



LUND UNIVERSITY

School of Economics and Management

**Master programme in Economic History**

## Impact of Foreign Capital inflows on Economic Growth and Self-employment in Ethiopia

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*Abstract:* This paper examines the impact of foreign capital inflows on economic growth and self-employment in Ethiopia; using self-employment as a proxy for poverty reduction. It employs a descriptive statistics in the first part and Granger causality Wald tests in the second part. In the first part, 1961 to 2010, the findings indicate that there is an increase in the average growth rates, especially in the six economic sectors, agriculture, mining, trade services construction, transport services and dwellings. However, there is a significant increase in growth elasticity of self-employment in agriculture and trade services. Likewise, an evidence of reduction in absolute poverty (\$1.25 per day) from 63 percent in 1990 to 37 percent in 2010 but poverty under \$2 per day remains high, 72 percent. In the second part, 1992 and 2012, our results show that in the short run, foreign direct investment (FDI) has a direct positive effect on the real GDP, but no evidence that FDI has a direct positive effect on self-employment. In contrast, development assistance (DAC) has no direct effect on the real GDP, but it has a direct positive effect on self-employment. Suggesting that foreign capital inflow into the economy from 1992-2012 has stimulated economic growth, self-employment and poverty reduction. The policy implication of these results is that Ethiopia requires foreign capital inflow into the economy to sustain the current economic growth, self-employment and poverty reduction.

*Keywords:* DAC, Economic growth, Ethiopia, FDI, Poverty reduction, Self-employment

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# 1 Introduction

Recent decades have seen the growth of Foreign Direct Investment (FDI) inflow globally; of which, a substantial part flows to developing countries, particularly to China. During the 1970, the global estimate of inward FDI to developing economies was about \$3854 million US dollars but rose in 2000 to \$2.7 billion dollars (UNCTAD, 2013). Thirteen years later, after a decade of consecutive years of growth, the new estimate exceeded the previous record set in 2000. The United Nations report in 2013 discloses that FDI inflow to developing countries reached \$759 billion, accounting for 52 percent of the global total, 1.46 trillion dollars (UN News Centre, 2014). The World Investment Report captures Ethiopia as the third largest recipient of FDI in Africa after Mozambique while South Africa is the first. The country was a destination for FDI projects worth 4.5 billion dollars in 2014, which is a significant increase from the \$441 million in 2012 (UNCTAD, 2014).

The international community shares the view that foreign capital inflow to developing countries is necessary to foster economic development and poverty reduction. For example, in the 1999, former United Nations (UN) Secretary General Koffi Annan while delivering a speech in the world *Economic Forum in Davos*, Switzerland proposed that state, private investors and civil society should join hands together to achieve economic development. The UN also encourages the Organization for Economic Co-operation and Development (OECD) who are also the member states of the Development Assistance Committee (DAC) to increase their development assistance to the developing countries (Zimmermann & Smith, 2011). And as such, since 2000, development thinking of both the corporate bodies, international organizations, governments of the developed and developing countries have converged with the desire to achieve the Millennium Development Goals (MDGs) especially the number one priority, to eliminate hunger and poverty. For this reason, public and private funding of programs like microcredit and infrastructural projects have sprung up in many low income countries, to encourage self-employment in order to reduce high unemployment, stimulate economic growth and reduce absolute poverty (Baldwin & Chowhan, 2003; Lugo, 2007; Fairlie & Robb, 2007; Lippmann, 2009; Tarozzi et al., 2015).

Nevertheless, there is also a concern that FDI investor countries might turn out to be exploitative while DAC could be used to champion economic and political interest. Since 1945 foreign aid which is associated with DAC has always been used by some donor countries to determine the political order (Rachel, 2011; Stokke, 2009:42). Hence, there is no

agreement among development economists that DAC is positively associated with economic growth or poverty reduction in the recipient countries (Cossacks & Tobin, 2006; Pattillo et al., 2007; Shah et al., 2014). Likewise, there is no consensus that FDI has a positive effect on economic growth in the developing countries (Mencinger, 2003; Makki & Somwaru, 2004; Li & Lu, 2005). Some are concerned about the motives of the FDI in the developing countries; suggesting that they are driven by resource and market seeking (Weisslede, 2009), while the developing countries on their part, for example, countries in sub-Saharan Africa (SSA) are desiring foreign capital inflows, with the hope to address the sub-continent development challenges such lack of infrastructure, high unemployment and absolute poverty (Gohou & Souméré, 2012).

From this perspective, this paper takes the recent growth in the foreign capital inflow into Ethiopia as its starting point. Its aim is to investigate the impacts of DAC and FDI on economic growth and self-employment in order to understand the implications of foreign capital for poverty reduction. To achieve this aim, the following research question, sub-questions and hypotheses will guide the investigations.

### 1.1 Specific Research Question

What impacts has Foreign capital on economic growth and self-employment in Ethiopia in recent years?

#### **Sub-questions:**

Which Ethiopian economic sectors attract more foreign direct investment?

Does the sectors boost self-employment?

### 1.2 Hypotheses

*H<sub>0</sub>*. Foreign capital has no direct positive effect on real GDP

*H<sub>1</sub>*. Foreign capital has a direct positive effect on real GDP

*H<sub>0</sub>*. Foreign capital has no direct positive effect on self-employment

*H<sub>2</sub>*. Foreign capital has a direct positive effect on self-employment

The specific research question, sub-questions and the hypotheses are necessary to achieve the aim of this study. The specific time frame is between 1961 and 2012; part one of this study covered 1961 to 2010 while part two covered between 1992 and 2012. The second period,

1992 to 2012 was chosen in order to focus on the period that FDI data becomes available and to test the hypotheses. While the first part, between 1991 and 2010 is to assess the performance of the Ethiopian economic sectors (EES) since liberalization of her economy compared to the Ethiopian centrally planned economy in the previous period, 1961 to 1990. If there are significant changes in the growth rates across EES in recent decade, we find the drivers of the changes and look for its implications for self-employment.

### 1.3 Significance

The impact of FDI on the economic growth has been the concern of development economists, international business scholars, scientists, governments, international organizations and the civil society with the desire to understand what drives increases in FDI inflow and their impact on their host economies (Mencingar, 2003; Makki & Somwaru, 2004; Kottaridi, 2005; Li & Lu, 2005; Lin, 2010). Others are concerned about the impact of DAC on the receiving countries (Cossacks & Tobin, 2006; Pattillo et al., 2007; Shah et al., 2014). These authors often assume that once FDI and /or DAC enters into an economy, it would either stir economic growth, increase employment and reducing poverty or it stimulates unfavorable competitions, resulting in crowding-out local companies and other businesses, high unemployment and increasing poverty. The consequence is that such analyses often focus on the impact of foreign capital on a few local firms and their employees, but misses its effect on the greatest number of people who works in the informal employment, whether in agriculture or trade services. It means that, we need to consider the impact of foreign capital on a larger group that might benefit or lose as a result of foreign capital inflow into their economies.

This study deviates from such perspectives, takes a sectoral approach, aiming to understand the impact of foreign capital on the Ethiopian economic sectors, economic growth, and self-employment, using the latter as a proxy for poverty reduction. This paper contributes to the existing literature by enhancing the understanding about the impact of FDI and DAC on their recipient economies. This study also provides policy makers in the low income countries with additional insight required to carefully weigh the impact of the FDI and DAC in order to achieve economic growth and poverty reduction.

### 1.4 Organization

The argument of this paper is developed into seven chapters. Chapter one is the introduction. It highlights the basic premises of FDI and DAC, identifies the research aim, research

questions and the significance of this study. Chapter two provides background of the case. Chapter three starts with research overview, discusses the method as well as the processes used in data gathering. Chapter four presents the theoretical frameworks. It discusses the links between FDI and Economic growth, DAC and Economic growth and how they could affect self-employment and poverty reduction. Chapter five presents empirical evidence part one, starting with descriptive statistics, which covered first period, 1961 to 2010; while Chapter 6 presents time series data which covered second period, 1992 to 2012. This chapter commences with empirical testing of the selected variables for their suitability for time series analysis, followed by a test of cointegration and end with diagnostic testing of the models. Chapter seven commences with a summary of the results and discussion. It compares and contrasts this study's findings in Ethiopia with those of previous findings from other places. Chapter seven concludes this paper with a summary and recommendations.

## 1.5 Disposition

This study uses *self-employment* as a proxy for *poverty reduction*. The reason is that self-employment in Ethiopia emerged not as a result of entrepreneurship, but an alternative to wage employment, to reduce high unemployment and poverty (Lugo, 2007; Fairlie & Robb, 2007). Giving that we have a macro-data, but trying to deal with the micro - situation, the variable better represents employment and poverty reduction. Besides, in the literature, the great contributions of self-employment to reduce high unemployment and boost economic growth even in a developed country like Great Britain, Canada and United States has been recognized (Lippmann, 2009; Baldwin & Chowhan, 2003; Rispoli, 2009).

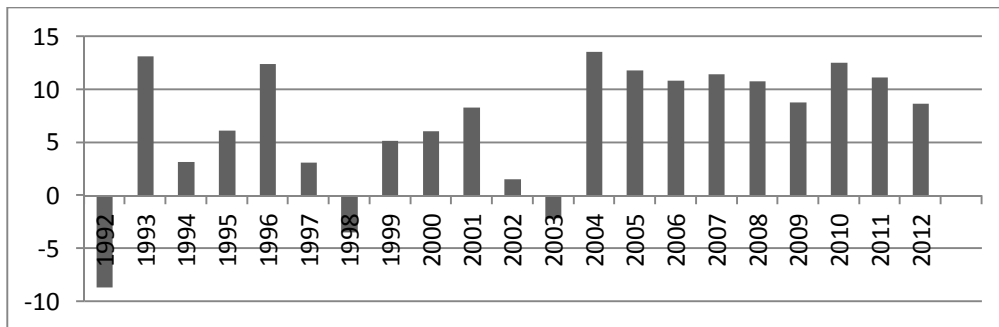
Throughout this paper, infrastructure is employed to indicate evidence of DAC whereas China is used to illustrate how FDI owners are perceived in Ethiopia and what they do. The reason is that in recent years, China appears to be the Ethiopian preferred foreign partner as captured by the international Policy Digest in 2014. One of the government minister was quoted to have said, "By 2005, China's embassy in Addis Ababa hosted more high-level visits than any Western mission and Chinese companies had become a dominant force building highways and bridges, dams and power stations, cell phone networks, schools, and pharmaceutical factories. Ethiopia's trade minister said that "China has become our most reliable partner." (International Policy Digest, 2014; see also Hackenesch, 2013).

From the statement of the Ethiopian Minister of Trade, we move on to Ethiopia, to briefly profile Ethiopia and assess foreign capital inflow into the country.

## 2 Brief Background: Ethiopia

Ethiopia is situated in the horn of Africa. As at 2014, Ethiopia has a population of over 96 million, the second largest populated country in Africa after Nigeria. Ethiopia was not formerly colonized like other countries in Africa except short lived Italian occupation between 1936-1941 (CIF World Fact book, 2014). In fact, Ethiopian monarchy is one of a few African kingdoms that have maintained its independence during the colonial era. Yet, Ethiopia remains an agrarian economy and agriculture accounts for 43 percent of the gross domestic product (GDP) and coffee has long been one of the main export items of the country. As at 2009, Ethiopia has a high concentration of the labor force in agriculture, 85%, industry, 5% and services 10% (ibid). Meanwhile, the country suffers regularly from drought and famine, the worst were the drought and famine between 1984 and 1985. Some studies report that during the period at least 400,000 people died from famine related incidents, some suggest that a million people lost their lives while others claim that 1.5 million people must have perished due to famine (Webb et al, 1992; Ezera and Kiros, 2000). The government of Ethiopia since 1990s has moved towards a market-oriented economy. Since then, the country like many in the developing world has witnessed a significant increase in the country's annual GDP growth rates (see fig.1), DAC and FDI inflows as a percentage of GDP ( see fig.2 & 3).

**Figure 1: GDP annual percentage growth**



Source: The World Bank: World Development Indicators.

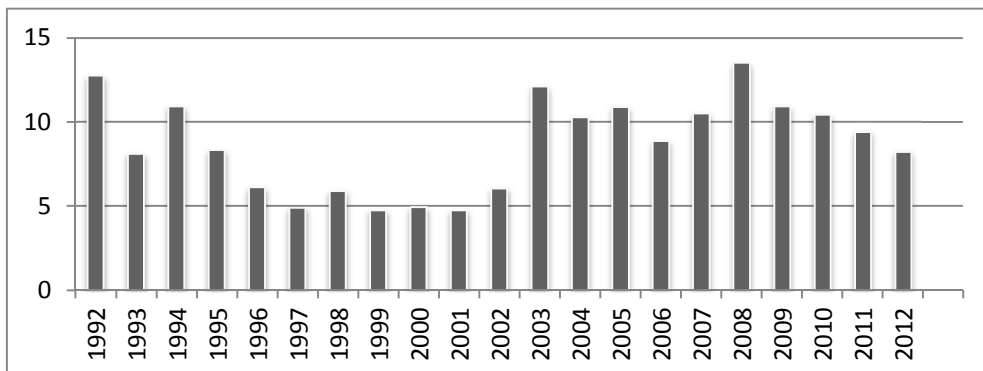
Between 2004 and 2012, the average Ethiopian annual GDP growth rate was 11 percent, the country experienced negative growth in 1992, 1998 and 2003, but the worst was -8 percent in 1992.



## 2.1 DAC and FDI inflows to Ethiopia from 1992 to 2012

Ethiopia belongs to the DAC list of countries that are favored with concessional loans with a grant element of at least 25 percent, calculated at a rate of discount 10% to help the country achieve economic development measured in terms of provision of infrastructures, such as roads, railways, electricity and welfare to her citizens. While FDI is “the net inflows of investment to acquire a lasting management interest (10 percent or more of the voting stock) in an enterprise operating in an economy other than that of the investor.”(The World Bank, 2015). Figure 3 shows that the FDI inflow into Ethiopia in 1992 was zero as a percentage of GDP, during the same period, Ethiopian annual GDP growth rate was also zero (see figure 1). In contrast, figure 2 shows that DAC inflow was, 10 percent of the GDP, but since GDP was negative, DAC was slightly above zero. But between 2004 to 2013, in average, Ethiopian annual GDP has grown by 11 percent and DAC and FDI share as a percentage of GDP has been positive. The highest share of DAC, 12 percent of the GDP occurred in 2009 while the FDI highest share, 5.5 percent happened in 2003 and repeated in 2004.

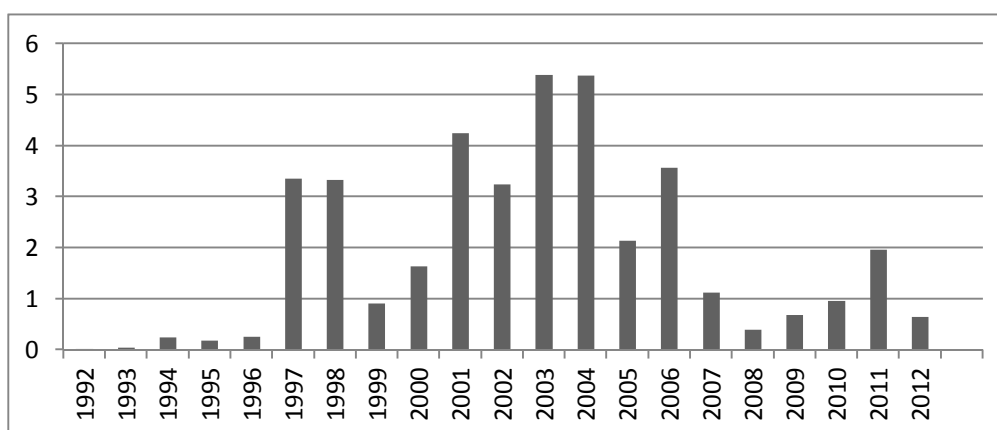
**Figure 2: DAC inflow as a percentage of GDP**



Source: The World Bank: World Development Indicators.

Figure 2 shows that the average value of DAC inflow to Ethiopia as a percentage of GDP between 1992 and 2012 was 8.1 percent with a minimum of 4.4 percent and a maximum of 12.4 percent in 2000 and 2009 respectively. An external economic assistance of this tune is quite large.

**Figure 3: FDI inflow as a percentage of GDP**



Source: The World Bank: World Development Indicators.

Figure 3 shows that the average value of FDI inflow to Ethiopia during that period, 1992 to 2012 as a percentage of GDP was 1.9 percent with a minimum of 0 percent in 1992 and a maximum of 5.5 percent in 2003 and 2004 respectively.

Since 1992, DAC share as a percentage of Ethiopian GDP has remained relatively high, double digit, but from 2008, it has gone on a single digit, while FDI was again zero in 2008 and remained below 3 percent since 2009. Suggesting that, the global financial crisis in 2008/2009 may have contributed to slow down, FDI inflow into Ethiopia while some DAC countries either did not send their usual aid contributions due to the economic situation in their own countries or shy away to preserve their political support at home. Zimmermann and Smith (2011) noted that citizens of some OECD countries have begun to question their government on the effectiveness of aid for economic development and poverty reduction. Perhaps, the aid component of DAC is missing, but the period signaled China increased involvement in nearly every aspect of the Ethiopian economy, both as FDI provider and a provider of development assistance in a class of non-DAC or what Zimmermann and Smith (2011) referred to as *South-South Development Co-operation (SSDC)*. According to Bräutigam (2011), “China aid in particular mixes a lot of things, diplomacy, development and business objectives.”(p. 755).

The Chinese share of FDI accounts for 1.5 percent of the total FDI to Ethiopia in 2000 but reached 16 percent in 2007. In 2009, Chinese total FDI was \$74 million and \$58.5 million in 2010. According to the statement credited to the Chinese ambassador to Ethiopia, in 2012, the cumulative China’s FDI superseded \$345 million. China as at 2012 became the third largest

foreign investor in Ethiopia after Saudi Arabia and India. Meanwhile, Chinese investments in Ethiopia as at 2013 have exceeded those of any other country followed by Turkey. Chinese Cumulative investment in Ethiopia as of 2013 estimated \$1.1 billion (International Policy Digest, 2014).

Although, China's FDI to Africa on average accounts for 5%, while that of the Europe and U.S accounts for 30%. China's FDI in comparison to Europe is quite small but China's total investment in Africa is likely higher than what the official statistics suggest (Carnegie, 2012). Many Chinese private companies with small amount of capital are moving to Ethiopia to invest in agriculture, trade services and small scale manufacturing so as to benefit from Chinese government loans to Ethiopia (AFRODAD, 2011). China's State owned Enterprises (SOEs) acquired large Ethiopian state corporations and is setting up manufacturing facilities, mostly in labor intensive industries which also absorbed lower amount of financial capital and cheap labor. Ethiopia is one of a few countries, among the low income countries in Africa that receives more of the China's FDI in recent years( *ibid*). Nevertheless, in general FDI and DAC contributions to the growth of Ethiopian GDP is substantial as we can see from figures 2 and 3. From this perspective, we review past research on this topic to understand what the outcome of their studies have been.

### 3 Literature Review

A large body of empirical studies exists that measures the effect of FDI and /or DAC on economic growth, but there are limited works on the impact of FDI and /or DAC on self-employment or poverty reduction. However, we find two studies from Canada that attempt to measure the impact of self-employment on economic growth. Baldwin and Chowhan (2003) investigated the impact of self-employment in the Canadian business sector between 1988 and 1998 using labor-productivity output data. The study compared the labor-productivity growth of the self-employed with those in the business sector during the period. They found that self-employment provided the majority of the jobs in the business sector, but earnings per worker in the self-employed sector as a whole failed behind those of business sectors. Similarly, Rispoli (2009) of the Economic Analysis Division Statistics Canadian investigated the impact of Unincorporated sector using self-employment on GDP by industry arising from unincorporated self-employment. The study found that in Canada between 1997 – 2005, there were over 1.5 million self-employed entrepreneurs who generated \$93.2 billion of the gross domestic product (GDP). The sector grew by 4.7 percent annually between 1987-1997 but receded to 3.5 percent annually from 1997-2005. Besides, self-employed created most of the jobs in the business sector, 409-4000 jobs from 1990 to 1998.

From Taiwan, Bende-Nabende and Ford (1998) found that FDI promoted growth in Taiwan. While, Borensztein et al. (1998), discovered that in Taiwan, FDI is the driver of technological transfer and contributes more to growth than domestic investment but that depend on the endowment factor. Similarly, from Europe, Kottaridi (2005) reported that FDI, human capital and trade volume are growth enhancing factors for a group of core EU countries. Li and Lu (2005) used panel data for 84 countries to demonstrate that a significant endogenous relationship exists between FDI and economic growth.

From Pakistan, Shah et al., (2014) measured the effect of DAC and FDI on economic growth. Using OLS statistics and Error Correction Model (ECM), they found that both DAC and FDI have a positive relationship with GDP, but the degree of the contributions of DAC is higher than FDI. Pattillo et al. (2007), challenged the methodology of the studies that came to the conclusion that foreign aid has a negative effect on growth and poverty reduction. They proved the studies wrong and held opposite view, the effect of foreign aid on growth and poverty reduction is positive. Cossack & Tobin (2006), use an unbalanced panel of 103 countries from both developing and developed countries covering 1970 to 1999. They found

that Aid contributed to both economic growth and human development, while FDI has no effect on economic growth and actually slows the rate of human development in less developed countries. Mirza and Giroud (2004) examine to what extent that FDI since 1995 entering into Association of South East Asian Nations (ASEAN) has benefited Vietnam. They found that FDI has little effect on halo or market creation in Vietnam, but foreign subsidiaries in Vietnam remain closely integrated into regional and global value chains..

In contrast to the above view of foreign capital to growth, Yamin & Sinkovics (2009) in a review of empirical literature on the link between FDI and infrastructure present evidences that challenges the notion that FDI has a positive impact on human capital and infrastructure in their host countries. They highlight low development potential of FDI, which means that it has low domestic linkages and positive spillovers. They found that FDI encourages host government spending on basic infrastructure. Thereby, increasing the financial constraint of governments that ends up attracting *footloose* FDI's that do not contribute to poverty reduction. Similarly, Elimawazini et al., (2005) using firm and industry-level data, mostly single country case studies show that FDI does not actually lead to productivity growth in the developing countries and even in the developed countries it has less significant on productivity growth. Likewise, Kaplinsky et al., (2007) in their empirical investigations of the impact of China on Sub-Saharan Africa found that the major consequence of Chinese FDI in the region is the decline in exports of manufactured products, employment and closure of small companies. For example, Lesotho's clothing exports to the US accounted for virtually all manufactured exports, and were equivalent to 50 percent of GDP in 2002. But in the first half of 2005, eight of the 47 garments exporting factories closed and employment fell by 26 per cent.

Considering the evidence from the reviewed literature and the controversies surrounding the impact of FDI and/or DAC on economic growth, self-employment, infrastructure and poverty reduction, we want to test the direction of the effect of foreign capital on economic growth and self-employment in Ethiopia. We are not interested in the degree of their relationship. This perspective informed the method as well as the conceptualization of foreign capital framework which comes up in the next section and chapter four.

### 3.1 Methodology

This section discusses the sources of empirical data, presents variables and their definitions and link data to methods.

This study uses data from two sources: *Africa Sector Database from Penn World Table* and *the World Bank: World Development indicators (WDI)*. The combination of the two sources is necessary due to lack of complete data in only one of the two.

*Africa Sector Database from Penn World Table*. It is a time series data covering nine major sectors of the Ethiopian economy, *Agriculture, Mining, Manufacturing, Utilities, Construction, Trade Services, Transport Service, Dwelling and government services*. It is drawn from a new dataset constructed by de Vries, Timmer & de Vries (2013). The dataset measures output and labor productivity growth in eleven African countries for the past fifty years (1960-2010). The statistics were drawn from the National Statistical Institute or the Central Bank of eleven African countries which include Botswana, Ethiopia, Ghana, Kenya, Malawi, Mauritius, Nigeria, Senegal, South Africa, Tanzania, and Zambia. The outputs are based on gross value added at constant 2005 national prices compiled according to the UN System of National Accounts.

*The World Bank: World Development indicators (WDI)* also provides time series data with many economic development indicators for most countries across the world. From the WDI, this study selected many variables and among them are, FDI, DAC, Real GDP, GDP per capita, Employment, Household Final Expenditure, Poverty headcount ratio, Wage employment, Self-employment, Total labor force, Total percentage of the mobile cellular subscriptions and Total percentage of users of improved water supply.

### 3.2 Variables and their definitions

To achieve the objective of this study, a number of variables in table 1 of 4 from the two data sources were selected. The variables in table 1 were from the *Penn World Table, African Sector Database*. Table 1 and 2 variables enabled us to investigate the effect of foreign capital on the economic sectors (see chapter five). The variables in table 2 to 4 came from *the World Bank: World Development Indicators*; table 3 & 4 variables allowed us to assess the impact of foreign capital on economic growth (see chapter six). In each chapter, we dealt with the implications of foreign capital for self-employment/poverty reduction.

**Table 1: Ethiopian Economic Sectors Indicators**

Variables	Description
<i>Agriculture</i>	Farming (growing crops & rearing animals), Hunting, Fishing, and Forestry
<i>Mining</i>	Removing solid minerals from the ground
<i>Manufacturing</i>	Valued added products
<i>Utilities</i>	Electricity, communication (telephone, mobile phone), pipe borne water and sanitation.
<i>Construction</i>	Building of roads, railways and industrial complex
<i>Trade services</i>	Import & export, wholesale and retail trade; repair of motor vehicles; motorcycles; personal and household goods, Hotels and Restaurants.
<i>Transport</i>	Road, railway, air and sea transport,
<i>Dwellings</i>	Owner occupied buildings
<i>Government services</i>	This includes public administration and defense, education, health and social work
<i>Total economy</i>	The whole Ethiopian economic sectors

**Table 2: Country-Level poverty Indicators**

<i>Pop\$1.25d</i>	Poverty headcount ratio at \$1.25 a day (PPP)
<i>Pop\$2d</i>	Poverty headcount ratio at \$2 a day (PPP)
<i>Popsub_Cphone</i>	The total percentage of the population that subscribed to cellular phone.
<i>Popaccess_imp.H2o</i>	Total percentage of population with access to improved water supply
<i>Popaccess_elect</i>	Total percentage of population with access to electricity.
<i>Pc_GDP</i>	GDP per capita is gross domestic product divided by midyear population. It is calculated based on constant 2005 U.S. dollars.
<i>Hhf_cons</i>	Household final consumption expenditure represents market value for goods and services use in a household. It includes items such as cars, washing machines, personal computers, rent payments, payments for permits and licenses. The Data is in current U.S. dollars.

**Table 3: Economic Growth indicators**

Variables	Description
<i>Real GDP</i>	Real_GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated based on constant 2005 US\$
<i>FDI</i>	Foreign direct investment, net inflows (BoP, current US\$)
<i>DAC</i>	Total official aid received from the members of the Development Assistance Committee (DAC). DAC consists of grants and loans received from ODA. ODA consists of loans made on concessional terms (with a grant element of at least 25 percent, calculated at a rate of discount of 10 percent) and grants made to promote economic development, such provision of roads, railways, electricity and welfare in countries and territories in the DAC list of ODA recipients.

**Table 4: Employment Indicators**

<i>Popwage_emplt</i>	Total percentage of labor force in wage and salaried employment
<i>Popself_empl</i>	Self employment refers to the type of employment whereby the owners of the business derived their own income from their own products and services. Usually, self-employed persons are legally registered persons, possessing a license or permit to carry on the type of business that they do. In a low income country, self-employed persons have no fixed

	income, work alone, or with a family member or hire a few paid staff. In essence, remuneration is not fixed, but dependent upon the profits derived from the business. The data represent percentage of self-employed in the country's total labor force.
<i>popwork_agri</i>	Percentage of the agricultural labor force in the country's total labor force.
<i>Empl_pop_ratio</i>	The employment to population ratio is the proportion of a country's population that is employed both in the public and private sectors. They receive remuneration in wages, salary, commission, tips, piece rates or pay in kind. From the ages 15 and older are generally considered in Ethiopia as working age population

Source: World Bank: World Development Indicators, 2015

In this study, table one and three, represent macro-level data, while table two and four represent micro-level data. Unfortunately, we have to rely on a macro -level data for the regressions because of many missing data within micro-level data, such as \$1.25 per day, \$2 per day, access to electricity, access to clean water and subscriptions to cell phone. Nevertheless, these variables are vital for our understanding of the micro level conditions. However, we restrict their use only in the descriptive part of this study. The macro level variables are FDI, DAC, real GDP, PC\_GDP, employment ratio to population, self-employment and Household final consumption expenditure. Adjusting the initial properties of the macro level data for consistency was done in order to use them in the regressions. For example, FDI series is available from 1992 and 2013 but DAC variable existed from 1970 and end in 2012. We have to adjust both series to start from 1992 and end in 2012. To avoid loss of vital information within the period that were cut off, some variables were used either as a univariate or in combination with other series as bivariate data series to capture the phenomenon in question. Through this way, this study tries to minimize loss of information due to periodization (Clapham, 1931:329; Gerschenkron, 1966).

### 3.3 Linking data to methods

This study uses the data both in descriptive statistics and econometrics, time series regression. This approach is necessary in order to avoid loss of information in our data, but also vital to understand quantitatively the social context in which the economic phenomenon takes place. Before moving into regression to establish a relationship between variables, if we do not understand the social context, our regression will not be much useful since we cannot be able to explain unobserved constraints which are captured as errors (Mokyr, 2005:196).

In our regression models, we converted different units of measurement associated with our indicators into natural logarithm (henceforth, *ln*) to make the units comparable. We apply Augmented Dicky-Fuller tests (ADF), Akaike Information Criteria (AIC), Engle-Granger



tests for cointegration, Johansen tests for cointegration, Vector Autoregression (VAR) and Granger causality Wald tests.

### 3.4 Limitations

The two sources of data have their advantages and disadvantages.

The World Bank: WDI is an international recognized data source. The data are derived from national accounts, but adjusted to tally with the international standard to allow international comparison. The shortcoming of the WDI dataset is that they are often missing data and aggregated numbers different from those set by the national statistical bureau of different countries and territories. In the case of Ethiopia, we lack data on infrastructure, which is a key variable to measure the impact of DAC in a low income country like Ethiopia; and as such, in our analysis, we rely on DAC effect on self-employment and empirical evidence from previous studies to guess infrastructural contributions to self-employment and poverty reduction.

Penn World Table is equally a comprehensive and internationally recognized data source. Although, African Sector Database is new but it covers five decades with no missing data. The main shortcoming is lack of clarity on the number of industries or firms that make up each sector of the economy and the criteria to select the firms in each sector. They might neglect smaller firms which are many in sub-Saharan Africa. Other limitations is that the number of hours-worked or income per labor force type was not collected. In order to determine the significance of labor to output and also handle the small firm's problem, we used self-employment data available in WDI. Besides, the series stop in 2010 but we wanted to understand the performance of economic sectors up till 2012. Again, we managed the situation by using alternative indicator, real GDP.

Statistics from some of the African countries considered in the African sector database as well as other databases are assumed to be unreliable due to large measurement errors, a manifestation of weak capacity to collect, manage and disseminate data (Jerven, 2010; de Vries et al., 2013). Thus, this paper is unable to solve all the problems associated with data quality. However, we do make extra efforts to gather data from two quantitative sources and reading qualitative literature in order to understand and provide fair accounts of the impact of foreign capital on economic growth and self-employment in Ethiopia.

In the next section, we proceed to present the theoretical framework.

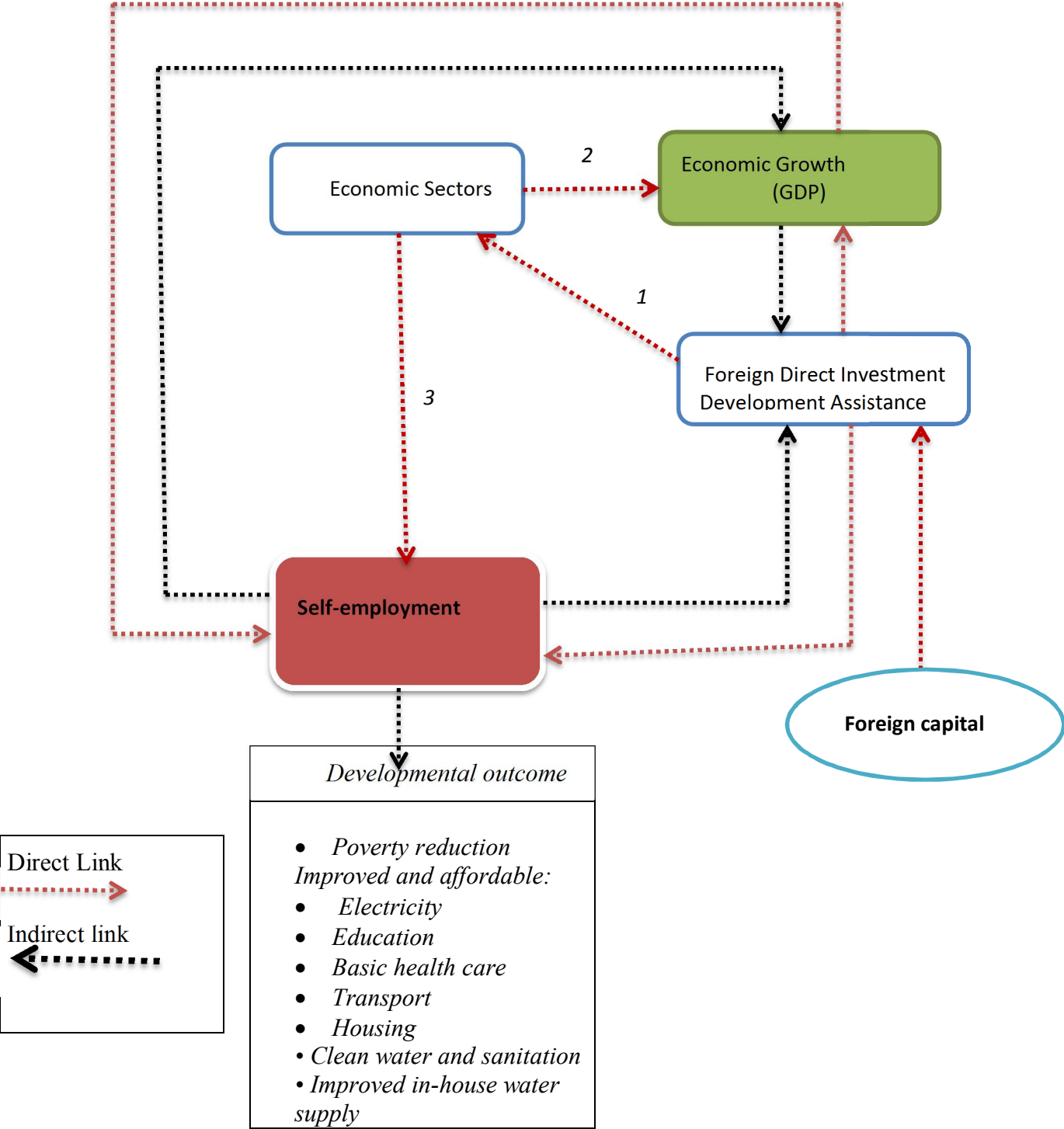
## 4 Theoretical Framework: Foreign Capital

The theoretical framework of this paper is designed to explore the possibility of foreign capital as a driver of economic growth and self-employment in a low income country. It is inspired by the Harrod and Domar model. Herod and Dommar model supposes that savings/investment must be three times more than the stock of capital (GDP) at a certain level of development, but low income countries lack savings because their income is too low (Hagemann, 2009). Hence, Two Gap Model and Solow growth model suggest that developing countries should rely on foreign capital inflow to fulfill the two-gaps: the import-export gap and saving-investment Gap(ibid). Relying on foreign capital will entail either borrowing from the international financial market (IFM) or depending on development assistance (DAC) or attracting foreign direct investment (FDI). The three sources could be the sources of foreign capital in a single capitalist economy. The model developed in this study deals with two sources of foreign capital, DAC and FDI.

DAC is straightforward, it involves OECD governments, lending to governments of developing countries to achieve economic development. OECD countries give concessional loans to developing countries to enable them provide infrastructures such as roads, railway, electricity and welfare. It is not unusual that DAC countries determine which project that their concessional loans should be used for. Although, since the birth of the 21<sup>st</sup> century, the desire to achieve MDGs has encouraged investment in human capital, infrastructure and *development from below* (Narayan, 2002). Shortly, we discuss FDI in detail in order to capture the host country's desire to have FDI. Firstly, we present our model in figure 3.

The model measures the relationship between foreign capital (FDI/DAC), economic growth and self-employment; the causal directions are shown by the arrows. The model suggests that FDI has a direct positive effect (*direct link*) on economic growth (real GDP), but it may even be that economic growth has a indirect positive effect (*indirect link*) on FDI. The same applies to DAC and self-employment. In addition, there is a first link that runs from FDI/DAC to the economic sector, the second link moves from the economic sector to economic growth and third link runs from the economic sector to self-employment. The first link shows that once the foreign capital enters into an economy, it goes to economic sectors. Although, foreign capital belongs to foreign investors and their investment directed to specific sectors of their choice, but it's an addition to the capital stock of the host economy. The second link shows that economic growth of the host depends on the performance of economic sectors, whereas the third link shows that self-employment is induced if foreign investments

are directed to the sectors that requires the majority in the population to be involved in the productive activity.



**Figure 4: Link between Foreign capital, Economic growth and self-employment.**

(Author’s construction).

## 4.1 Some Perspectives on the benefits of FDI in theory

This section presents perspectives on the impact of FDI; that represents the perception of FDI. It differs from what we see within the research overview. Even though the keyword is ‘FDI’, but we use interchangeably different synonyms like transnational corporations (TNC) and the Multinational Corporations (MNC). Because this study draws from different authors who represent FDI with these terms in their works.

Dunning (2000) in an article titled, *the theory of Eclectic Paradigm as an envelope for economic and business theories of MNE activity* has documented neoclassical economic theories that captured the determinants of FDI flow. Dunning suggests that the determinants of FDI flow can be explained by *Ownership, Location, and Internationalization (OLI)* theories. It is widely referred to as *OLI framework*. The paradigm presupposes that Multinational Enterprises (MNE) or Multinational Corporations (MNC) or foreign companies strategically choose to invest in countries and industries where they have a competitive advantage. The motivation to go international according to Dunning depends on the size of the firm, the relative competitive advantage over domestic companies in the country they seek to invest and the attraction of buying and selling goods and services in the domestic market as well as the benefits of cross-border intermediate product market and international market (Dunning, 2000). From this line of argument, theoretically, it is plausible to suggest that as MNCs engage in FDI, they contribute to economic growth, employment and poverty reduction through their activities in their host countries.

Dunning explains that, MNCs are giant corporations with branches in countries outside their place of origins. They coordinate networks of production, which means several production sites exist in different countries and this process can be made to run simultaneously. MNCs are assumed to have made contributions to employment, the provision of social infrastructures such as rural roads, pipe borne water, health centers, building schools, etc., for their host countries. Hence, leaders of communities in many developing countries do lobby their governments to have the MNCs production sites in their area (Dicken, 2007:227). However, MNCs activities are marked by controversies, for some people, it brings benefits to their host communities while for others, its exploitation as usual (ibid). The work of Peter Dicken (2007) titled *Global Shift Mapping the Changing Contours of the World Economy* was critical of FDI, but captured a nuanced view of the impact of MNCs on the developing countries. The book draws from, a wide range of academic disciplines, including business and management, development studies, economics, economic geography, political science and

sociology, amongst others. And as such, this paper draws from the book to discuss the impact of FDI on their host countries.

From the theory of eclectic paradigm approach, it is usual for MNC to set up production networks, whether mining or manufacturing plants in countries that offer them the competitive advantage to exploit domestic and foreign markets (Dunning, 2000). The first priority of the government seeking FDI is to provide or expand the hardware infrastructure such as building railroads, motorways, hydroelectric dams and communication networks (Lin, 2010). Thus, the government of a country desiring to attract FDI would attach special interest in the provision of modern infrastructure. Such government will normally increase investment in modern infrastructure, human capital and reform of the regulatory system. In essence, the absence of modern infrastructure, low skilled labor and inefficient bureaucracy will degrade the chances of a country attracting FDI (Yamin & Sinkovics, 2009). Thus, increasing investment in infrastructure will benefit the government, the citizens of the host country and the incoming foreign investors.

For Dicken (2007), MNCs production activities in their host countries may lead to expansion in the economies of their hosts by connecting several small businesses that support their host economies. They do this by giving contracts to local firms to provide certain goods and services, employing citizens of their host countries and providing access to a global market. Studies in economics recognize these channels through which linkages between domestic and foreign firms exist as a spillover effect (Dunning, 2000; Harris 2009). Due to spillover effect, the prices of certain commodities, usually locally sourced raw materials will increase and manufactured products relatively cheaper in the domestic market of their host country. Through this way, various economic sectors of their host country could involve and benefit from FDI activity. Also, ordinary citizens could involve through wage employment, self-employment, afford to buy products of better quality and cheaper prices, enjoy functioning infrastructure and as such, improve their standard of living. Besides, FDI can contribute in putting other social infrastructure in place like building or supporting community health centers, building schools and roads to boost their corporate image, by so doing contribute to economic development and poverty reduction. Depending on their activities, if the TNC is involved in agriculture, they could make irrigation their priority, and those communities within their areas of operation will benefit.

Some argue that during the period of colonization, the need for natural resources to feed manufacturing industries in Europe and export to their colonies compelled colonial

administrators to provide basic education and build motorways, railways and communication to facilitate their business operations (Kohli, 2004:18). But the extent to which colonial infrastructure served the interest of the local population is doubtful. Although, wherever the infrastructure existed became the major cities for business and government administration. Thus, for DAC, physical infrastructure is considered as the foundation of economic development. In fact, Ascher and Krupp (2010: 225) argue that if networks of roads, railways, water supply and electricity connect major cities, towns and rural areas, a great number of the population directly or indirectly will benefit from foreign capital, but if industries are cited in an export processing zone and no direct infrastructure connections to rural areas, a few will be employed, there might be economic growth but the majority will live in poverty. For instance, if the networks of road that China is building in Ethiopia connect locations outside its sources of raw materials and industries, we would assume in theory that economic activities that involve the majority will blossom. Linking rural cities and towns to road and rail networks will influence the manner people travel to other locations to pursue economic activities and seek other opportunities. Similarly, if electricity is extended to rural cities and towns outside the main coastal cities, mining and factory locations, the population will have the opportunity to diversify their business activities and that would contribute to self-employment, economic growth and poverty reduction.

Nevertheless, some argue that TNCs' are attracted to low income countries due to cheap labor, good infrastructure and market, but their activities may lead to the collapse of local firms, job losses, increase prices of raw materials, high unemployment, weakening of the labor unions and increase inequality (Grotty et al., 1997). Even the TNCs employment is questionable; Dicken (2007:469) asks, *what quality of the job is available for their hosts?* His response is that in the developing countries, the employments giving to the citizens of their host countries are comparable only to the slave labor. Privileged positions and less stressful works are reserved for citizens of countries where TNCs originates. While the bulk of the works in the assembling lines is carried out by the citizens of their host countries, employed as laborers (ibid). The wages of these laborers are too little even though they spent more hours on the production platform with noise of machines, while their boss sits in their air-conditioned offices, sipping tea or coffee. Good wages paid to TNCs citizens do not extend to citizens of their host countries, even though they are the bearers of the greatest physical burden which accompanied production processes (ibid: 470).

Another issue of concern is how the TNC moves capital from one country to another. The entry of TNC may lead to boom and bust in the economies of their host countries. TNCs are notorious for movement of their capitals from one country to another. Always searching for countries where profits on investments are more lucrative than others in order to double their initial capital investments within a short period, and if uncertainty arises in the future of their host economies, they will pull their capital out without notice. This kind of behavior is attributed to the collapse of East Asian economies in 1990s, when TNCs within 72hrs of receiving speculative news from the currency market about the likely crises in Thailand, South Korea and Taiwan economies, quickly withdrew their capital and banks collapsed (ibid:460-2).

Another area is Technology, the reason most countries would like to have TNCs in their countries is to have access to advance or better technology. The assumption is that their citizen can easily acquire the technical skills and then be able to make machines or products of similar quality thereafter. In most cases, countries are disappointed because what they get at last is not what they hoped for. And as Dicken puts it, “Transfer of technology is the famous rhetoric of TNCs of which host countries often assumes that once TNCs move to their countries, there will be a transfer of technology” (Dicken, 2007:462). Many of the countries in developing countries have not even considered and reached any serious agreement with the TNCs on how to transfer technology to their citizens. So in most cases, TNCs builds factories and equip it with the necessary machines which they get laborers to operate and few educated people to do minor maintenance work. In this case, there is nothing like transfer of technology but exploitation of labor (Ibid). However, it can be that in some cases, technology transfer is also possible, but the chances of that happening is very remote but it happens. For example, there seems to be an absence of technology transfer in Trinidad and Tobago and Costa Rica but not so in Malaysia, the Philippines and Thailand. Most of the TNCs prefers to keep their technology secret and the terms of transfer are very strict and it is very expensive (Ibid:463)

From the preceding perspectives, it is evidence that there is a common understanding that foreign capital is desirable and considered as a means for development, but the challenge remains, the expectations in some cases may run contrary with the reality. Hence, the opinions are divided. This study seeks to understand foreign capital impact in Ethiopia in order to contribute to this debate. From this perspective, we proceed to part one where we present empirical evidence using descriptive approach.

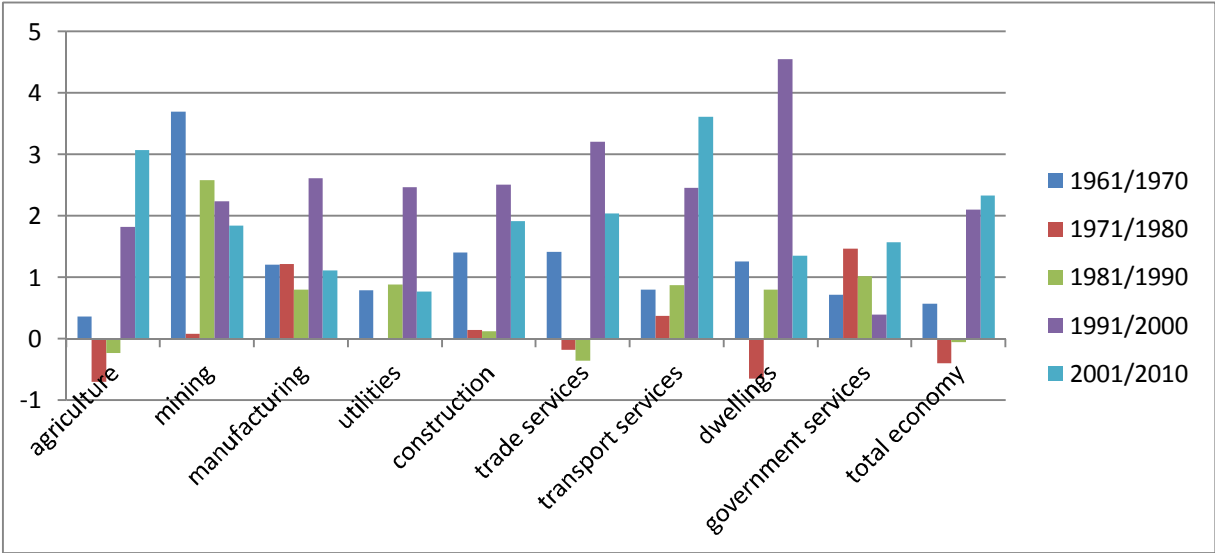
# 5 Empirical Evidence: Part I

We present empirical evidence in two parts. Part one starts with descriptive statistics and subsequently linked to part two where econometrics, based on time series applies.

## 5. 1 Descriptive statistics:

Section one of part 1 plot a histogram graph that captures and compares the growth rates across economic sectors between 1961 and 2010. Section two finds the drivers of the changes in the growth rates and look for its implications for self-employment and poverty reduction. Combining pieces of evidence compelled us to use data which covered different periods, but it is also necessary to take this step to avoid missing vital information.

**Figure 5: Average growth rates across economic sectors, 1961 to 2010.**



Source: Penn World Table, African Sector Database.

The period is divided into five decades: First decade (1961/1970), second decade (1971/1980), third decade (1981/1990), fourth decade (1991/2000) and fifth decade (2001/2010). From first to third decades covered the period of the Ethiopian closed economy while fourth to fifth periods covered the period of Ethiopian economic liberalization.

## 5.2 Average Growth rates of EES compared across decades

The average growth rate of the *agricultural sector* was less than 1 percent between 1961 and 1970, a negative growth rate, 1971/1980 and 1981/1990. From the 1991/2000, the start of Ethiopian economic liberalization, agriculture bounced back, grew by a 1.8 percent and



reached a 3.1 percent in the fifth decade. In contrast, *mining* during the 1961/1970 recorded an impressive growth rate, at 3.7 percent, but dropped to a 0.1 percent in the second decade. Unlike agriculture, the sector bounced back during the third decade with an average growth rate 2.5 percent. For the past two decades, growth in the mining sector fluctuated and reached a 1.8 percent in the fifth decades. Similarly, manufacturing, utilities, construction and dwellings recorded impressive growth during the 1991/2000. However, dwellings recorded an impressive growth, 4.5 percent during the 1991/2000, but dropped drastically by 1.3 percent in the 2001/2010. Since fourth decade, agriculture, mining, construction, trade services, transport services and dwellings maintained steady growth above average, 1.5 percent. Let us now consider the implications of these changes in the growth rates on the economic growth.

### 5.3 Implications of foreign capital on economic growth

Although the average growth rate in agriculture during the 2001/2010 was 3.1 percent, its percentage share of the real GDP was 45 percent (the World Bank: WDI, 2015). The growth in agriculture during the period was driven by foreign investors seeking resources as well as market. In essence, the need for biofuels to reduce the consumption of fossil fuels, especially in the developed countries has propelled investment in agriculture in low income countries, not only in Ethiopia but across Africa, Asia and Latin America (Oane, 2011; Matondi et al., 2011; Cotula et al, 2011; Sparks, 2012; Narula, 2013). The major private investors in the agricultural sector of Ethiopia come from the US, the EU, India, Isreal and Saudi Arabia (Weissleder, 2009). Investment increased from US\$ 135 million in 2000 to US\$ 3500 million in 2008. The specific agricultural sectors of their interests include: flori/horticulture, meat production, biofuel and food production. We expect that increase investment in sectors like flare/horticultural can lead to an increase in the economic and social development as it could encourage increase employment, both wage employment and self-employment. Although, meat and biofuel sector can cause negative effects on food security and poverty in low income country like Ethiopia as competition on fertile productive land and water increases (Weissleder, 2009).

Similarly, mining grew by an average of 1.8 percent in the fifth decade and its share of GDP was 0.5 percent, manufacturing declined again by 1.1 percent, but its share of GDP was 4 percent. Foreign investors, for example, China has shown interest in the Ethiopian mining and manufacturing sectors (International Policy Digest, 2014). However, it is doubtful how many jobs that extractive industries such as the mining sector offer to the population of their

host country. In the manufacturing sector, previous studies, accused China's FDI of crowding-out local firms, sourcing their major raw materials from Ethiopia while key professionals, high number of workers and other inputs came from China. They claimed that following the privatization of the Ethiopian national industries like cement and communication, Chinese workers had taken over jobs that existed in those industries. As workers were laid off, unemployment and poverty increased (Kaplinsky, 2006; Geda & Meskel, 2009). We argue that these companies were on their verge of going into bankruptcy. Without China's FDI, the two largest firms in Ethiopia would have collapsed and all the workers lose their jobs, but with the China's FDI, after restructuring of the organizations, it is normal that some employees will lose their jobs while some retain theirs.

From the utility, construction and dwelling sectors, the Ethiopian government privatized public utilities such as electricity, communication and water, which forced a reduction in the number of users who cannot afford to pay for them even where they are available, but a measure of efficiency in the sectors brought initial growth in the fourth decade (Rajan et al., 2005). Meanwhile, to curtail the impact of privatization, the government of Ethiopia injected foreign capital into dwellings and construction sectors, providing owner occupied homes for the city dwellers, basic infrastructure like new roads, railways, power stations and basic irrigation aimed at improving the economic environment and attracting foreign investors (AFRODAD, 2011). For instance, in 2010, *the China Road and Bridge Corporation* won the contract worth \$67 million to expand the Addis Ababa airport. Other Chinese companies are building about 70 percent of the roads in Ethiopia, including the Addis Ababa Ring Road. Chinese companies have largely marginalized those from South Korea and Japan that had previously been important in the road construction in Ethiopia (International Policy Digest, 2014). Even though, construction industries may not provide a permanent employment, but substantial wage employment on a temporary basis were created (Schürenberg-Frosch, 2014).

Likewise, the growth in the trade services like agriculture was remarkable in the fourth and fifth decades. Its share of the GDP was 16 percent during the fifth decade. However, some authors argue that, the products from the major foreign investor like China, have swamped the Ethiopian market with relatively cheap prices, and even the Ethiopian manufactured product is made by Chinese companies in Ethiopia. Thereby, forcing the Ethiopian local businesses as well as traders to close down while their employees become jobless (Kaplinsky et al., 2007; Geda & Meskel, 2009). Despite the challenges faced by the local firms and businesses during the period, growth in the trade services was remarkable in

the fourth and fifth decades. Even though, Chinese companies are producing low quality concession food, electrical materials, garment, pharmaceutical, shoe, clothing, among others the majority could afford it due to the cheaper prices(Geda and Meskel, 2009).

Hence, the total economy grew at an average of 2 percent between 2001/2010, which is in contrast to stagnant growth in the first decade and negative growths in the second and third decades. Generally, there is evidence of volatility in growth rates across economic sectors between 1961 and 1990 as well as from 1991 to 2010. But in comparison with the previous periods, 1961- 1990, except in government services, the declines from 1991 to 2010 were not similar to those experienced in the earlier decades. From this perspective, we proceed to the next section to discuss the implications of foreign capital on self-employment.

#### 5.4 Implications of growth in the economic sectors on Self-employment

Table 5 examines the growth elasticity of self-employment in the economic sectors between 1992 to 2010. Agriculture with an average growth rate 3.1 percent in the fifth decade absorb a greater number of self-employed, 43 percent. Followed by trade services 18 percent, but self-employment in mining is virtually non existent while others are relatively minor in comparison with agriculture and trade services. Likewise, table 6 also shows that during the same period, the absolute poverty rate under US\$1. 25 declined from 63 percent in the 1990/1999 to 39 percent in the 2000/2009 while \$2 per day poverty declined from 86 percent in 1990/1999 to 72 percent in 2010/2013. The percentage of those in wage employment slightly increased from 5.7 percent in 1990/1999 to 7.9 percent in 2000/2009, while self-employed remain high, 91.8 percent as at 2010/2013.

**Table 5: Growth elasticity of self-employed per Economic sector**

ES	Agriculture	Mining	Manuf-acturing	Utilities	Construc-tion	Trade Services	Transport-ation	Dwellings	Government Services	Total Economy
Years										
1992	8.9	0.04	0.5	0.27	0.3	1.4	0.38	0.22	0.76	13.5
1995	10.6	0.07	0.11	0.3	0.69	2.8	0.6	0.59	1.07	19.1
2000	11.4	0.09	1.4	0.53	0.95	3.5	0.9	0.8	2.5	23.9
2005	13.8	0.15	1.5	0.6	1.65	4.5	1.7	1.3	2.9	30.7
2010	42.9	0.58	3.9	1.2	4.0	18.3	3.4	5.4	6.78	94.6

Source: Penn World Table, African Sector Database.

**Table 6: Employment and poverty metrics, 1999/2013**

	<b>Variables</b>	<b>Poverty indicators</b>		<b>Employment indicators</b>		<b>Infrastructure improv. Indicators</b>		
<i>Years</i>	<i>Country pop (M)</i>	<i>Povp_ \$1.25 Per day (%)</i>	<i>Pop_ \$2 Per day (%)</i>	<i>Pop wage _employed (%)</i>	<i>Pop self_ Employed (%)</i>	<i>Total labor pop (m)</i>	<i>Popsubscribe to cell phone (%)</i>	<i>Popaccess_ Water supply (%)</i>
1990/1999	64.15	63.2	86	5.7	93	27.7	0.01	27
2000/2009	84.8	39.96	77.6	7.9	91.8	39.3	4.8	45.9
2010/2013	94.1	36.79	72.2	7.9	91.8	43.5	22.4	51.5

Source: The World Bank: World Development Indicator

From table 6, the evidence shows that 24 percent of the population living under the most basic consumption has moved away from that category, while 14 percent in the \$2 per day poverty category did the same. Similarly, the use of cellular phone increased from 0.01 in 1990/1999 to 27 percent in 2010/2013 and the use of improved water supply increased from 27 percent in the 1990/1999 to 52 percent in 2010/2013. It seems that only the poverty at \$1.25 per day has substantially declined in Ethiopia.

Finally, from the discussion in this section, agriculture, mining, construction, trade services, dwellings and transport are the economic sectors that attract most FDI in Ethiopia. Notwithstanding, agriculture and trade services are two sectors where there is a significant increase in growth elasticity of self-employment. This could be a result of small-scale improved irrigation schemes, which is expected to benefit self-employed in agriculture (MoFED, 2010). Drought is common in Ethiopia and can be devastating for farmers in particular and the population in general, but with improved irrigation, the effect of drought will be minimized. Likewise, improved road condition is expected to gradually lower the cost of transportation for those living in rural areas and allow producers and consumers to lower the cost margin of other goods and services, promote trade. There is an evidence of reduction in absolute poverty, both in \$1.25 and \$2 per day categories, more people have access to improved water supply and subscription to mobile phone increased. Could these improvements be due to the contributions of FDI and DAC? From this conclusion, we move on to part 2, where this study applies econometric time series models to understand the relationship between FDI, DAC, economic growth and self-employment.

## 6 Part II: Time Series Econometrics

In the first part, we use descriptive statistics to provide exhaustive analysis about the impact of foreign capital on economic growth and its implications for self-employment and poverty reduction. Part two introduces econometric time series models to empirically determine the relationship between foreign capital, economic growth and self-employment. Although we discussed in part 1 the possible relationship between FDI, DAC, Real GDP and self-employment, but we cannot establish or confirm the direction of that relationship using graphs. But without descriptive statistics, we cannot combine data of the diverse range to learn about micro situation. Hence, the two approaches are vital so as to have in depth knowledge of the case. To begin, we present descriptive statistics of the indicator variables, control all the variables for multicollinearity, carry out non-stationary test, proceed to formulate empirical models and test the hypotheses using VAR and Granger causality tests.

**Table 7: Descriptive Statistics: economic growth, 1992-2012**

<i>Variable</i>	<i>Obs.</i>	<i>Mean</i>	<i>Std. Dev</i>	<i>Min</i>	<i>Max</i>
<i>ln(fdi)</i>	21	22.84036	2.838817	12.04355	24.8664
<i>ln(doc)</i>	21	25.24117	.6351511	24.43684	26.16134
<i>ln(real GDP)</i>	21	27.7325	.4271387	27.10339	28.54731
<i>ln(pc_gdp)</i>	21	5.201973	.6351511	4.720613	6.157319
<i>ln(hhf_cons)</i>	21	22.92116	.6192804	22.31951	24.16957
<i>ln(totlabor_pop)</i>	21	27.25183	.2082611	16.92652	17.59036
<i>ln(popwage_empl)</i>	21	14.56332	.4578424	13.51527	15.05206
<i>ln(popself_empl)</i>	21	17.168	.2026697	16.85395	17.50481
<i>ln(popwork_agri)</i>	21	17.09016	.1576838	16.82116	17.35843
<i>ln(empl_pop_ratio)</i>	21	4.344971	.0304301	4.305416	4.382027

Table 7 captures the descriptive statistics of all the variables considered for the time series regression. Most of the variables have a low standard deviation. Suggesting that between 1992 and 2012, these series closely concentrated around the mean. The Minimum and Maximum values also show that they are not far away from the mean. As a rule of thumb suggests, there is no variation in the time series, since the values did not spread out. It is an indication of non-stationary data series.

## 6.1 Sensitivity Analysis

Comparison of the strength of the indicators is necessary to avoid the problem of multicollinearity. Thus, we proceed to formally measure the variance inflation factor (vif) of the indicator variables.

**Table 3a/3b: Test for Multicollinearity**

<b>Table 3a</b>	<b>Economic growth indicators</b>				
	<i>ln(fdi)</i>	<i>ln(dac)</i>	<i>ln(real_gdp)</i>	<i>ln(pc_gdp)</i>	<i>ln(hhf_cons)</i>
<i>ln(fdi)</i>	1.0000				
<i>ln(dac)</i>	0.2661	1.0000			
<i>ln(real_gdp)</i>	0.5675	0.8512	1.0000		
<i>ln(pc_gdp)</i>	0.0680	0.8383	0.8261	1.0000	
<i>ln(hhf_cons)</i>	0.2192	0.8869	0.9068	0.9834	1.0000

<b>Table 3b</b>	<b>Employment indicators</b>				
	<i>ln(totlabor_pop)</i>	<i>ln(popwage_empl)</i>	<i>ln(popself_empl)</i>	<i>ln(popwork_agri)</i>	<i>ln(empl_pop_ratio)</i>
<i>ln(totlabor_pop)</i>	1.0000				
<i>ln(popwage_empl)</i>	0.9094	1.0000			
<i>ln(popself_empl)</i>	0.9994	0.9006	1.0000		
<i>ln(popwork_agri)</i>	0.9852	0.9309	0.9819	1.0000	
<i>ln(empl_pop_ratio)</i>	0.8619	0.7060	0.8610	0.7971	1.0000

Table 3a and 3b, show that most of the indicators exhibit a common strength and their joint correlation factor is between 8 and 9r. It's also an indication that whichever variable we use is an important measure of economic growth and employment. As we suspect multicollinearity, a decision was reached to drop some variables and retain one in each measurement category appropriate for our investigations. For example, apart from FDI and DAC, in *the economic growth category*, real GDP, *GDP per capita* and *Household final consumption expenditure* joint correlation factor is 8/9 r. Therefore, we dropped two of them, retain the log of real GDP in our model because we are interested to measure not the effect of FDI on individual income or income with assets, but economic growth. Likewise, in the *employment category*, we dropped, *employment ratio to population* and replaced with the log of *self-employment*, which serves as a proxy for *poverty reduction*.

## 6.2 Tests for Non-stationarity

In the literature, it is widely recognized that archiving a stationary time series is possible after taking first difference and sometimes second difference of the time series (Gujarati & Porter, 2009:755). Therefore, after confirming that our data is non-stationary through various ocular inspections with graphs and Autocorrelation Function (ACF) of Bartlett autocorrelogram, we proceed to carry out a test of unit roots using ADF. Some previous studies (Perron, 1989; Elliott et al., 1996) observed that archiving a stationary time series with ADF tests can be difficult sometimes even after first and second differences due to structural break in the data. Nevertheless, we use ADF due to its widely acceptance and the results of the tests are reported in table 3. *The functional form of the formal tests is:  $Y_t = pY_{t-1} + \varepsilon_t \quad AR(1/2)$ .*

$H_0: \delta = 0$  (there is a unit root or the time series is non-stationary).

$H_1: \delta < 0$  (time series is stationary, possibly around a deterministic trend).

**Table 8: Test for non-stationarity**

Table 3		ADF tests of non-stationarity.				
Variables	Order of integration	Specification	Test statistics (5% Critical value)	Test statistics (10% Critical value)	Conclusion	No. obs
Infdi	I (0)	No intercept/trend	-2.835 (-3.00)	-2.835 (-2.630)	Not Reject $H_0$ @ 5%	19
<b>D. (Infdi)</b>	I (1)	No intercept/trend	-4.823 (-3.000)	-4.823 (-2.630)	Reject $H_0$ @ 5%	18
Inreal_gdp	I (0)	No intercept/trend	1.732 (-3.000)	-1.732 (-2.630)	Not Reject $H_0$ @ 5%/10%	19
D. (Inreal_gdp)	I (1)	No intercept/trend	-1.841 (-3.000)	-1.841 (-2.630)	Not Reject $H_0$ @ 5%/10%	18
<b>D2. (Inreal_gdp)</b>	I (2)	No intercept/trend	-4.139 (-3.000)	-4.139 (-2.630)	Reject $H_0$ @ 5%	17
Indac	I (0)	No intercept/trend	-0.278 (-3.000)	-0.278 (-2.630)	Not Reject $H_0$ @ 5%/10%	19
D. (Indac)	I (1)	No intercept/trend	-2.373 (-3.000)	-2.373 (-2.630)	Not Reject $H_0$ @ 5%/10%	18
<b>D2. (Indac)</b>	I (2)	No intercept/trend	-4.548 (-3.000)	-4.548 (-2.630)	Reject $H_0$ @ 5%	17
Inpopself_empl	I (0)	No intercept/trend	-1.584 (-3.000)	-1.584 (-3.000)	Not Reject $H_0$ @ 5%/10%	19
D. (Inpopself_empl)	I (1)	No intercept/trend	-2.436 (-3.000)	-2.463 (-2.630)	Not Reject $H_0$ @ 5%/10%	18
<b>D2. (Inpopself_empl)</b>	I (2)	No intercept/trend	-4.399 (-3.000)	-4.399 (-2.630)	Reject $H_0$ @ 5%	17

The results of unit root tests in table 3 show that, except FDI, which is stationary in the first difference, the other variables are stationary in their second difference and as such, we can proceed to test for cointegration relationship with caution. Thus, we run cointegration test using Akaike Information Criteria (AIC) for lag selection to prove whether the models are suitable to investigate a long run relationship.

### 6.3 Operationalization: Test for cointegration between variables

To commence cointegration tests, the following dynamic regression models are necessary:

$D. \ln (fdi_{t-1}) = a + \beta_1 D2. \ln (real\_gdp_{t-1}) + \epsilon_t$	Model-1
$D. \ln (fdi_{t-1}) = a + \beta_1 D2. \ln (popself\_empl_{t-1}) + \epsilon_t$	Model-2
$D2. \ln (dac_{t-1}) = a + \beta_1 D2. \ln (real\_gdp_{t-1}) + \epsilon_t$	Model-3
$D2. \ln (dac_{t-1}) = a + \beta_1 D2. \ln (popself\_empl_{t-1}) + \epsilon_t$	Model-4
$D2. (\ln real\_gdpt-1) = a + \beta_1 D2. \ln (popself\_empl_{t-1}) + \epsilon_t$	Model-5

Note that these variables are already defined in table1.

**Table 9: Test for cointegration following Todda-Yamamoto procedure**

Test for cointegration	AIC	Engle-Granger tests for cointegration	Johansen tests for cointegration	Yearly	
Models	Lag selection	Test statistics (5% Hamilton C.V)	Vec Ranking	No. obs.	Conclusion
Model-1	4	-2.372 (-2.76)	0	17	Cannot reject H <sub>0</sub>
Model-2	2	-3.668 (-2.76)	0	17	Reject H <sub>0</sub>
Model-3	3	-2.607 (-2.76)	0	17	Cannot reject H <sub>0</sub>
Model-4	4	-4.415 (-2.76)	1	17	Reject H <sub>0</sub>
Model-5	3	-2.576 (-2.76)	0	17	Cannot reject H <sub>0</sub>

Table 9 shows that based on AIC, the possible number of lag combination of the variables in our models is obtained. Using Hamilton C.V and Vec rank, our results show that we cannot proceed to test the long run equilibrium relationship with the models because the number of observations is small, it has low power and we cannot find cointegration vector except in model 4. Meanwhile, according to Todd-Yamamoto procedure, provided that variables are stationary, Granger causality Wald tests should not be restricted to cointegration model only. Therefore, we can run, short run equilibrium relationship using Autoregressive Distributive Lags (ADL) and Granger causality Wald tests before proceeding to a diagnostic testing of the



models. Therefore, we revise the equations and treat all the variables as endogenous and based on short run equilibrium relationship:  $\Delta Y_t = \delta_0 + \phi_1 \Delta X_t + \lambda t$

Below are the modified versions of our hypothesis and models necessary to carrying on Granger causality Wald tests.

### 6.3.1 Modified Hypothesis

The modified hypothesis implies adding indirect hypothesis to the direct hypothesis. It is based on our theoretical model in figure 4 and to satisfy Granger causality Wald tests, we present null hypotheses of all the models.

- $H_{1a}$ : FDI has no direct positive effect on real GDP (direct)  
 $H_{1b}$ : Real GDP has no direct positive effect on FDI (indirect)  
 $H_{2a}$ : FDI has no direct positive effect on self-employment (direct)  
 $H_{2b}$ : Self-employment has no direct positive effect on FDI (indirect)  
  
 $H_{3a}$ : DAC has no direct positive effect on real GDP (direct)  
 $H_{3b}$ : Real GDP has no direct positive effect on DAC ( indirect)  
 $H_{4a}$ : DAC has no direct positive effect on self-employment (direct)  
 $H_{4b}$ : Self-employment has no direct positive effect on DAC( indirect)  
  
 $H_{5a}$ : Real GDP has no direct positive effect on self-employment. (direct )  
 $H_{5b}$ : Self-employment has no direct positive effect on real GDP (indirect)

$\Delta \ln (fdi_{t-1}) = \beta_0 + \sum_{i=1}^p \beta_i \Delta \ln (fdi)_{t-1} + \sum_{i=1}^p \beta_2 \Delta \ln (real\_gdp)_{t-1} + \mathcal{E}_t$	Model-1a
$\Delta \ln (real\_gdp_{t-1}) = \beta_0 + \sum_{i=1}^p \beta_i \Delta \ln (real\_gdp)_{t-1} + \sum_{i=1}^p \beta_2 \Delta \ln (fdi)_{t-1} + \mathcal{E}_t$	Model-1b
$\Delta \ln (fdi_{t-1}) = \beta_0 + \sum_{i=1}^p \beta_i \Delta \ln (fdi)_{t-1} + \sum_{i=1}^p \beta_2 \Delta \ln (popself\_empl)_{t-1} + \mathcal{E}_t$	Model-2a
$\Delta \ln (popself\_empl_{t-1}) = \beta_0 + \sum_{i=1}^p \beta_i \Delta \ln (popself\_empl)_{t-1} + \sum_{i=1}^p \beta_2 \Delta \ln (fdi)_{t-1} + \mathcal{E}_t$	Model-2a
$\Delta \ln (dac_{t-1}) = \beta_0 + \sum_{i=1}^p \beta_i \Delta \ln (dac)_{t-1} + \sum_{i=1}^p \beta_2 \Delta \ln (real\_gdp)_{t-1} + \mathcal{E}_t$	Model-3a
$\Delta \ln (real\_gdp_{t-1}) = \beta_0 + \sum_{i=1}^p \beta_i \Delta \ln (gdp)_{t-1} + \sum_{i=1}^p \beta_2 \Delta \ln (dac)_{t-1} + \mathcal{E}_t$	Model 3b
$\Delta \ln (dac_{t-1}) = \beta_0 + \sum_{i=1}^p \beta_i \Delta \ln (dac)_{t-1} + \sum_{i=1}^p \beta_2 \Delta \ln (popself\_empl)_{t-1} + \mathcal{E}_t$	Model-4a
$\Delta \ln (popself\_empl_{t-1}) = \beta_0 + \sum_{i=1}^p \beta_i \Delta \ln (popself\_empl)_{t-1} + \sum_{i=1}^p \beta_2 \Delta \ln (dac)_{t-1} + \mathcal{E}_t$	Model-4b
$\Delta \ln (gdp_{t-1}) = \beta_0 + \sum_{i=1}^p \beta_i \Delta \ln (real\_gdp)_{t-1} + \sum_{i=1}^p \beta_2 \Delta \ln (popself\_empl)_{t-1} + \mathcal{E}_t$	Model-5a
$\Delta \ln (popself\_empl_{t-1}) = \beta_0 + \sum_{i=1}^p \beta_i \Delta \ln (popself\_empl)_{t-1} + \sum_{i=1}^p \beta_2 \Delta \ln (real\_gdp)_{t-1} + \mathcal{E}_t$	Model-5b

Note that all the variables are clearly defined in table 1.

**Table 10: Results of Granger causality Wald tests**

Models	Direction	Equation	Null hypothesis (Ho)	P-value	Decision
Infdi/lnreal_gdp (M.1a)	Infdi→lnreal_gdp	$\beta_j^1 = 0$	Infdi does not GC lnreal_gdp	(0.003)**	Reject Ho
lnreal_gdp/Infdi (M.1b)	Infdi←lnreal_gdp	$\beta_j^2 = 0$	lnreal_gdp does not GC Infdi	(0.135)	Cannot Reject Ho
Infdi/lnpopself_empl (M.2a)	Infdi→lnpop self_empl	$\beta_j^1 = 0$	Infdi does not GC popself_empl	(0.439)	Cannot Reject Ho
lnpopself_empl/Infdi (M.2b)	Infdi←lnpop Self_empl	$\beta_j^2 = 0$	lnpopself_empl does not GC Indac	(0.068)*	Reject Ho at p.0.1
Indac/lnreal_gdp (M.3a)	Indac→lnreal_gdp	$\beta_j^1 = 0$	Indac does not GC lnreal_gdp	(0.599)	Cannot Reject Ho
lnreal_gdp/Indac (M.3b)	Indac←lnreal_gdp	$\beta_j^2 = 0$	lnreal_gdp does not GC Indac	(0.408)	Cannot Reject Ho
Indac/lnpopself_empl(M.4a)	Indac→lnpop self_empl	$\beta_j^1 = 0$	Indac does not GC popself_empl	(0.090)*	Reject Ho
lnpopself_empl/Indac(M.4b)	Indac←lnpop Self_empl	$\beta_j^2 = 0$	lnpopself_empl does not GC Indac	(0.221)	Cannot Reject Ho
lnreal_gdp/lnpopself_empl (M.5a)	lnreal_gdp→lnpop self_empl	$\beta_j^1 = 0$	lnreal_gdp does not GC popself_empl	(0.670)	Cannot Reject Ho
lnpopself_empl/lnreal_gdp (M.5b)	lnreal_gdp←lnpop Self_empl	$\beta_j^2 = 0$	lnpopself_empl does not GC lnreal_gdp	(0.022)**	Reject Ho

Note that all the coefficients are in parenthesis, M. represents model, the asterisks \*, \*\* and \*\*\* denote statistical significance at the 10, 5, and 1% levels.

Having obtained the results for Granger causality Wald tests, we proceed to carry out diagnostic tests before discussing the results in detail.

#### 6.4 Diagnostic tests

In empirical modeling, certain conditions must be fulfilled for the result to be declared good-fit. Hence, the diagnostic tests here are based mainly on the model assumptions in order to dictate compliance or violations of the following OLS conditions:

- The sample is truly a representative of the population for the inference prediction.
- The error of the model is a random variable with a mean of zero conditional on the explanatory variables.

- The independent variables of the model are measured using errors-in-variables model techniques.
- The predictors of the model are linearly independent, i.e. it is not possible to express any predictor as a linear combination of the others.
- The errors of the model are uncorrelated, it means that, the variance–covariance matrix of the errors is diagonal and each non-zero element is the variance of the error.

**Table 11: Diagnostic tests**

Normality tests				
Testing parameters	Heteroskedasticity	Skewness	Kurtosis	Observation
<b>Model-1</b>	0.83327	0.67190	0.71634	15
<b>Model -2</b>	0.71808	0.52739	0.66480	16
<b>Model -3</b>	0.60067	0.27250	0.92832	16
<b>Model -4</b>	0.22569	0.23267	0.25314	16
<b>Model -5</b>	0.81151	0.52512	0.86216	16

**Table 12: BG-LM Test**

BG- Lagrange-multiplier test (LM)					
Lags	Model-1	Model-2	Model-3	Model-4	Model-5
L1	0.89602	0.22209	0.50692	0.92844	0.47600
L2	0.30261	0.92714	0.64014	0.90478	0.96923
L3	0.73834	0.09934	0.46347	0.11714	0.68870
L4	0.10565	0.44619	0.80829	0.48362	0.68202
L5	0.02429	0.75241	0.15187	0.73673	0.68695
L6	0.53753	0.52417	0.04836	0.99512	0.48974
L7	0.98269	0.47306	0.48795	0.42108	0.78271
L8	0.76858	0.50337	0.91873	0.96664	0.66100
L9	0.31189	0.80787	0.28973	0.63553	0.06224
L10	0.55516	0.32709	0.54279	0.99782	0.95740

$H_0$ : no autocorrelation at lag order

Table 11 lists the results of the normality tests while table 12 shows the results of the autocorrelation of the residuals up to 10 lags. All the tests except model 1, lag5 clearly show that our variables and models do not suffer from autocorrelation, heteroskedasticity, Skewness and kurtosis.

## 7 Summary of the Results/Discussion

The results of this study as presented in table 10 are derived from testing five pairs of direct/indirect hypotheses using Granger causality Wald tests. Here, the findings are presented and discussed in a sequence, starting from hypothesis, one ( $H_1$ ) to hypothesis, five ( $H_5$ ).

*$H_{1a}$ : FDI has no direct positive effect on real GDP*

We cannot reject the null of the indirect hypothesis ( $H_{1b}$ ), but reject the null of the direct hypothesis ( $H_{1a}$ ) at a five percent significant level ( $p < 0.05$ ). The result shows that in the short run, Ethiopian economic growth depends on the FDI. The result agrees with the previous studies which found that FDI could lead to economic growth and increase government consumption (Bende-Nabende & Ford, 1998; Borensztein et al., 1998; Pelozo, 2001; Kottaridi, 2005).

*$H_{2b}$ : Self-employment has no direct positive effect on the FDI*

We cannot reject null of the direct hypothesis ( $H_{2a}$ ), but reject the null of the indirect hypothesis ( $H_{2b}$ ) at a ten percent significant level ( $p < 0.1$ ). Suggesting that in a sector where self-employment is high, FDI in the short run is likely to depend on their labor. Perhaps, the labor of the self-employed is cheaper than having workers on the FDI payroll. FDI can reduce some transaction risk associated with their businesses by working with self-employed. This is because the self-employed person is legally registered to render services and must possess skill and competence in business to be independent. Hence, the number of self-employed is higher in the agriculture and trade services, where FDI has made substantial investments. The result here is supported by previous studies and theory. For example, from Canada, Baldwin and Chowhan (2003) found that although self-employed provided most of the jobs in the business sector, but the labor of the self-employed was lower than those in the business sector. Thus, in theory, FDI investors would prefer to hire self-employed persons than employ wage earners in order to minimize cost and maximize profit (Grotty et al., 1997). FDI operators would prefer to avoid the obligations and other entitlements associated with wage employment in order to be competitive (Dicken, 2007). In essence, spillover effect in the economy of Ethiopia is possible if self-employed possess the job skills required by the FDI as suggested by Dunning (2000) and Dicken (2007). Otherwise, FDI will outsource input product and services from other countries, rather than employing local staffs.

*H<sub>3a</sub>: DAC has no direct positive effect on real GDP*

We cannot reject the null of both the direct (H<sub>3a</sub>) and indirect (H<sub>3b</sub>) hypotheses, the causal relationships in both directions are insignificant whether at a five or ten percent significant level. It means that in the short run, Ethiopian economic growth does not depend on grant and aid. Likewise, DAC does not depend on the GDP growth to flow into the country. Although, some components of DAC might have a causal relationship with real GDP. This result is in contrast with Shah et al., (2014) from Pakistan who found that DAC and FDI have a positive relationship with GDP, but the degree of the contributions of DAC is higher than FDI.

*H<sub>4a</sub>: DAC has no direct positive effect on self-employment.*

We cannot reject the null of the indirect hypothesis (H<sub>4b</sub>), but reject the null for the direct hypothesis (H<sub>4a</sub>) at a ten percent significant level ( $p < 0.1$ ). It implies that in the short run, Ethiopian self-employed rely on DAC. Since DAC directly supports the provision of infrastructures such as roads, railways, electricity and welfare, we would assume that through infrastructure and welfare, DAC has a direct positive effect on self-employment.

This finding takes us to the descriptive part of this paper, there, we observed that in recent years, the government of Ethiopia received more DAC and FDI inflows. Since then, the government has increased spending on the construction of new roads, electricity infrastructures and housing. By 2012, the number of self-employed in Ethiopia reached, 91.8% of the total labor force. Meanwhile, absolute poverty, \$1.25 per day reduced from 63% in 1990/1999 to 37% in 2010/2012. Likewise, access to improved water supply and subscriptions to the use of cellular phone increased from less than one percent in the 1990/1999 to 27 percent between 2010/2012. Thus, improvement in the infrastructure and other micro-level variables appeared to be driven by DAC. Though it is difficult to capture the precise nature of the relationship between infrastructure and growth, but some studies showed that African transport infrastructure has a positive effect on production, consumption and factor allocation (Schürenberg-Frosch, 2014; Bryceson et al., 2008). For this reason, this study disagrees with the conclusions of Yamin and Sinkovics (2009) which suggested that FDI mainly enables poor government to run into deficit by increasing spending on infrastructural development. Thus, we assume that in the case of Ethiopia, government spending on infrastructure is positive as it contributes to the improvement in the micro-level variables.

*H<sub>5b</sub>: Self-employment has no direct positive effect on real GDP*

We cannot reject the null of the direct hypothesis (H<sub>5a</sub>), but reject the null of the indirect hypothesis (H<sub>5b</sub>) at a five percent significant level ( $p < 0.05$ ). This implies that in the short run, more self-employed is necessary for economic growth. We lack data on the productivity output of the self-employed measured in terms of output per hour-worked, just the number of self-employed cannot tell us much about self-employed contributions to economic growth in Ethiopia, but based on evidence from previous research and theory we assume that increase in self-employment, can increase government revenue since self-employed are registered business that pay taxes. A Canadian study showed that self-employment from 1997 to 2005 reached 1.5 million. It became the only alternative to reduce unemployment and by so doing, self-employed contributed \$93.3 billion to economic growth and self-employed sector grew by 4.7% annually (Rispoli, 2009). Therefore, apart from the self-employed contribution to GDP, it is an important alternative to wage employment, it has reduced unemployment and scaled down absolute poverty in Ethiopia.

## 7.1 Conclusion

The objective of this study is to investigate the impact of foreign capital on economic growth and self-employment in Ethiopia. First part assessed the impact of foreign capital on economic sectors, economic growth and self-employment. Our analysis of the empirical evidence shows that in recent decade between 1991/2010, the economic sectors have made significant progress different from previous decades, 1961/1990. Some sectors of the Ethiopian economy, such as agriculture, mining, construction, trade services, dwelling and transport performed better than the others. However, the number of self-employed increased in agriculture and trade services, and there was a significant reduction in absolute poverty, \$1.25 per day from 63 percent in the 1990/1999 to 37 percent in 2000/2010. We conclude in this part that there is a relationship between foreign capital, economic growth and self-employment. In order to understand the direction of the relationship, we applied econometric time series modelling in part two.

In part two, the results of the econometric time series modelling show that in the short run, FDI has a direct positive effect on economic growth. Similarly, self-employment has a direct positive effect on the economic growth and FDI. In contrast, *DAC* in the short run has no

direct positive effect on the GDP, but it has a direct positive effect on self-employment. With the current outlook of Ethiopian economy in mind and considering our results in part 1 & 2, there is reason for guarded optimism about Ethiopian economic progress. Up to 2010, the growth elasticity of self-employed increased substantially in agriculture, 43 percent, followed by trade services 18 percent, but at the same time only absolute poverty at \$1.25 per day has reduced substantially from 63 to 37 percent. Yet, poverty at \$2 per day remain high from 86 percent in 1990/1999 to 72 percent in 2010/2013. Therefore, we provide suggestions on the policy action required to address the situation.

## 7.2 Recommendations

Although, the Ethiopian government has taken the initial and appropriate steps by providing infrastructures, attracting foreign capital and encouraging self-employment, a lot is required to achieve poverty reduction not just at \$1 per day but \$2 per day. Self-employed needs incentives to be able to diversify into other economic sectors apart from agriculture. Thus, we cannot neglect the important contributions of foreign capital to Ethiopian economic growth. Ethiopia needs DAC and FDI for her economic development. But, the contributions of self-employment to economic growth and poverty reduction in Ethiopia is the most vital. Although, FDI encourages profit maximization, but not for everyone. In essence, Capitalists cannot abandon profit interest for humanitarianism. In order for FDI to contribute to self-employment and poverty reduction, the government of Ethiopia should invest in the training of self-employed persons in Ethiopia to diversify from agriculture to other sectors of the economy. These recommendations support the common assumption that low level of investments in human capital and physical capital relative to savings is the problem. Hence, DAC inflow to Ethiopia should be invested in human capital and infrastructure.

Therefore, investments in the following sectors, agriculture, manufacturing, and trade service should be made a priority and government should continue to fund construction of new roads, railways, electricity and communication networks. Priority should be given to connecting rural communities, towns and cities that still remain outside the network of infrastructures. Investment in these sectors is desirable, but not enough as we have pointed out already, self-employed persons should be given incentives such as training and tax free for some years to be able to sustain their businesses and grow. We believe that if our findings and recommendations are considered, we assume that the Ethiopian economy will attract more foreign investors, self-employed persons will perform better and there will be increase self-

reliance. In the long run, the majority would not mainly be lifted out of absolute poverty in Ethiopia but their standard of living will continue to get better. The Ethiopian self-employed of today are the potential employers of the future. They could bring about economic transformation that has remained illusive in Ethiopia and many African countries for decades. Finally, further research is necessary to actually determine why self-employed in Ethiopia are mainly visible in agriculture and trade services? And what can be done to encourage their diversification into other economic sectors?

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