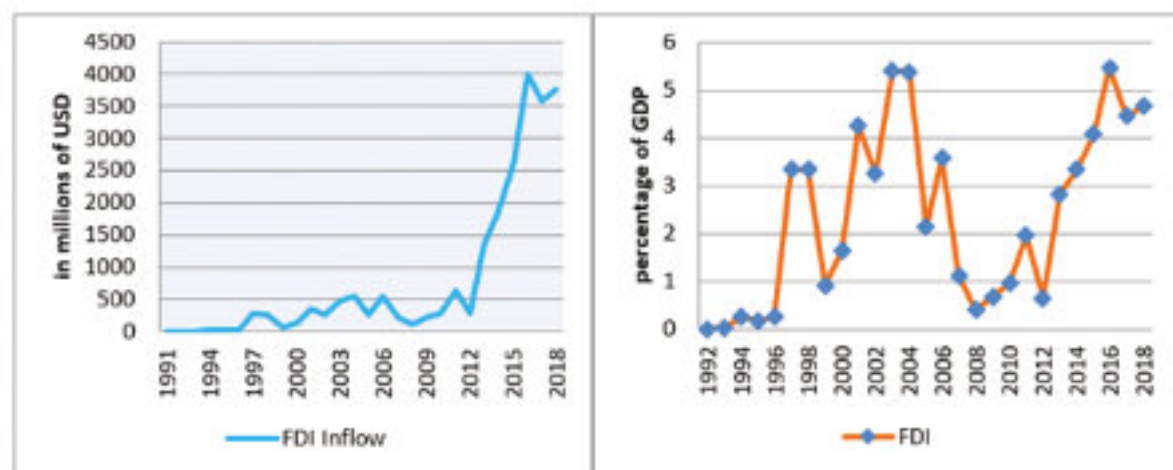
Likewise, since the Ethiopian economy is mainly dependent on the agriculture sector, the decline of FDI inflow in 2002 may be related to the severe drought which occurred in the same year. Moreover, during the 2005 election time the FDI flows declined to \$265 million from \$545 million in the previous year of 2004. The decline in 2007/08 reflects the global financial crisis worldwide as well as economic instability in Ethiopia (Esmale, 2018). In general, after 1996 FDI inflows to Ethiopia have been fluctuating until 2012 and then progressively raised up till reaching 3.9 billion US\$ in 2016 which is the highest peak within the study period. This straight upward movement of FDI inflow after 2012 might be associated with the launching of Growth and Transformation Plan (GTP 1) of the country.

Results

Trends of Foreign Direct Investment in Ethiopia

FDI inflows to Ethiopia overall has been increasing from the period 1991 to 2018 with an annual average of nearly 790 million US\$

Figure 1: FDI Inflow to Ethiopia

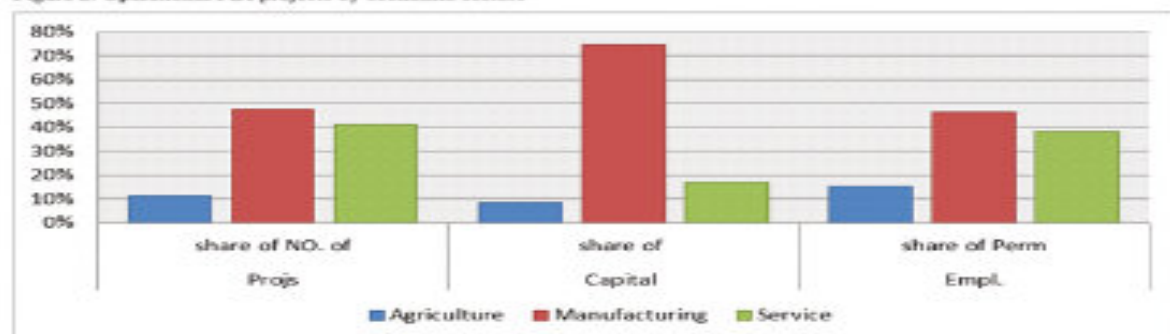


Source: own computation using World Bank data.

Distribution of FDI by Economic Sectors

As Figure 2 shows, from the total foreign direct investment projects, about 48% were in manufacturing, which accounted for 74.5% and 46.42% of the capital shares and permanent employment, respectively. About 41% of the FDI projects were invested in the service sector which accounted about 17.16% and 38.34% of the capital shares and permanent employment, respectively. The rest 11% of the projects were on agriculture, which accounted 8.36% and 15.25% of the total capital share and permanent employment, respectively.

Figure 2: Operational FDI projects by economic sectors



Source: Own calculation from EIC unpublished data.

Table 1 presents number of investment projects, total capital invested, and employment generated by sector. From the 5383 licensed FDI projects about 3043 have been in operation. In total they have invested about 125 billion birr. From the total projects manufacturing sector accounted 47.68 percent of the total investment and 74.47% of the operational Capital. Also, Real state, machinery and equipment rental and consultancy service took nearly 21% of the projects with 4% capital shares. While agriculture accounted 10.65% of the total projects with about 7% of capital share.

Constriction including water well drilling sectors accounted 6.8% of projects and 6.6% of capital. The rest which includes mining,

electricity, education, health, hotels, tour operations, transport and communication and others 8.89% of the total projects with 1.87%

Table 1: Summary of Licensed FDI Projects by Sector since July 28, 1992 - April 01, 2019 GC

Sector invested	No of projects licensed	Operation						
		No of project	Percent	Capital in '000' Birr	Percent	Permanent employment	Percent	Temporary employment
Agriculture	602	324	10.65	10001755.8	7.99	50217	15.06	98402
Manufacturing	2662	1451	47.68	93199247	74.47	154800	46.42	95925
Mining	22	14	0.46	451442.697	0.36	591	0.17	192
Electricity	3	1	0.03	1000	0.001	10	0.003	5
Education	114	62	2.03	387347.891	0.31	2106	0.63	1862
Health	108	56	1.84	475614.208	0.38	1820	0.54	385
Hotels	225	148	4.86	1962889.89	1.56	5437	1.63	2411
Tour Operation and transport	128	73	2.40	254770.256	0.20	856	0.25	497
Real estate and machinery rent	1000	643	21.13	5146406.44	4.11	93791	28.12	32869
Construction and contracting	422	207	6.80	12481275.5	9.97	22085	6.62	46458
Others*	97	64	2.10	772192.93	0.62	1719	0.51	5714
Total	5,383	3,043	100	125,133,943	100	333,432	100	284,720

Source: Own calculation from EIC data.

of the capital share. When we see the role of FDI in terms of employment creation the data displayed about 89% of the employment was created by three sectors, namely manufacturing sector (46%), real state (28%) and agricultural sector (15%).

The data revealed that even if the capital share of real state was low its contribution to employment creation was high as it is labor intensive.

Determinants of FDI in Ethiopia

Stationarity Test Results

The starting point of any time series analysis is test for stationarity. It is often called unit root test. Unit root test tests whether a time series variable is non-stationary or possesses a unit root or not. The test determines the statistical tools and models to be used for analysis. A stationary time series is one whose statistical properties such as mean,

variance, auto-correlation, are all constant over time. Accordingly, Augmented Dickey-Fuller (ADF) test was used to test stationarity of the variables. The result showed some of the variables are stationary at level and some at first difference.

Table 2: Unit Root Analysis result

Variables	ADF Unit Root Test			PP Unit Root Test		
	T-statistic	Prob.>I(0)	Decision	T-statistic	Prob.>I(0)	Decision
FDI	-2.23353	0.4286	Non-stationary	-2.23353	0.4286	Non-stationary
OPPN	-0.83409	0.9634	Non-stationary	0.09544	0.9940	Non-stationary
EXMNC	-2.86436	0.1897	Non-stationary	-2.86436	0.1897	Non-stationary
Inf	-3.81283	0.0180**	Non-stationary	-3.81499	0.0181**	Stationary
GDPPC	0.93076	0.99970	Non-stationary	1.08486	0.99970	Non-stationary
REER	-0.72133	0.0000*	Stationary	-0.32213	0.0000*	Stationary
ΔFDI	-3.71879	0.0001*	Stationary	-3.82855	0.0004*	Stationary
ΔOPPN	-3.86118	0.0025*	Stationary	-3.81878	0.0000*	Stationary
ΔEXMNC	-3.29107	0.0020**	Stationary	-3.62386	0.0000*	Stationary
ΔInf	-6.81170	0.0001*	Stationary	-10.16418	0.0000*	Stationary
ΔGDPPC	-4.31232	0.0190**	Stationary	-4.48365	0.0003*	Stationary
ΔREER	-4.30985	0.0180**	Stationary	-25.62163	0.00000*	Stationary

Note: Significance at 1%,5% and 10% is shown by *, **and ***respectively.

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NB:

FDI =FDI to GDP ratio

OPPN= Export plus import as a % of GDP

TXINC=Total tax incentive to FDI investment as a% of GDP

FIDEV=Credit to the private sector to GDP ratio

GDPPC=Real GDP per capita

Inf= Inflation rate

Results from the Diagnostic Tests

Table 4.3 reports the diagnostic test results. The results display the estimation is free from serial correlation, heteroscedasticity, non-normality and functional misspecification problems.

Table 3: Results of the diagnostic tests

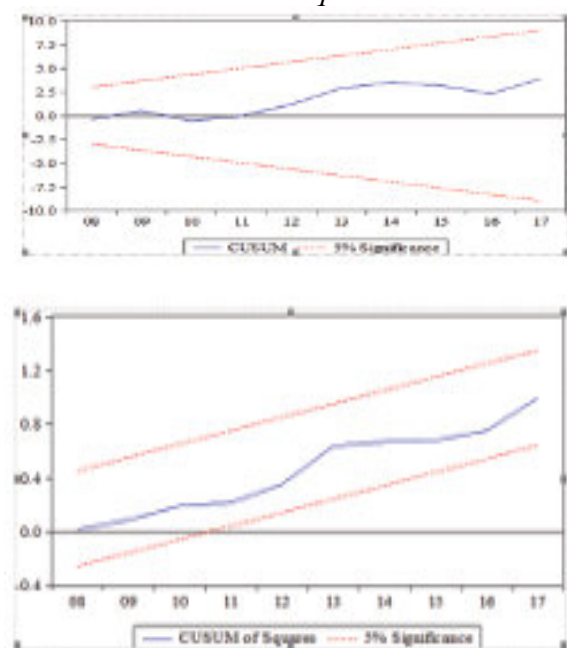
Test	Test-type	Statistic	p-value
Serial Correlation	Breusch-Godfrey LM Test	2.274229	0.1652
Heteroscedasticity	Breusch-Pagan-Godfrey	2.269383	0.0999
Normality	Jarque-Bera	0.7788	0.6775
Functional Form	Ramsey RESET Test	2.848940	0.1163

Furthermore, the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squares of recursive residuals (CUSUMSQ) plots in Figure 3 show also the model is structurally stable. Thus, the results are estimated reliably.

Lag Length Selection

Before conducting the bound test for cointegration, optimum lag length was determined. Lag length selection criteria suggested lag 2 as optimal lag length based on sequential modified LR test statistic (LR), Final predictor error (FPE), Akaike information criterion (AIC), Schwarz information criterion (SC), Hannan-Quinn

Figure 3. Test for parameter stability using CUSUM and CUSUM Square test



information criterion (HQ). The results are presented in Table 4.

Table 4: Lag-length selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-405.9189	NA	1.36e+11	42.65924	42.95376	42.73738
1	-374.6807	185.9091	51799419	34.72339	36.78499	35.27033
2	-316.9398	92.92016*	17294227*	32.81165*	36.74033*	33.92740*

* indicates lag order selected by the criterion
 LR: sequential modified LR test statistic (each test at 5% level)
 FPE: Final predictor error
 AIC: Akaike information criterion
 SC: Schwarz information criterion
 HQ: Hannan-Quinn information criterion

Results from ARDL Bounds Test for Cointegration

The result from ARDL bounds test for cointegration is presented in Table 4.5. The result displays the calculated F -statistic of 4.762767 is greater than the upper bound critical values reported by Pesaran *et al.* (2001) at 5% level of significance. Therefore, there exists at least one cointegration equation in the model. Thus, we went for estimating the short and long-run coefficients using ARDL.

Table 5: Results of the Cointegration test.

Dependent variable is FDI	F-statistic=4.762767	
K=6	Lower bound	Upper bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

The Results from ARDL Estimation

After confirming the existence of cointegration among the variables, an appropriate ARDL model was run. Table 4.6 and Table 4.7 presents the long-run and short-run determinants of FDI based on the information criteria. The result revealed that, in the long-run tax incentive and real GDP per capita have significant and positive effect on attracting foreign direct investment while inflation and real effective exchange rate have significant and negative effects on foreign direct investment. The result revealed openness has an insignificant effect on FDI.

The result showed tax incentive has a significant and positive effect on FDI at a 5% level of significance. As the tax incentive to GDP ratio increases by 1% FDI to GDP ratio increases by 5.32%. This result is consistent with the findings of (Nwankwo, 2006). The other factor commonly assumed to affect FDI is openness. Here the presumption is that openness enhances investment on tradable sector. However, the result displayed openness has no significant effect on the flow of foreign direct investment.

GDP per capita or per capita GDP growth rate was used as a proxy for market and market profitability that helps to attract foreign direct investment. Accordingly, the result revealed that per capita GDP has a significant and positive effect on attracting FDI. The result shows as per capita GDP increases by one birr FDI to GDP ratio increases by 0.00166%. This is significant at a 5% level of significance.

Inflation and real effective exchange rates are important macroeconomic situations that

determine foreign direct investment. Inflation and real effective exchange rate variables were found to have negative effect on the FDI flows. The result displays as inflation increases by 1%, FDI to GDP ratio decreases by 0.105%. This is significant at 5% level of significance. Similarly, the result revealed that real exchange rate has a significant and negative effect on the inflow of FDI. As real effective exchange rate increases by 1%, FDI to GDP ratio decreases by 0.0586%. This result is significant at 1% level of significance.

Table 5: Results of the Cointegration test.

Dependent variable is FDI	F-statistic=4.762767	
K=6	Lower bound	Upper bound
10%	2.26	3.35
5%	2.62	3.79
2.5%	2.96	4.18
1%	3.41	4.68

Estimated results in Table 7 display that the sign of lagged error correction term (ECM_{t-1}) is negative and statistically significant. This highly significant error correction term confirms the existence of a stable long-run relationship. The coefficient of the error term (ECM_{t-1}) implies that the deviation from long run equilibrium level of foreign direct investment in the current period is corrected by 98.1% in the next period to bring back equilibrium when there is a shock to a steady state relationship.

Table 7: The short-run results of selected ARDL estimation

Panel 1: Short-run results: Dependent variable is ΔFDI				
Regression	Coefficient	Standard error	T-statistics	p-value
$D(FDI_FLOW(-1))$	-0.226	0.202	-1.128	0.285
$D(TAX_INCEN_GDP)$	-0.183	1.524	-0.128	0.892
$D(RGDP_PER_CAPITA)$	0.0066	0.0016	0.3788	0.712
$D(RGDP_PER_CAPITA(-1))$	-0.004	0.002	-1.875	0.076
$D(OPPENESS)$	0.062	0.040	1.546	0.133
$D(OPPENESS(-1))$	0.225	0.035	6.395	0.000
$D(INFLATION)$	-0.102	0.032	-3.204	0.008
$D(REER_NBE)$	0.096	0.052	2.985	0.014
$ConstEq(-1)$	-0.981	0.255	-3.844	0.000

Discussion

Since 1992 the EPRDF led regime introduced free market economy system and proclaimed attractive provisions for foreign direct investors. Since then, FDI has been

increasing but with fluctuating trend. Probable explanation of the trends of foreign investment inflow in Ethiopia is associated with economic and none economic factors. For instance, the sharp decline in FDI inflow in 1999 is associated to the border conflict between Ethiopia and Eritrea (1998-2000). The 2005 election resulted in a decline of FDI flows. Also the decline in 2007/08 reflects the global financial crisis. Since 2012 there has been increasing in FDI flows in unprecedented rate. This was partly due to the growth and transformation plan the country implemented. This flow of FDI was largely dominated by manufacturing sector, in terms of share of number of enterprises established, share of capital invested, and share of employment created.

Following understanding of the trend, factors that determined the flow of FDI were investigated. The result revealed that, in the long-run tax incentive and real GDP per capita have significant and positive effect on attracting foreign direct investment while inflation and real effective exchange rate have significant and negative effects on the inflow of foreign direct investment.

The rationale behind offering tax incentive is exploiting investment opportunities. Tax incentive is one of the instruments of attracting foreign direct investment. Tax incentives provide relief to firms and facilitate their performance and remain in business. So the amount of tax incentive given to a firm is an important determinant of FDI. The result revealed that tax incentive has a significant and positive effect on FDI. This result is consistent with the findings of Nwankwo (2006). This implies, as widely believed tax incentives are beneficial in providing new growth opportunities through attracting FDI.

Commonly it is believed that trade openness facilitates international trade by removing barriers to trade (GÜRİŞ & Gözgör, 2015). Scholars like Romer (1986) and Grossman

and Helpman (1991) argued openness enhances economic growth through attracting FDI. Here the presumption is that openness enhances investment in the tradable sector. Whereas, the result revealed openness has no significant effect on the flow of foreign direct investment. This may arise because in Ethiopia export has been stagnant. This might be due to the fact that economy is not in a position to producing tradable items in the international market.

Some foreign investors invest in developing countries so as to exploit the host countries market. Domestic market size and market potentials are important in attracting foreign investors (Mottaleb, 2007). Often empirical literature proxies market and market profitability using level of per capita GDP or per capital GDP growth rate to analyze the effect of economic growth on attracting foreign direct investment. Accordingly, the finding revealed economic growth has a significant and positive effect on FDI. This finding is consistent with the finding of Anyanwu (1998) in Nigeria.

Often investors are interested to invest in environment where macroeconomic variables are stable and predictable. Economic instability in the host country is one of the major deterrents of FDI inflow. Any instability in the economy may lead to distortion in investors' perception of profitability (Kiat, 2010; Omankhanlen, 2011). Inflation and real effective exchange rates are important macroeconomic situations that determine foreign direct investment. Inflation is one of the macroeconomic variables that discourage long-term investment and increase uncertainty. Commonly low inflation is a sign of stability while high inflation is a sign of instability. So, higher inflation reduces the attractiveness of a country to investment by foreigners. Thus, a stable economy attracts FDI. Accordingly, the result revealed that inflation has a significant and negative effect in attracting FDI in Ethiopia. This result

implies to promote FDI inflow there is a need to lower inflation. This finding is consistent with the finding of Iyoha (2001).

The real effective exchange rate is another macroeconomic variable that may influence the inflow of FDI. Many developing countries use the lower effective exchange rate as an export enhancing strategy to make export competitive in the international market. Equally, it is important to note that such export enhancing strategy of low exchange rate may lead to monetary expansion hence to inflation (Omankhanlen, 2011). Commonly it is believed that a higher effective exchange rate discourages exports and negatively affects FDI, through increasing investment costs and decreasing returns to the investment. Hence, the result displayed that real exchange rate has a significant and negative effect on the inflow of FDI. This suggests the need for further lowering of effective exchange rates so as to attract FDI in Ethiopia.

Conclusion

Economic theory argues that among other factors economic growth depends on capital accumulation which again depends on investment. Foreign direct investment is an integral part of international economic system that provides investment specially to developing countries, despite a lively debate among scholars. However, it is believed that FDI makes a contribution to the development process by enhancing factor productivity and income growth in host countries, beyond what domestic investment normally would. Cognizant of these contributions, many developing countries including Ethiopia have been making a considerable effort to attract FDI. These growth effects of FDI motivated policy makers to identify its determinants. Thus, to create enabling environment for investment especially foreign capital investment requires examining or identifying the conditions that facilitate FDI inflow. Accordingly, this

research had an objective of identifying the determinants of FDI in Ethiopia. Doing this research is important in the age of economic globalization where competition to attract foreign investment is high. To realize the objective, time series data was used and estimation was done using ARDL model. The findings revealed that incentives to foreign investment and enhancing economic growth are important in attracting FDI while higher inflation and exchange rate have significant and negative effect on the inflow of FDI. Accordingly, to increase the inflow of FDI the followings are suggested. The national bank needs to take measures on inflation and effective exchange rates to ensure the inflow of FDI. To enhance further inflow of FDI there is a need to enhance incentives for investors especially for investors engage into production of import substitute and exportable items.

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Competing Interests

The authors declare that he has no competing interests.

Ethics Approval

NA

Availability of Data and Materials

The data along with the survey questionnaire may be made available and accessible at the University data center

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Note: Significance at 1%,5% and 10% is shown by *, **and ***respectively.

NB:

FDI =FDI to GDP ratio

OPPN= Export plus import as a % of GDP

TXINC=Total tax incentive to FDI investment as a% of GDP

FIDEV=Credit to the private sector to GDP ratio

GDPPC=Real GDP per capita

Inf= Inflation rate

Appendix 1: Unit Root Analysis Result

Variables	ADF Unit Root Test			PP Unit Root Test		
	T-statistic	Prob. Value	Decision	T-statistic	Prob. Value	Decision
FDI	-2.283763	0.4368	Non-stationary	-2.283763	0.4368	Non-stationary
OPPN	0.484199	0.9634	Non-stationary	0.009544	0.9941	Non-stationary
TXINC	-2.864556	0.1897	Non-stationary	-2.864556	0.1897	Non-stationary
Inf	-3.882015	0.02810**	Non-stationary	-3.850991	0.01603**	Stationary
GDPPC	0.953079	0.99970	Non-stationary	1.018460	0.99970	Non-stationary
REER	-10.72133	0.0000*	Stationary	-9.122213	0.0000*	Stationary
Δ FDI	-3.776797	0.001*	Stationary	-3.826355	0.0001*	Stationary
Δ OPPN	-3.001128	0.0029*	Stationary	-3.183571	0.0005*	Stationary
Δ TXINC	-3.891179	0.01130**	Stationary	-10.62386	0.0000*	Stationary
Δ Inf	-8.681170	0.0010*	Stationary	-10.36618	0.0000*	Stationary
Δ GDPPC	-4.352532	0.00090**	Stationary	-4.483163	0.00030*	Stationary
Δ REER	-4.189955	0.00090**	Stationary	-25.63383	0.00000*	Stationary