Possible Synergies between Foreign Aid and Foreign Direct Investment in Promoting Economic Growth in Ethiopia

Hana Solomon, Addis Ababa University

Abstract

Although the literature on both foreign aid and foreign direct investment is abundant, no unanimity about their effect on economic growth has yet taken place. Furthermore, the effect of foreign aid on the Ethiopian economy through complementing FDI"s effect on growth has not yet been explored. This paper empirically investigates the impact of foreign aid and FDI on the Ethiopian economy as well as possible synergies between the two capital flows in promoting economic growth in Ethiopia. Employing time series data for Ethiopia from the period 1992/93 – 2014/15 and utilizing OLS estimation techniques, this study found the individual effect of both foreign aid and FDI on growth to be positive. However, this study did not find synergies between aid and FDI in promoting growth of the Ethiopian economy. According to the findings, when the country receives aid, FDI affects growth negatively. Therefore, the country needs to spend aid money on factors such as education, infrastructure and better institutions that increase its absorptive capacity to FDI as well as formulate aid policies that will further attract FDI from the donor country including a transparency regime as a precondition for such policies.

Key words: Foreign Aid, FDI, Ethiopia, Economic Growth

1. Introduction

1.1. Background

The majority of countries classified by the UN as least developed are in Africa. It's estimated that in 2015, 366 million people in Africa will still be living on less than $1.25 a day (World Bank, 2015). On the basis of the "one-dollar-a-day-threshold" there are 1.2 billion poor people in developing countries, of these, 780 million people suffer from chronic hunger. The poor cannot afford to eat enough; this in turn keeps the cycle of poverty permanent and inescapable. V. Banerjee and Duflo (2011). Hunger is the number one cause of death in the world killing more than HIV/AIDS, Malaria, and Tuberculosis combined.

There is a notion amongst academicians, politicians and economists that even the most auspicious less-developed country usually lacks resources to achieve and sustain economic development. As a result nations look towards foreign capital inflows in the form of aid and foreign direct investment (FDI) to boost domestic resources. Aid and FDI are the two most prominent sources of external funding for economic growth and human development in developing countries (Kosack and Tobin, 2003).

"The tale of aid begins in earnest in the three weeks of July 1944, at a meeting held at the Mount Washington hotel in Bretton woods, New Hampshire, USA. Against the backdrop of the Second World War, over 700 delegates from some forty-four countries resolved to establish a framework for a global system of financial and monetary management. It's from this gathering that the dominant frame work of aid-infused development would emerge" Moyo (2009).

Easterly (2001) asserts that although more than $2.3 trillion had already been given to the developing world over the last 50 years, aid has not been a truly successful means of promoting development and eradicating extreme poverty. Furthermore, he points out that the resources have only been absorbed by corrupt political leaders and elites instead of accomplishing the intended goal. In addition to maneuvering political interests within weak

nations, Easterly argues, much aid is wasted on projects whose primary purpose is to glorify the aid organizations.

On the other hand, Sachs (2005) is of the opinion that poor countries are trapped in poverty due to their climatic and geographical characteristics. His argument is based on the Big Push approach urging for an initial large amount of aid to kick-start the virtuous poverty cycle by investing in critical areas that increase productivity so as to reverse the debilitating chain that has kept developing countries in the dark.

The vast literature on the effectiveness of aid remains controversial despite extensive empirical works between aid and growth linkage. While some economists argue that foreign aid is a key factor for achieving sustainable growth and eradicating poverty, others are of the opinion that aid does more bad than good and that it's why these countries are trapped in poverty.

Recently many economists, governments and institutions have turned to foreign direct investment (FDI) as a way of promoting economic growth. FDI can be attributed to the transfer of knowledge and technology, employment generation, improvement of productivity and enhancing competitiveness thereby serving as an instrument to elevate the host countries economic growth by solving the aforementioned deep rooted economic problems that are evident in developing countries. Furthermore FDI can serve as a principal factor in economic integration initializing a stable link between the host country and that of the foreign direct investor's. If fostered under the right scheme it can be a vehicle for development. Some might even link a stagnant or latent economy with an immobile car that has a potential of being jumpstarted by FDI.

Conversely, some doctrines have criticized FDI on grounds that it fails to deliver the promised positive effect by misallocating and exploiting resources thereby, slowing growth. Under this view its argued that foreign firms narrow view of profit maximization doesn't lead to the expansion of products and services which makes some developing nations reluctant to open their economies to FDI. Moreover, firms inevitably return the capital earned in the host country to the nation of their origin once profit is gained from the initial investment. The extreme may even go as far as accusing FDI of promoting modern day colonialism.

Though there appears to be a broad consensus that FDI inflows are beneficial to host countries in the growth process, there are views that are highly skeptical that FDI has a positive effect on economic growth.

Similarly, theory produces an ambiguous prediction about the effect of aid on FDI. On the one hand aid may have a possible positive effect on an economy through its effect on FDI if spent on factors that determine investor's decision to invest in a given country as well as factors that enhance the productivity of FDI. However if aid results in corruption, rent-seeking, Dutch disease and lower institutional quality it will harm the positive contribution of FDI to growth.

1.2. Statement of the Problem

Capital shortage is the most serious obstacle developing countries face in their attempt to eradicate poverty and in pursuing their development plans. Their domestic rate of capital formation is far below the necessary amount to promote a reasonable rate of economic growth. Savings are needed to provide finance for capital investment. In many developing countries, high levels of poverty make it almost impossible to generate sufficient savings to

provide the funds needed for investment projects without which economic growth cannot be achieved. This is known as the saving gap. Similarly developing countries lack adequate foreign exchange to finance imports of capital goods, machines, raw materials, and immediate goods etc. called foreign exchange gap.

Poverty, hunger and underdevelopment will keep on increasing at an uncontrollable pace unless quick measures are taken to eradicate them. The lack of sufficient capital within the reach of developing countries call for an urgent means thereby they can fight these evils. How can these countries escape poverty and attain sustainable growth? Many turned to foreign aid to address the questions above.

No general consensus has yet been reached about the effect of aid on eradicating poverty and on promoting sustained economic growth. Most independent studies however have failed to find a significant effect of aid on economic growth. As cited in Anderson, 2013 Doucouliagos and Paldam (2006, 2008, and 2010) studied the entire literature through Meta studies, and conclude that the literature so far has not found any effect of aid, neither through investments, directly or when dependent on some condition in the host country.

Although the amount of aid dispersed in developing countries is by far lower than the promised amount by western donors, the figures are still quite large. However, Ethiopia's economy much like the rest of African countries is portrayed by poverty and low economic performance. Furthermore, the level of gross domestic investment has never increased as significantly as to meet the least crucial minimum requirement for growth. If the answer doesn't lie in foreign aid itself and if the country cannot generate the necessary capital on its own, what other options are there to fill these gaps? Private capital flows and investment. Recently, many governments and multilateral organizations have focused on attracting private capital flows such as FDI in order to promote growth. Anderson (2013)

Foreign direct investment nowadays is an important part of the international economic system. In cases where domestic savings fall short to bring about economic growth and where the necessary technology along with entrepreneurial and managerial skills are not available, foreign direct investment became a very important source of capital inflow for developing countries. However, there are still questions concerning the real effects of FDI, and the necessary conditions and the channels through which FDI leads to host country's economic growth.

The complementarities between foreign aid and FDI are litigious. For instance, while the UN's 2002 monetary consensus on international financing for development affirms that ODA plays a vital role as a complement to other sources of financing for development, especially in those countries with the least capacity to attract private direct investment, Selaya and Sunesen (2012) argue that the implicit presumption in the consensus that ODA has a "catalyzing" effect on FDI or that aid and FDI are complements is by no means evident.

Although many studies have been conducted on the effect of aid on economic growth, there exists lack of consistency in the findings. While some studies have found a positive effect of aid on economic growth, others have failed to do so. Though FDI is deemed by most academicians as a stimulant of economic growth, it is argued that its benefits highly depend on the absorptive capacity of the host country. This paper, in addition to their individual effects will try to examine if there is a possibility for aid to assist and complement FDI's effect on growth. It under see if there is a basis for synergetic effect between the two capital flows for the betterment of the Ethiopian economy.

1.3. Objective

General Objective

The general objective of the research is to examine the effect of foreign aid on the Ethiopian economy through its effect on FDI.

Specific Objectives

The specific objectives of the study include to:

- Examine the effect of foreign aid on the Ethiopian economy.
- Examine the effect of foreign direct investment on the Ethiopian economy.
- Forward some policy recommendations on ways to create a synergistic effect between the two capital flows.

2. Methodology

The study is based on secondary time series data obtained from World Bank (WB) World Development Indicators (WDI) and National Bank of Ethiopia (NBE). Both descriptive and econometric analysis methods are employed to attain the objectives listed above.

2.1. The Scope of the Study

Though there exist many types of aid (for example humanitarian aid, emergency aid, military aid etc.), this study is limited to official development assistance (ODA). ODA as reported by the development assistance committee (DAC) of the Organization for Economic Corporation and Development (OECD) is the most common measure of foreign aid in the academic literature and policy discussions Qian (2014). Aid can also be disaggregated (for example education aid, social aid etc.). However, aggregated flows will be used in this study. Although it's one form of private capital inflow in developing countries, foreign portfolio investment (FPI) will not be included because i) this study is limited to Ethiopia where capital markets are nonexistent; and ii) the goal of this paper is to evaluate the effect of long term private investments and FPI flows are short term investments that move fast in and out of national economies.

2.2. Significance of the Study

This study serves as a criterion for the fulfillment of Bachelor of Arts degree in Economics. In addition to its academic significance, it will shield a light on the area of research and may induce further works. It will also help one understand the degree of impact of foreign aid and foreign direct investment on the Ethiopian economy and possible synergies between the two. The result of this study will also be valuable to policy makers in developing a better overview and a clear maneuver to be used as a guide to have a better comprehension of the course of action needed for better utilization of foreign aid and foreign direct investment. It will help formulate appropriate solutions for the optimal utilization of foreign aid and foreign direct investment for the betterment of the Ethiopian economy.

2.3. Limitation of the Study

The data being utilized is secondary. When analyzing data from developing countries, it's necessary to be very critical towards the data since the quality and accuracy can be questionable due to absence of standardized collection and reporting methods, Jarven (2009). This paper will not be an exception to the problem of quality of data. However to minimize this problem the data used in this study has been collected from the most acknowledged sources that are favorably used in previous literatures. Moreover, the

unavailability of adequate data for FDI has created a major constraint and forced me to use a much shorter period than intended. The available data for FDI is after the downfall of the Derg regime (post 1991) since the economy was a closed one prior to that.

This section is devoted to describing the rationale and theoretical foundation for the inclusion of each variables used in the study. According to Hodler and Knight (2012), including too many control variables may result in controlling for channels through which aid and FDI affect growth. Having said that, besides the variables of interest (aid, FDI and the interaction between the two), openness and domestic savings are chosen as control variables based on how frequently they were cited in the most recent literatures. Moreover, the number of variables is chosen in such a way that an acceptable degree of freedom is maintained given the time period used in this study. This section also discusses the expected results of each variable. Furthermore, the model that is going to be estimated in order to attain the objectives of the study is developed.

2.4. Data Type and Source

The study employs secondary time series data from the period 1992/93-2014/15. The data for ODA and FDI is collected from World Bank, World Development Indicators. The data for domestic savings and real GDP is obtained from National Bank of Ethiopia. Openness is obtained by the researcher's own computation based on data collected from National Bank of Ethiopia.

2.4.1. Model Variables

2.4.1.1. Dependent Variable

The aim of this study is to examine the individual effects of foreign aid and foreign direct investment along with their interaction effect on growth of the Ethiopian economy. The dependent variable therefore will be real Gross Domestic Product (GDP) as GDP is the most important measure of economic activity in a country and the best way to measure a country's economy. It is by far the most followed, discussed and digested indicator used by economists, analysts and policy makers and has been considered the best aggregate measure of economic activity.

2.4.2. Independent Variables

Openness: openness is calculated as the share of a country's export and import to its GDP. Openness is assumed to raise economic growth through several channels such as access to advanced technology from abroad, greater access to variety of inputs for production and access to broader markets that raise the efficiency of domestic production through increased specialization. A higher degree of openness of an economy indicates not only more economic linkage and activity with the rest of the world, but also a more open and liberalized economic and trade regime. Openness is expected to have a positive relationship with growth.

Domestic savings: the role played by savings in the growth process is undeniable. Saving is an engine for economic growth through increasing capital formation and thereby increasing the level of investment. Savings lead to a better welfare by solving problems of inflation, unemployment, inequality and making the economy free of foreign debt through fully utilizing the available scare resources in an efficient way, increasing the size of national output, generating employment and increasing income Jagadeesh (2015). Saving is expected to have a positive impact on growth.

Foreign aid: the effect of aid on an economy is one of the most debated issues. While the economic traditionalists argue that aid has indeed promoted growth and structural transformation in many developing countries the critics contend that aid retards growth Todaro and Smith (2011). This makes the prediction of the expected sign difficult. However, Ethiopia, being a developing country, is characterized among other things by capital scarcity, inadequate infrastructure, and low level of human capital. Although both the negative and positive effects of foreign aid have been explored in the literature review section, the positive effects are expected to outweigh the negative ones and aid inflows by relaxing budget constraints faced by the government and hence providing funds, are expected to have a positive relationship with growth.

Foreign direct investment: FDI is expected to have a positive impact on GDP. This is because as discussed in the theoretical literature review, FDI inflows have many beneficial contributions to the host country's economy. For example FDI inflows contribute positively to economic growth by increasing the capital stock in the host country. Furthermore, because FDI is of long term durability and commitment to the host country, it ensures a certain level of continuity and stability in the money flow Jude (2014). In addition FDI can be attributed to the transfer and spillover of technology and knowledge, generating employment, crowding in domestic investment, enhancing competition etc. all of which affect the growth process positively.

Aid and FDI combination: As discussed in the previous chapter aid will have a positive growth enhancing effect on FDI if spent on factors that increase the productivity of investments (for example infrastructure, education, better institutions etc). The effect of foreign aid on the Ethiopian economy through its effect on FDI is expected to be positive because foreign aid by providing the much scarce and needed capital for the provision of necessary infrastructural facilities, building schools etc. can increase the inflow as well as the contribution of FDI to growth.

2.5. Econometric Model

The initial model developed for this study was:
$$Rgdp = \beta_0 + \beta_1 NS + \beta_2 OP + \beta_3 AID + \beta_4 FDI + \beta_5 FDI*AID$$
However all the variables are transformed to their log form to linearize the relationship and make sure the data fits with in the assumption of linear regression. The model becomes:

$$LnRgdp = \beta_0 + \beta_1 lnNS + \beta_2 OP + \beta_3 lnAID + \beta_4 lnFDI + \beta_5 lnFDI*lnAID$$

But the model will be estimated without the intercept β_0. This is done so because when estimating the model with the intercept term, the intercept term turned out to be statistically insignificant. This also increases the degree of freedom by one because the parameters to be estimated decrease by one. Moreover, if the intercept term is in fact absent, the slope coefficient will be estimated with far greater precision than with the intercept term left in Theil (1978). After the adjustment, the model now becomes:

$$LnRgdp = \beta_1 lnNS + \beta_2 lnOP + \beta_3 lnAID + \beta_4 lnFDI + \beta_5 lnFDI*lnAID$$

However, the various channels through which aid and FDI affect growth (For example through increased infrastructural facilities, increased human capital, knowledge and technological spill overs etc.), as discussed in the literature review are not instantaneous and take time to process. That is, the effects of aid and FDI on an economy do not accrue automatically. It is therefore reasonable to assume that aid and FDI this year affect growth in the next (Anderson, 2013). Having said that the one year lagged value will be used for both

foreign aid and foreign direct investment. This is in line with most aid and FDI literatures that used lagged values.

The final and estimated model of this study is:

$$LnRgdp = \beta_1 lnNS + \beta_2 lnOP + \beta_3 lnAID_{t-1} + \beta_4 lnFDI_{t-1} + \beta_5 lnFDI_{t-1} * lnAID_{t-1}$$

Where: lnRgdp = log of real GDP

lnOP = log of openness

lnNS = log of national savings

$lnAID_{t-1}$ = log of one year lagged value of ODA inflows

$lnFDI_{t-1}$ = log of one year lagged value of FDI inflows

$lnAID_{t-1} * FDI_{t-1}$ = log of the one year lagged interaction effect of ODA and FDI

Since all the variables in this model are transformed to their log form, their coefficients (β_1, β2,

β_3, β_4 and β_5) measure their elasticity's with respect to RGDP.

2.6. Model Estimation and Testing Mechanisms
2.6.1. Stationarity and Testing for Stationarity

The concept of stationarity plays an important role when analyzing time series data. This is so because empirical work based on such a data assumes the underlying time series is stationary. A time series is said to be stationary if its mean and variance are constant over time and if the value of the covariance between the two time periods depends only on the distance gap or the lag between the two time periods and not the actual time at which the covariance is computed (Gujarati, 2004).

Unless otherwise stationary, a time series data may result in a spurious regression. Such a phenomenon occurs when the model shows promising diagnostic test statistics due to a common time trend rather than due to a true causal relationship. If not stationary, a time series will have a time varying mean, time varying variance or both thereby making statistical inferences invalid (Gujarati, 2004).

Though several tests for stationarity exist, this paper will employ the unit root test as it is the most frequently used in previous literatures. According to Gujarati (2004), the most common tests used for unit root are Dickey Fuller (DF) and Augmented Dickey Fuller (ADF) tests.

In both tests, the null hypothesis that δ=0 is rejected if the absolute value of the computed tau statics exceeds the DF critical value in which case the time series is stationary. Conversely, if the absolute value of the computed tau statistic is less than the critical tau value, we failed to reject the null hypothesis; i.e. the time series is not stationary.

2.6.2. Co-integration and Testing for Co-integration

Two or more variables are said to be co-integrated if there exists a long term or equilibrium relationship between or among them. Among the various methods proposed for testing for co integration, the Engle-Granger (1987) two tages procedure is the most widely used.

According to the Engle-Granger two-stage procedures method, all one has to do in testing for co-integration is estimate the long run model, obtain the resulting residuals and perform the unit root test on the residual to check whether or not it is stationary,Gujarati (2004). Hence, by subjecting the stochastic error terms to unit root analysis, one can easily know if the variables are co-integrated or not. If the residual is stationary at level or integrated of order zero, we then say the variables are co-integrated.

2.6.3. Error Correction Model (ECM)

Error Correction Model **(ECM)** is employed if the variables are co integrated. According to the Granger representation theorem, if two variables are co integrated, then the relationship between the two can be expressed as ECM Gujarati (2004). An **ECM** is a short run model which reflects the current error in achieving the long run equilibrium relationship among variables. Since an ECM is a short run model, the coefficients of the independent variables reflect their short run relationship with the dependent variable.

3. Econometric Analysis

3.1. Test for Stationarity

In the previous section we discussed that a standard regression analysis requires a time series to be stationary. Using the classical OLS estimation method on a non-stationary time series data will result in a „spurious' or „non-sense regression. Thus, the appropriate test for stationarity is conducted to rule out this phenomenon. Based on the preceding argument, the Dickey Fuller (DF) unit root test was conducted to identify whether or not the variables are stationary.

If a time series is stationary at level, it is integrated of order zero I (0). If not stationary at level the first, the second difference and so on will be taken to make it stationary. Most economic variables are I (1). That is, they become stationary after being differenced once. The result of the test for Stationarity is summarized in table 3.1.1 below.

Table 3.1.1 Test for Stationarity

Variables	Level I(O)	Level I(1)	Level I(2)		
$\ln Rgdp$	2.670***	-	-		
$\ln OP$	-1.087	-2.725***	-6.396		
$\ln NS$	0.029	-5.723*	-	Critical values	
$\ln AID_{t-1}$	0.177	-3.064**	-	10%	-2.630
$\ln FDI_{t-1}$	-4.499*	-	-	5%	-3.00
$\ln AID_{t-1}\ln FDI_{t-1}$	-3.503**	-	-	1%	-3.750

Where: *** represents stationarity at 10%, ** represents stationarity at 5% and * represents stationarity at 1%.

As can be seen from the table above, lnRGDP, $\ln FDI_{t-1}$ and the interaction term ($\ln AID_{t-1}\ln FDI_{t-1}$) are stationary at level. lnNS, $\ln AID_{t-1}$ and $\ln FDI_{t-1}$ become stationary after being differenced once. That is, they are integrated of order one [I (1)] whereas openness became stationary after being differenced twice which implies that it's integrated of order two (I (2).

3.2. Test for Co-integration

After having verified the stationarty of the variables, the next step is testing for co integration. i.e. checking the existence of a long run relationship.

Following the Engle-Granger (1987) two step procedures discussed in the previous section, the residual is obtained and tested for stationarity after having estimated the long run model. The estimation result is presented in Table 3.2.1

<div align="center">**Table 3.2.1: Test for co integration**</div>

Variable	Level I(0)
Residual	-3.986*
Critical Value 1%=-3.750	

As can be seen in the table the residual is stationary at level at a 1% critical value. This suggests that the variables are co-integrated. Two important implications can be derived from this result i) even if all the variables are not stationary at level, their linear combination is stationary at level which confirms the existence of a long run relationship; ii) error correction (short run model) is required.

3.3. Long-run Analysis

The test for co integration verified the existence of a long run relationship among the variables. Therefore the long run model can be estimated. Accordingly, OLS estimation techniques are employed to estimate the long run model. The result of the estimated model is summarized and illustrated in following table.

Table 3.3.1: Long-run analysis

	Dependent variable LnRGDP				
Independent	Coefficients	Std. Err.	t-value	P>ltl	
Variables					* Significant at 1%
lnOpen	0.1194384	0.0733338	1.63	0.122	
Lnns	0.4421988	0.1503323	2.94	0.009**	** Significant at 5%
					*** Significant at
$lnAID_{t-1}$	0.7857781	0.0460381	17.07	0.000*	10%
$lnFDI_{t-1}$	0.783397	0.0604774	12.95	0.000*	
$lnAID_{t-1}FDI_{t-1}$	-0.0313087	0.002746	-11.40	0.000*	

The estimated coefficients of the long run model with the exception of the interaction term are consistent with the anticipated sign. Moreover all the variables except openness are statistically significant.

The sign of the coefficient for openness is positive and in line with the prediction. However, contrary to what was expected, is insignificant and therefore cannot be interpreted in an economically meaningful way.

National savings is significant at 5% with a positive coefficient of 0.44. This is in line with the anticipated value and consistent with the theoretical argument. Furthermore, it supported by the findings of Jagadeesh (2015), Bakare (2001), Odhiambo (2008, 2009). The coefficient of national saving implies citrus paribus; a 1% increase in national savings will lead to an increase in real GDP by approximately 0.44%.

In models with multiplicative terms, the regression coefficients reflect conditional relationships Williams (2015). In this model, β_3 shows the effect of AID on RGDP when

β4=FDI is zero.

Similarly β_4 is the effect of FDI on RGDP when β_3=AID is zero.

Aid has a positive coefficient and is significant at 1% thereby suggesting a positive relationship with growth. This coefficient reflects the effect of AID on RGDP in the absence of FDI inflows. According to the estimated result a 1% increase in foreign aid inflows this period leads to an increase in RGDP by approximately 0.785% in the next. This finding, among others, is in line with the studies of Hatemi-J and Irandoust (2005), B.Moreira (2005), G. Reddy and Minoiu (2006) and opposite to that of Liew et al (2011), Lohani (2004) and Bakare A.S (2011).

FDI is correctly signed and significant at 1%. This as well is in line with the predicted relationship and supported by the findings of Borensztein et al., (1997), Gudaro et al. 2012 and Maji and Odoba, (2011). The estimation result suggests, in the absence of AID inflows, a 1% increase in FDI in the current year increases RGDP by approximately 0.783% in the next.

The interaction term is significant at 1% and opposite to what was predicted, has a negative coefficient. According to the finding, when a country receives aid, the effect of FDI on growth is negative. Hence, there exists no synergistic effect between the two capital flows. Though the finding wasn't in line with the expectation, it came as no surprise because the possible ways in which aid could reduce FDI's effect on growth were disued in previous chapters. Accordingly, possible explanations for this negative relationship are provided. Firstly, aid resulting in low quality projects which do not add as significantly to the productivity of firms. The recipients of aid may use it to fund projects that are poorly conceived and planned (CBO, 1997). Furthermore, aid that is intended to foster development may enable some regimes to divert money to other, nonproductive activities as aid is often given to countries that lack the technical or administrative capability to absorb and use it properly. The second possible explanation is aid adversely affecting the type of governance (worsening the political system, inducing rent seeking and increasing corruption). With aid's helping hand, corruption fosters corruption by providing governments with unaccountable cash. Such governments interfere with the rule of law, the establishment of transparent civil liberties Moyo (2009). The existence of such a high degree of corruption in addition to reducing the inflow of FDI, adversely affects the productivity of the already established ones and hence their contribution to growth. As discussed in the third chapter one possible adverse effect of aid is fungiabilty. This phenomenon can be used to explain the lack of synergy between aid and FDI. For example, a country expecting aid inflow to cover say a certain infrastructural facility will redirect its own investment on that sector thereby declining the fund spent on infrastructure which is a determining factor of the productivity of FDI and hence, its contribution to growth. Another reason has to do with the riskiness of aid recipient countries to foreign investors as well as foreign investor's mentality of aid recipient countries. Countries that receive aid are more likely to attract low quality FDI as they have internal problems, are more unstable and generally have higher risks for foreign investors Anderson (2013). Ethiopia, being an aid recipient country is no exception.

The R^2 of this model is not reported because the conventionally computed R^2 is not appropriate for regression through the origin. R^2 explicitly assumes that the intercept is present in the model and therefore gives an anomalous result for zero intercept regression models, Gujarati (2004). Moreover, the correlation matrix (see Appendix A.2.) suggests the existence of a multicollinearty problem. This was suspected prior for two reasons i) the

existence of an interaction variable which results in a structural multicollinearty. A remedial measure known as centering (subtracting the mean from the variable) was tried to deal with this problem but because it didn't bring down to an acceptable level, the use of centered variables was avoided. ii) The shortness of the time period used in the study. That is, a multicolinearty problem caused due to the inadequacy of data. No remedial measure could be taken in this respect because as mentioned in the first chapter, data for FDI is available post 1991.The problem is therefore safely ignored since it didn't pose a severe problem to the model.

3.4. Short-run Analysis (Error Correction Model)

Error Correction Model, as discussed in the previous section, is employed if the variables are co-integrated. Having showed that RGDP and the explanatory variables are co-integrated, we proved the existence of a long-run equilibrium relationship between the dependent and independent variables. According to Gujarati (2004), the error term can be treated as the "equilibrium error", i.e. it can be used to tie the short-run behavior of the dependent variable to its long-run value. Thus, the error correction term which is the first lag of the residual, captures the adjustment towards the long run equilibrium. The short-run model that is estimated is presented below:

$DLnRgdp = \beta_1 DlnNS + \beta_2 DlnOP + \beta_3 DlnAIDt_{-1} + \beta_4 DlnFDIt_{-1} + \beta_5 DlnFDIt_{-1} * lnAID_{t-1} + U_{t-1} + e_t$

Where: D = the first difference of the variables

U_{t-1} = the error correction term

The estimated results based on the model above are illustrated in the table below.

Table 3.4.1: Short Run Analysis

Dependent variable D.LnRGDP				
Independent Variables	Coefficients	Std. Err.	t-value	P>ltl
D.lnOpen	0.0171682	0.55291	0.31	0.760
D.lnns	0.2625746	0.0992531	2.65	0.018**
D.lnAID$_{t-1}$	0.513905	0.6022418	0.85	0.407
D.lnFDI$_{t-1}$	0.4265388	0.6425157	0.66	0.517
D.lnAID$_{t-1}$FDI$_{t-1}$	-0.0169005	0.0267417	-0.63	0.537
ECM	-0.6707714	0.1964852	-3.41	0.004**

** Significant at 5%

While the sign of all the variables is similar with that of their long-run sign, only national savings is significant. This implies that savings contribute positively to growth in the short-run as well. The rest of the variables however are insignificant which suggests that they do not add to growth in the short-run.

The error correction term has a negative value as anticipated and is significant at 5%. This disequilibrium in the short-run is no surprise since not all the variables are stationary at level. The coefficient of the ECM suggests that 67.07% of the disequilibrium in RGDP in the short-run will be corrected annually. That is, the disequilibrium in one period will be corrected in the subsequent period. The negative coefficient of the error correction term shows that if at any period RGDP is above the equilibrium level, it will start falling in the next period thereby correcting the disequilibrium.

4. Conclusion and Policy Recommendation

4.1. Conclusion

This paper empirically examined the effect of foreign aid, foreign direct investment and possible synergies between the two capital flows in promoting economic growth in Ethiopia. In order to achieve these objective related theoretical and empirical literatures were reviewed; secondary data relevant for this study was collected analyzed using time series econometric methods.

The empirical research aimed to answer three questions i) how does aid affect the economic growth of Ethiopia? ii) How does FDI affect the economic growth of Ethiopia? iii) Is aid assisting FDI in promoting growth? Using time series data for Ethiopia for the period 1992/93-2014/15 and applying OLS estimation technique, the study responded to the aforementioned questions. According to the findings, both aid and FDI individually affect growth positively. However, the interaction effect of the two capital flows is negative which suggests that when a country receives aid, FDI affects growth negatively. Possible explanations provided for this unexpected finding included: i) aid being spent on poorly conceived and low quality projects that do not contribute to productivity of FDI; ii) aid worsening the political system, inducing rent seeking and increasing corruption; iii) fungibilty; and, iv) attracting low quality foreign investments due to internal problems caused by aid.

4.2. Policy Recommendation

Although the individual effects of both aid and FDI turned out to be positive, the fact that the synergistic effect of foreign aid and FDI is negative suggests that aid is not complementing FDI's effect on growth. This can be changed through the appropriate policy formulation because as shown in the theoretical literature review section, aid can serve as an instrument for an effective absorption of FDI. Though the long-run effect of both aid and FDI is positive, significant, and similar in magnitude, FDI is much preferred from the two capital flows because i) past experiences suggest that aid has failed to bring about lasting changes; and ii) the role played by investments in the growth process is undeniable. Investments are the engines whereby the stagnant or latent Ethiopian economy can be jumpstarted. In addition to reducing aid dependency, investment can be used as a way to attain sustainable growth and development.

Accordingly, some recommendations are given below:

- the country needs to formulate aid policies that will further attract FDI from the donor country including a transparency regime as a precondition for such policies;
- the much headed need to formulate aid on both sides of the spectrum is still desperately needed; aid is never purely an economic decision and need and yet both sides must strike a balance;
- a workable balance to lay off the greater role of politics in making the aid decision;
- create a domestic transparency and accountability regime on aid where misallocation and misappropriation suffocate the growth of the country;
- aid should be allocated to sectors that enhance the productivity of FDI (infrastructure, human capital formation and better institutions) so as to get the maximum benefit of these investments;
- much emphasis should be given to creating a favorable environment for private as

well as foreign investments;

- self-corrective measures should be taken by the government in order to absorb external as well as internal finance properly; and
- to get out of aid dependency and bring the saving gap to an end, government should encourage domestic savings through providing incentives for savings and other mechanisms such as expansion of financial institutions.

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