# Indira Gandhi National Open University

## School of Social Sciences

## Faculty of Economics

## The Impact of Foreign Capital Inflow on Economic Growth in Ethiopia

### By

### Tefera Befekadu

**May, 2015**

**Addis Ababa, Ethiopia**

**Programme Code:**

**Course Code:** | MECP- 001 |

**Enrolment No:** | 0 | 9 | 9 | 1 | 1 | 2 | 7 | 5 | 4 |

**Study Centere Code:** | 8 | 1 | 0 | 5 |

**Regional Centere:** ………………

# The Impact of Foreign Capital Inflow on Economic Growth in Ethiopia

Project Work submitted to Indira Gandhi National Open University in partial fulfillment of the requirements for the award of the Degree – Master of Arts (Economics). I hereby declare that this work has been done by me and has not been submitted elsewhere.

Signature of the Candidate: ………………………………….

Name of the Candidate: Tefera Befekadu

Address: Development Bank of Ethiopia, Addis Ababa, Ethiopia

Tel: +251-912-048040

e-mail: tefera_1@yahoo.com

Year: 2015

# CERTIFICATE

Certified that the Project Work entitled: **The Impact of Capital Inflow on Economic Growth in Ethiopia** submitted by Tefera Befekadu is his own work and has been done under my supervision.

It is recommended that this project be placed before the examiner for evaluation.

………………………………………

Signature of the Supervisor

Name: Negussie Semie (Ph.D)

Adress: St. Mary's University

Addis Ababa, Ethiopia

e-mail: nsemie@yahoo.com

Study Centere: 8105

Regional Centere:………………..

Date:………………………..

# Table of Contents

**Chapter Three**

**Chapter Four**

**Chapter Five**

# List of Tables

# List of Figures

# Acknowledgements

# List of Abbreviations

ADF: Augmented Dickey- Fuller

BOP: Balance of Payment

CSA: Central Statistics Agency

EEA: Ethiopian Economics Association

EPRDF: Ethiopian People's Revolutionary Democratic Front

EU: European Union

FCI: Foreign Capital Inflow

FDI: Foreign Direct Investment

GDP: Gross Domestic Product

GDS: Gross Domestic Saving

GTP: Growth and Transformation Plan

GoE: Government of Ethiopia

IFIs: International Financial Institutions

MDGs: Millennium Development Goals

MoFED: Ministry of Finance and Economic Development

NBE: National Bank of Ethiopia

ODA: Official Development Assistance

OECD: Organisation for Economic Co-operation and Development

UN: United Nations

# Chapter One

# Introduction

## 1.1  Background

Economists lay emphasis on capital formation as the major determinant of economic growth. It is a twin act of saving and investment and covers material as well as human capital. It consists of both tangible goods and intangible goods like high standards of education, health, scientific tradition and research (Jhingan, 2007). Internally, capital formation takes place when a country does not spend all its current income on consumption, but saves a part of it and uses it for investment that increase further production. However, both the national income and propensity to save are low in underdeveloped countries which force the process of capital formation to be supplemented by resources from external sources. Foreign capital enters a country in the form of private capital and/or public capital. Private capital takes the form of direct and indirect investments while public capital consists of bilateral, multilateral and/or intergovernmental loans and grants (Jhingan, 2007). For this study, as applicable to the country under consideration, Foreign Direct Investment (FDI) and all forms of public foreign capital (i.e. loans and grants) are considered.

In Ethiopia,  domestic saving rate is very low to maintain vigorous capital accumulation and economic growth in the country (EEA, 2013). The five year medium term national development strategy called Growth and Transformation Plan (GTP) 2010/11-2014/15 of the Government of Ethiopia (GoE) put the low national saving rate which is unable to

support the investment needs of the economy as one of the risk factors for the plan period (MoFED, 2010). Taking the fact into consideration, the GTP has set mobilization of external finance as a risk mitigation mechanism besides a continued effort for mobilization of internal resources. The empirical review, however, shown to have contrasting results of the impact of inflow of foreign capital on economic growth. Some studies have compared and shown that countries which relied on inflow of foreign capital have grown lesser than those which do not while some other findings tell that foreign capital inflow has positive relationship with growth. This being the case, developing countries like Ethiopia continued to be supported by external sources of finance to fill the prevailing saving, foreign exchange and technological gaps besides the need to focus for mobilization of internal resources. This study has tried to assess the impact of foreign capital inflow on economic growth in Ethiopia based on a time series data of twenty three years from 1991/92 to 2013/14.

## 1.2   Statement of the Problem

A number of studies were conducted in order to understand the impacts of foreign capital inflows (FCIs) on the economic growth of a county applying different methods and variables. However, results of the studies were found to be contradictory and led to controversies over the role of foreign capital inflow on economic growth. This being the case, the resource, foreign exchange, skill and technological gaps continued to widen in developing countries which made reliance on external assistance continued.

According to the Ethiopian Economics Association (EEA, 2013) report on the Ethiopian economy gross domestic saving stood at 16.5 percent of GDP for the year 2011/12 while the rate of gross fixed investment as a percentage of GDP was 34.6 percent for the same year in Ethiopia. This, in turn, widened the resource gap as percentage of GDP from 15.1 in 2010/11 to 18.1 in 2011/12 according to the same report. Meanwhile, the report shows the current account deficit of 18.1 percent of GDP for the same year.

Thus, for such country, it is apparent to fill both the resource and exchange rate gaps through mobilization of resources from external sources. But the question arises here is whether foreign capital inflow (FCI) promotes economic growth or not. This study is, thus, motivated to wade into the controversy to take the right position. Such study has also not been conducted in Ethiopia for the study period under consideration.

## 1.3   Objectives of the Study

### 1.3.1  General Objective

- The general objective of the study is to empirically analyze the impact of capital inflow on growth of the Ethiopian economy using time series data from 1991/92 to 2013/14.

### 1.3.2 Specific Objectives

The specific objectives of the study are to:

- Examine the role of foreign capital inflow in Ethiopia

- Assess and quantify the impact of foreign capital inflow on the economic performance/growth in Ethiopia.

- Outline policy implications of results of the analysis

### 1.4 Significance of the Study

The empirical examination conducted under this study encompasses the latest 23 years while similar studies made on same area are either slightly further back in study period or differ in model specification. As economists believe in free movement of capital which allow capital to seek out the highest rate of return and at time when Africa in general and Ethiopia in particular is happened to host increasing investments from developed nations and also in a continued effort of mobilization of foreign aid to fill the resource and foreign exchange gap, the topic is much interesting to investigate the impact of foreign capital inflow on economic growth. Thus, the study will improve the understanding of the long run impact of foreign capital inflow on economic growth in Ethiopia via an appropriate econometric analysis using more recent data on the subject. This study also provokes further investigation on the subject.

## 1.5   Scope and Limitations of the Study

The study covers a period of twenty three years from the year 1991/92 to 2013/14. The study period is forced to be determined based on the availability crucial data for the analysis. Moreover, data variations were observed on same variables gathered from different sources/institutions and surprisingly variations were also found between different years' data publications of same institution.

One of the limitations of the study is short fall to assess the distribution of foreign capital inflow across various sectors of the economy and examine the impact at more disaggregated level. Institutional arrangements, management and regulations, incentives and capital-output ratio differ for different sectors and, hence, relative impact of foreign capital inflow is also expected to vary across sectors. This study, however, has examined the impact only at macro level leaving disaggregated assessment for further study on the subject.

## 1.6   Organization of the Study

The study is organized into five chapters. Chapter one presents the introductory part of the study while chapter two deals with the review of theoretical literature and empirical review on the subject. The methodology and econometric specification are dealt under chapter three as a spring board for the econometric results and discussions presented under chapter four. Finally, the conclusions and policy implications are presented under chapter five based on the findings of the study.

# Chapter Two

# Review of Literature

## 2.1  Concepts and Definitions

## 2.1.1  Definition and Sources of Economic Growth

There is no universally acceptable definition of the term 'economic growth'. Different economists have used the term to convey different meanings. In very simple English 'economic growth' occurs whenever people take resources and rearrange them in ways that are more valuable to the society. Economic growth may be defined as a rate of expansion that can move an underdeveloped country from a near subsistence mode of living to substantially higher levels in a comparatively short period of time, i.e. in decades rather than centuries. Historically, rapid economic growth has been accompanied by greater industrialization. But more precisely the process of economic growth can be described in terms of greater commercialization of economic activities. Though this concept is correct in essence, it lacks precision and makes its measurement difficult. A simple definition is that it is an increase in the level of output of goods and services that is sustained over a long period of time, measured in terms of value added. Process of economic growth is essentially a dynamic concept and refers to a continuous expansion in level of output, i.e. it refers to forces that generate a positive rate of change over time and not the forces that lead to discrete (or one shot) change from a lower to higher level of output which are temporary and short lived (Ashra, 2006).

There are several factors or sources of economic growth. Jinghan (2007) classified the sources into two broad spectrums as economic and non economic. Economic factors include natural resources, capital accumulation, organization, technological progress, division of labor and structural changes while non economic factors are political and administrative factors, social factors and human factors. Ashra, (2006), indicates three major sources of economic growth; investment in human and physical capital, technological advances and institutional and policy changes that improve the efficiency of economic organization.

The fact that saving is one of the main factors to economic growth is unquestionable. Accumulated saving can be considered as the sources of capital stock that plays a crucial role in creating investment, production, and employment. And all these activities eventually enhance the economic growth (Rasmidatta, 2011).

## 2.1.2  Definitions and Forms of Foreign Capital Inflow

A country is linked to other countries through two broad channels: trade flows and financial flows. Trade flows pertain to movement of goods and services between countries and thus facilitate exchange of products between countries, commonly known as exports and imports. When countries produce more than what they can domestically consume, they export. Similarly, when countries consume more than what they can produce, they import. Thus, there would be balancing of production surpluses and deficit when trade takes place between countries. Financial flows, on the other hand, shift the assets between countries. Domestic savings are exported, i.e., foreign investment abroad

7

is financed by domestic savings when domestic investment is less than domestic saving. Domestic investment is financed by foreign saving when domestic saving is less of domestic investment. (Raju, 2008)

Capital inflow arises through the transfer of ownership of a financial asset from one country to another (Koepke, 2013). The transaction is recorded in the balance of payment and its simplest illustration is shown as follows:-
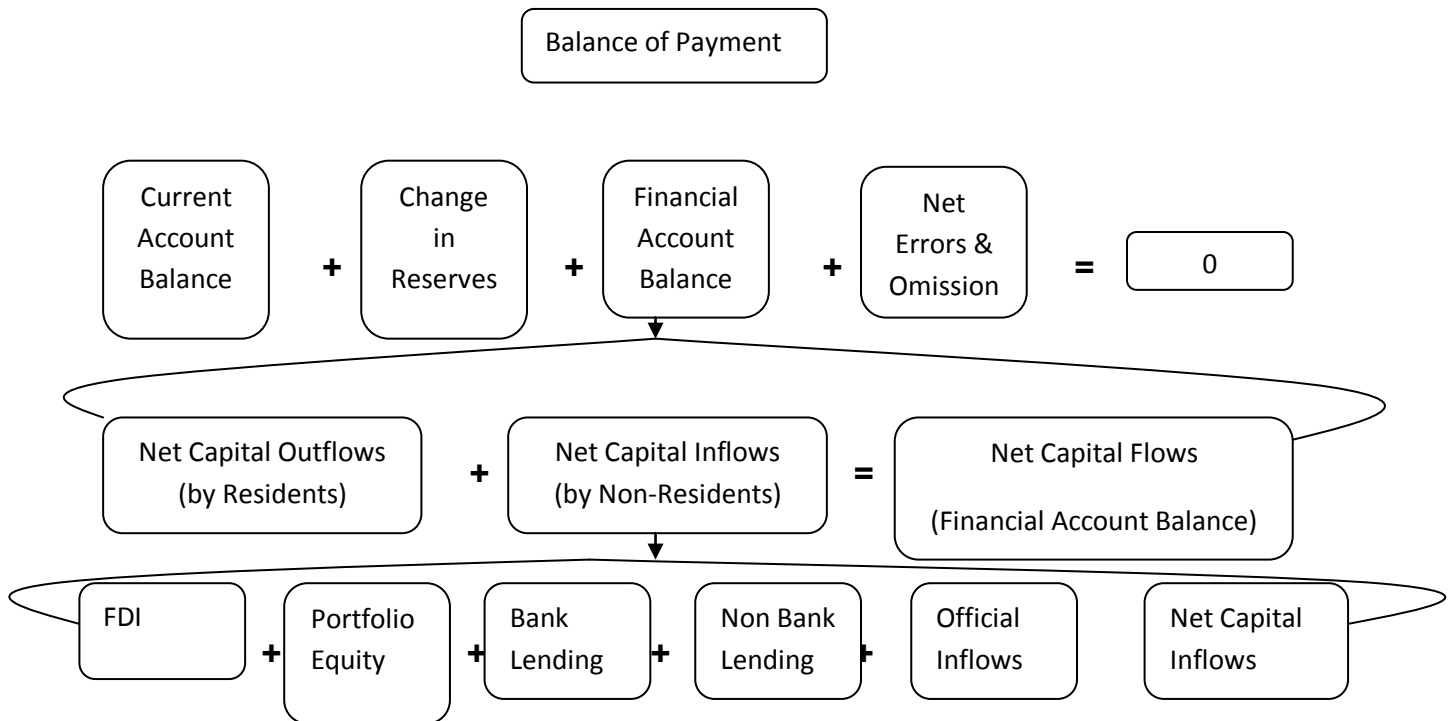


Figure 1: Illustration of BOP Transactions

Source: Koepke (2013)-Institute of International Finance

Because almost all non-oil-exporting countries developing nations incur deficits on their current account balance, a continuous net inflow of foreign financial resources represents

8

an important ingredient in their long-run development strategies. The international flow of financial resources takes two main forms; private foreign direct investment & portfolio investment and public and private development assistance (foreign aid) (Todaro & Smith, 2003). Capital inflow plays a great role in developing nations through Stimulation of national economy via providing fund requirement for investment, filling foreign exchange gap and improvement of the Balance of Payment yet the impact is still debatable.

## 2.1.2.1    Foreign Direct Investment

Foreign direct investment is international capital flows in which a firm in one country creates or expands a subsidiary in another. It involves not only a transfer of resources but also the acquisition and control. That is, the subsidiary does not simply have a financial obligation to the parent company; it is part of the same organizational structure (Krugman and Obstfeld, 2009). Foreign Direct Investment (FDI) or private foreign capital includes all investments made by foreign companies, firms and individuals in various sectors of the economy. The primary aim of such investments is to earn profits. FDI entails control of invested capital by the investor (Soderstein, 1970). It involves international movements of technology, managerial and organizational skills together with capital (Sodersten, 1992).

The first and most cited contribution of private foreign direct investment to national development is its role in filling the resource gap between targeted or desired investment and locally mobilized savings. A second is its contribution to filling the gap between targeted foreing-exchange requirements and those derived from net export earning plus net public foreign aid. The third gap said to be filled by foreign investment is the gap between targeted governmental tax revenues and locally raised taxes and the fourth gap is in management, entrepreneurship, technology, and skill presumed to be partly or fully filled by the local operations of private foreign firms (Todaro & Smith, 2003).

## 2.1.2.2    Foreign Aid

In addition to export earnings and private foreign direct and portfolio investment, the final two major sources of LDC foreign exchange are public (official) bilateral and multilateral development assistance and private (unofficial) assistance provided by nongovernmental organizations. Both of these activities are forms of foreign aid, although only public aid is usually measured in official statistics. Economists have defined foreign aid, therefore, as any flow of capital to LDCs that meets two criteria: (1) Its objective should be non commercial from the point of view of the donor, and (2) it should be characterized by concessional terms; that is, the interest rate and repayment period for borrowed capital should be softer (less stringent) than commercial terms (Todaro & Smith, 2003).

## 2.2 Theoretical Review

## 2.2.1 Capital Inflow and Economic Growth

Capital has a significant role in economic development of underdeveloped countries. In financial sense, it refers to those funds used for investment while in physical sense, it means all capital equipments, plant, machinery e.t.c. which is used for production process. Thus, finances are to be raised through savings and used for capital items used in production process. In other words, saving and investments are the twin acts which create capital. Lewis(1954) showed the critical importance of saving for capital formation and technical progress. When residents of a country provide their savings for investments, this capital is called domestic capital and owned by residents. But when investment is made either directly by the non-residents, institutions or governments, this is called foreign capital. Foreign capital takes the form of private capital and/or public capital. Private capital is either direct or indirect investments while public capital consists of bilateral, multilateral and/or intergovernmental loans and grants (Jhingan, 2007).

The form of foreign capital also matters its impact on growth. In general foreign capital is believed to bridge the resource, foreign exchange and technological/skill gap in the host country. A number of theoretical and empirical findings support the role played by foreign capital and its contribution for the national economy while also theoretical arguments and empirical findings prevail on the negative impact on the host country. Theoretical and empirical findings are presented in disaggregated form of foreign capital under the subsequent section.

## 2.2.2  Arguments and Determinants of FDI

The arguments both for and against private foreign investment are still far from being settled empirically and may never be as they ultimately reflect important difference in value judgments and political perceptions about desirable development strategies (Todaro & Smith, 2003).

FDI is argued to stimulate and support the national economy. The contribution is reflected via its contribution for total investment of the host country and improvement of the balance of payment. FDI is also argued to have a positive social development role in terms of rising employment opportunity and relative improvement on wage and salary. It could contribute toward debt servicing capacity and stimulation of export markets. The positive impact of FDI has been supported empirically. However, it can also have a negative impact if the resource are diverted towards more sophisticated products and encourage the culture of consumerism in the host country. The benefits may only towards small portion of the population and emphasize urban areas which leads to exacerbation of differentials within the economy (OECD, 1998). The impact of FDI largely depend on the conditions of the host country; the mode of entry, the sector involved as well as the regulatory capacity determines the direction and level of impact (Todaro & Smith, 2003).

Numerous factors are being pointed out as determinants of foreign direct investment in the host country; size of local market and its growth, availability of natural resources, macro economic instability, openness, labor cost and productivity, infrastructure, institutional quality and political risk, incentives given to foreign investors are among the

major ones. Empirically, in his study of determinants of FDI in Zambia (Mulenga, 1997) found out that Natural Resource endowment, foreign debt overhang, domestic credit availability, the size of domestic market, and risk and uncertainty in the investment environment as the most importance determinants of FDI in Zambia.

## 2.2.3  Aid Effectiveness

It is with the assumption of improved aid effectiveness that the millennium development goals get a political consensus by the world leaders among others. However, there is no clear cut relation between aid and long term economic growth. Studies on the subject indicate opposing results on direction of influence.

The 'big push' argument portrays aid as the necessary catalyst for investment that would, in turn, lead to growth and presumably initialize an upward path to economic development (Abuzeid, 2009).  According to the 'Big push' theory, a large or comprehensive program is needed in the form of a high minimum amount of investment to overcome the obstacles of development in an underdeveloped economy and to launch it on the path to progress (Jhingan, 2007). Foreign aid is described to fill two gaps; financing gap which is the resource gap between domestic saving and investment and foreign exchange gap related to import export of the country (Chenery and Strout 1966). However, Abduzeid (2009) as per the study to answer the effectiveness of aid pointed out that the influx of massive amounts of foreign aid can have deleterious effects on the

governments of the receiving countries, and can end up doing more harm than good in several circumstances. Based on the finding, it is concluded that aid receiving countries are in need of being restructured, such that policy and incentives can be better coordinated to achieve the desired outcomes out of aid.

## 2.2.4  Some Growth Models

Economic growth benefits a society in a number of ways. It creates potential for wider range for human choice, free life from nature menaces. Furthermore, it serves as one of the important instruments to resolve social tensions which tend to result from different segments of populations trying to extract more and more than already they have. More importantly, it has been found to be the most effective tool to alleviate poverty.   While growth does not translate directly into poverty reduction, it is the principal contributor to improvement in living standards. As a result, countries opt to combat poverty via growth of their economy.

The goal of growth theory is to explain the determinants of growth rates within a country and the reasons for differences in growth rates and per capita incomes across countries (Dornbusch and Fischer, 199_). Basic Economic Growth model postulates output as a function of capital and labor. Accordingly, increased output depends on increases in the capital stock through investment and increases in labor supply through population growth.   The amount of investment in capital stock depends on savings while Labor

supply is based on demographics. To get capital, countries have to invest and so the level of investment may be a big determinant of future growth. This is why that capital formation is of crucial importance in the process of economic growth and an emphasis of economists. However, domestic saving by itself couldn't suffice to meet the capital formation requirement of countries more importantly for the developing countries like Ethiopia. Thus, this calls for inflow of foreign capital from external sources to augment domestic saving.

Before looking at the role played by foreign capital inflow and undertake empirical assessment of its impact on growth of the national economy, it is important to look first at different theories of growth process as formulated by different economists at different point in time which is also an important step to develop the growth function upon which the empirical assessment is made. The models incorporate numerous growth determining factors besides those considered in traditional model; i.e. labor and capital.

The point of emphasis also differs among models as per the opinion of their exponents, differing sectors put at the center of emphasis and different factors given more weight to influence economic growth across different models. Subsequently presented discussion on Growth models is based on the presentation in Dhingra (2006) Khan and Upadhayay (2005) and Bhattacharya and Upadhayay (2005).

## 2.2.4.1 Harrod-Domar Growth Model

The Harrod Domar growth model (HDM) is based on a fixed-coefficient; constant returns to scale function which assumes that capital and labor are used in a constant ratio to each other to determine total output. It is also based on the assumption of closed economy and no government interference. HDM integrates the classical and Keynesian analysis of economic growth. Capital accumulation plays a crucial role in the Harrod Domar model. Both the classical and Keynesian Economists recognize the critical role of capital accumulation in the process of economic growth. But the classical economists only pay attention to the supply side i.e. capacity of capital accumulation while Keynesians erred for the demand side concerned primarily with the short period, they considered only the adequacy of demand and neglected the problem of increase in capacity through investment in the long-run. Harrod Domar Model, on the other hand, considered both the demand and supply sides of investment.

Starting from full employment, Harrod-Domar Model postulated continuous maintenance of this equilibrium required that the volume of spending generated by investment must be sufficient to absorb the increased output resulting from investment. Given the marginal propensity to save, the more the capital is accumulated and the larger the initial national income, the larger must be the absolute volume on net investment. Maintenance of full employment, therefore, required an ever-expanding amount of net investment. This, in turn, required continuous growth in real national income. Capital accumulation and growth of income must go side by side.

The Harrod-Domar model focuses on two critical aspects of the growth process: saving and the efficiency with which capital is used in investment. The model can provide accurate short term predictions of growth and has been used extensively in developing countries to determine the "required" investment rate or "financing gap" to be covered in order to achieve a target growth rate. The models are based on the assumption of closed economy while developing countries, however, are actually open where in foreign trade and capital flow play crucial roles in their economic development.

## 2.2.4.2 Neoclassical Growth Model

A neoclassical economist R.M. Solow presented a model of economic growth in 1956 which remain as a landmark in growth theory. The Solow model explains the effect of saving, population growth and technological progress on economic growth. The model considers an aggregate production function. The supply of goods, as per his model, is determined by the production function where in three inputs; capital (K), Labor (L) and technology of production (A), are employed. As a simplification of reality, the model assumes production of one composite good which can be either consumed or accumulated as a capital stock. Homogenous inputs; labor and capital, constant returns to scale and diminishing returns to capital input are also assumed where in factor substitution is allowed.

As per the neoclassical model, output at a given time is a function of the three employed inputs; capital, labor and technology.

Thus, the supply side is given by:

$$Y(t) = F(K(t), L(t), A(t))$$

Here, technological progress is assumed labor augmenting. i.e. technological progress and employed labor can be put in multiplicative form (AL) refers to effective labor. This means effectiveness of labor increases in the face of no change in quantity of labor employed.

$$Y(t) = F(K(t), AL(t))$$

Output per effective labor, with the assumption of constant returns to scale, is given as:

$$Y/_{AL} = 1/_{AL} F(K, AL)$$
$$= F(K/_{AL}, 1)$$

This formulation is called an intensive form and allows analyzing all variables in the economy relative to the size of effective labor. Designating per effective variables with lower case letters; $K/_{AL}$ as $k$ and $Y/_{AL}$ as $y$, output is put as:

$$y = f(k)$$

On the demand side, output is assumed to be demanded either for the purpose of investment or consumption. The demand side can be put as follows, in the same formulation of per effective labor.

$$y \;=\; c + i \; ; \text{(i.e.} y \;=\; (1 - s)y + i)$$

Thus, investment per effective labor is equal to saving rate times output per effective labor with simple manipulation.

$$i \;=\; sf(k)$$

Increase in capital stock is due to investment which means the difference between capital stock in two successive years is equal to investment.

$$lnk \;=\; sf(k) \; ; \text{where } lnk \text{ refers to growth rate in } k$$

However, depreciation $(\delta)$ works in opposite direction to investment and growth of capital stock is net of the two.

$$lnk \;=\; sf(k) - \delta k$$

Thus, growth of capital is optimized or steady state is reached wherein capital per effective labor to stay same while $sf(k) = \delta k$.

However, in the case of population growth ($n$), additional capital is required to maintain the same level of $k$.

$$lnk \;=\; sf(k) - (\delta + n)k$$

Thus, steady state reached when $sf(k) = (\delta + n)k$

Output per effective labor only increases in the presence of technological progress ($g$) which is assumed to be given exogenously and increases the quantity of effective labor

(AL) as per the Solow's assumption. In the presence of technological progress, growth of

capital stock is given by:

$$lnk \; = \; sf(k) - (\delta + n + g)k$$

Thus, steady state is given by $sf(k) = (\delta + n + g)k$
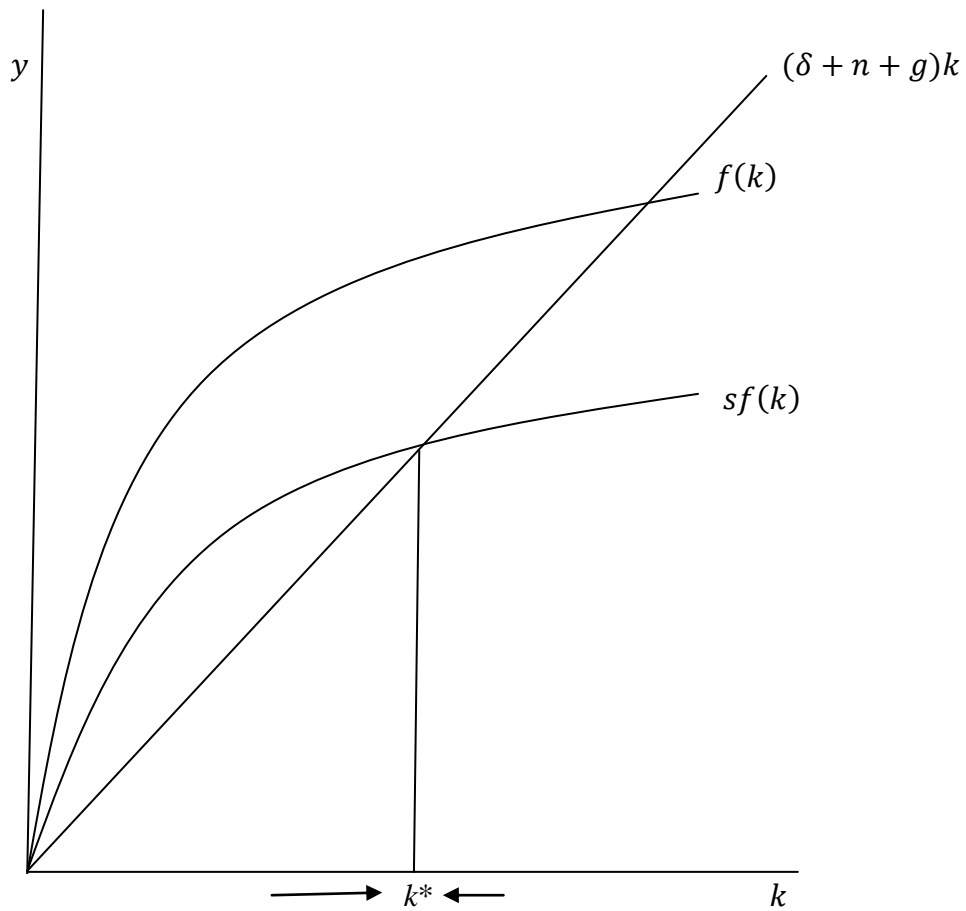


Figure 2: Steady State in the Neoclassical Growth Model

$k*$ is steady state capital per effective labor. Once $k*$ reached, there is no growth in capital stock hence output per effective labor also remains steady. In case a deviation from the equilibrium level of capital per effective labor, the economy bounces back to the steady state. Out of the total investment ( $sf(k)$), $\delta k$ is needed to cover depreciation and *nk* to maintain capital per effective labor constant. However, as a result of technological progress *y* grows at a rate of *g*. As a result, there is growth in output per effective labor at a rate *g* and output grows at the rate *(n+g)*. Thus, introduction of technological progress enables to account for increase in output per worker.

According to the Solow growth model, saving is a key determinant of national income. The Mankiw, Romer and Weil, 1992 research on cross country income variation validates the solow model that it indicated saving rate and population growth explain more than half of the cross country income variation.

## 2.2.4.3 Endogenous/New Growth Model

The neoclassical growth model is characterized by diminishing returns to capital which in turn leads the economy to reach steady state level of growth where in output, capita and labor grows equaling to exogenously given rate of technological progress. While technology is given exogenously, the parameters of the model have only a level effect; saving rate is having a positive level effect while rate of depreciation and population growth has a retarding effect. Due to this, the model predicts the growth of countries converges over time which is, however, is not the case in reality.

Unlike the neoclassical growth model, the endogenous growth model provides a theoretical framework for analyzing persistent growth of output that is determined within the system governing the production process. This is done either by avoiding diminishing returns to capital or by explaining technical change internally. In the new growth theory models, there exist technological spillovers, externalities and increasing returns to scale. They do not expect convergence; they rather accept the fact that disparities among countries can persist or even enlarge. 'l'hey emphasize on the importance of investments in human capital and potential gains from technology improvements - inventions and innovations. Their general feature is the presence of constant or increasing returns in the factors (Lucas 1988, Rebelo 1991). The simplest and basic model of endogenous growth is the AK model which assumes production function to be linear in the only input capital.

$$Y_t = f(k) = AK$$

Where,

A = an exogenous constant which reflects the level of technology

K = the aggregate capital broadly defined

The inexistence of diminishing return to capital is the key difference between the AK model and the Solow model. The AK model displays both constant returns to capital and constant returns to scale. Due to this, output/income grows forever even without the assumption of exogenously given rate of technological progress as long as the rate of saving is greater than the rate of depreciation.

The theories of economic growth can be broadly divided into growth driven by research and development (R&D) and growth driven by human capital accumulation. R&D based models originate from the work of Romer (1990), and Grossrnan Helprnan (1991). In all these models economic growth is the result of technological change that comes from purposive R&D activities by firms. Patents and blueprints are non-rival goods that can be accumulated without bounds and so the diminishing returns to capital accumulation can be avoided and growth continues.

Human Capital based growth models are derived from the work of Lucas (1988). These models place accumulation of human capital at the centre of the growth process. If we accumulate both physical and human capital we can think of constant returns to the broad concept of capital and as a result the economic growth does not diminish.

In this study, the basic models are harmonized and customized to the Ethiopian condition to come up with log-linear model of growth function.

## 2.3    Overview of Economic Development Plans in Ethiopia

The monarchical system which stayed in rule from 1930, remained in power in Ethiopia after a short lived Italian occupation from 1936-41 until it is deposed by the Derg regime in 1974. The Derg established a command economy of socialist state and remained in power until toppled in 1991 by the Ethiopian People's Revolutionary Democratic Front (EPRDF) and the EPRDF remained in power since then.

In the three regimes, varying economic policies and development plans were put in action. By the early 1950's, Emperor Haile Selassie I had renewed calls for a transition from a subsistence economy to an agro-industrial one. The plan period's during the regime divided into three five year plans; 1957-61, 1962-67 and 1968-73. It was targeted to achieve development of strong infrastructure, acceleration of infrastructure and establishment of skilled and semiskilled manpower during the first five year plan. The objectives of the second five year plan were to change agricultural economy to an agro-industrial one and diversification of production to increase countries growth rate to 4.3%. The targets of the third five year plan were manufacturing and agro-industrial performance, expansion of educational opportunities and improvement in peasant agriculture and annual growth rate of 6%. Though the results of the plans were not assessed by the planning commission, the data from the Central Statistics Agency revealed the country achieved a sustained economic growth. Between 1960-70, an annual growth rate of 4% per capital GDP was achieved.

Then the Derg resulted in the establishment of a socialist state after the 1974 revolution. It aimed at nationalization and restructuring of Ethiopian Economy. The Post-revolution economic planning had four distinct phases; 1974-78, 1978-80, 1980-85 and 1985-90. During the first phase, the government's nationalization measures and the unstable political climate caused a slowdown in economic growth. The second phase was a recovery while a downturn revealed in the third phase due to the widespread drought and

lack of foreign exchange among others. During the last phase, the agricultural output decline was reversed and manufacturing sector has also grown resulting a GDP growth rate of 5%. The results were related to establishment of state farms and adoption of cooperativisation strategy. However, the growth couldn't remain sustained and driven to stagnation.

The EPRDF government initiated the five year development program for 1992-1996 known as 'Peace, Democracy and Development Program' which emphasized the interrelationships between peace, democracy and development. Following, the three years, 2002/03-2004/05, Sustainable Development and Poverty Reduction Program (SDPRP) made in place built on the goals and concepts of agricultural development led industrialization, food security, decentralization, capacity building and reform in justice system. Marked by drought during the first year of the plan period, the average growth rate registered during the time was 5.5%. The Plan for Accelerated and Sustained Development to End Poverty (PASDEP) made in place for the year 2005/06-2009/10 with main objectives of private sector development and achieving the Millennium Development Goals (MDGs). Low mobilization of domestic financial resources was among the challenges encountered during the plan period and agricultural productivity, production & scaling up 'best practices' were among the good practices. During the PASDEP an average growth rate of 11% was achieved. Agriculture, Industry and Services have registered an average annual growth rate of 8.4%, 10%, and 14.6%, respectively during the time.

The medium term national development strategy, i.e. Growth and Transformation Plan (GTP) for plan period 2010/11 – 2014/15, set with two targeted economic growth scenarios; maintaining 11% GDP growth at base case scenario and doubling GDP and agricultural value added achieved in 2009/10 by the end of the GTP period 2014/15. The first three years of the GTP period, as revealed from the annual progress report of MoFED, revealed an average GDP growth rate of 10 % (MoFED, 2014).

Agriculture's share of GDP is slightly outweighed by the service sector that its contribution to GDP was around 42% for the year 2012/13 while that of the service sector was around 45% for the same period. The contribution of industry to GDP was around 12% with large & medium scale manufacturing's share of 2.9%. The average real GDP growth rate of the three years GTP's period was 10% while the planed target at the end of 2014/15 at the base case scenario is GDP growth rate of 11%. At sector level agriculture's average growth rate was 7% while it was planned to be 8.6% per annum on average. The average growth of industry and service sector was 16.9% and 11% respectively. According to the same report, the target is assumed to be achieved through a step effort compensating the shortcomings.

Table 1: Real GDP Growth and Sectoral Distribution

| Sectors | 2010/11 | 2011/12 | 2012/13 | Average |
|---|---|---|---|---|
| **Growth Rate in percent** | | | | |
| Real GDP growth rate in percent | 11.4 | 8.8 | 9.7 | 10 |
| Agriculture | 9.0 | 4.9 | 7.1 | 7 |
| Industry | 15 | 17.1 | 18.5 | 16.9 |
| Large & Medium scale manufacturing | 14.1 | 15.9 | 14.5 | 14.9 |
| Micro & Small scale manufacturing | 7.2 | 4.2 | 3.0 | 4.8 |
| Services | 12.5 | 10.6 | 9.9 | 11 |
| **Percentage Share** | | | | |
| Agriculture | 45.6 | 44.0 | 42.9 | 44.1 |
| Industry | 10.6 | 11.1 | 12.4 | 11.5 |
| Large & Medium scale manufacturing | 2.6 | 2.8 | 2.9 | 2.8 |
| Micro & Small scale manufacturing | 1.2 | 1.4 | 1.3 | 1.3 |
| Services | 44.5 | 45.6 | 45.2 | 44.9 |
| GDP in Millions of Birr | 505,646 | 738,605 | 852,740 | 698,997 |

Source: MoFED, 2014

## 2.4    Empirical Review

Various studies have been conducted to assess the impact of capital inflow on economic growth of developing countries. The results, however, show quite distinct findings across countries and studies. On their study of foreign capital inflow and economic growth using the data of 83 countries for the period 1970 to 2005 where in Ethiopia is one of the 59 non industrial countries taken in the data, Prasad et al. (2007) concluded that nonindustrial countries that have relied on foreign capital have not grown faster than those that have not.

On the other hand, while analyzing the impact of aggregated foreign capital inflow (FCI) on economic growth using data for the period 1973-2008, Ali (2012) found that FCIs have positive relationship with growth in Pakistan. Similarly, analyzing the impact of capital inflow on Egypt's economy, the result of analysis showed a significant positive effect on savings and investment and in turn on the economic growth rate (Mohamed & Wahed, 2003).

Several studies have also been made for the case of sub-Saharan Africa and particularly for Ethiopia. Based on empirical relationship of external debt and economic growth over the period 1963/64 – 2003/04 Abinet (2005) indicated that past external debt accumulation has a negative impact on economic growth in Ethiopia. According to same study, debt servicing also appears to affect economic growth adversely for debt servicing implies to forgo crucial investments and hence economic growth. Hassen (2008) demonstrated that both bilateral and multilateral aids are ineffective at influencing economic growth on his study of effectiveness of foreign aid in sub-Saharan Africa based on panel data from 42 sub-Saharan Africa countries for the year 1980 through 2007.

To the contrary, Wondwessen (2011) showed foreign aid to have positive and significant effect on growth of Ethiopian economy both in short and long term while he showed FDI to have negative impact on economic growth of Ethiopia on the same study. Mekonnen (2001), based on data from 12 sub-Saharan African countries over the period 1987-1998,

concedes the impact of FDI on economic growth is unsatisfactory as per estimated result of his analysis showing negative but insignificant direct total effect on the growth of output while having positive indirect effect on the growth of output through domestic saving.

# Chapter Three

# Research Methodology

## 3.1    Introduction

In order to examine the impact of capital inflow on economic growth in Ethiopia, a time series data of twenty three years has been taken and the long run relation is examined through cointegration method. The empirical analysis starts with stationary test of the time series data through Augmented-Dickey-Fuller (ADF) test procedure. Then it continues with cointegration test for checking the existence of long run relation between the variables and proceeds for estimation of the long run impact. In doing so, Eviews5 and STATA12 econometrics software applications were employed.

## 3.2    Data Type and Source

The study is conducted based on secondary data from domestic and international sources. Institutions which served as major sources of data are the Central Statistics Agency (CSA), National Bank of Ethiopia (NBE), Ministry of Finance and Economic Development (MoFED), Ethiopian Economics Association (EEA), The Organisation for Economic Co-operation and Development (OECD.org) and United Nation Convention on Trade and Development (UNCTADstat). The study is based on data gathered from the mentioned sources and specifically the annual time series data for the period covering 23 years from 1991/92 to 2013/14, used for the empirical assessment, is obtained from CSA, NBE and MoFED.

## 3.3   Econometric Model Specification

Various factors are identified to influence growth of an economy from classical, neo classical and new growth theories. It was tried to take an insight of various growth models based on varying theories of growth. The empirical model of this study is specified based on the theoretical frameworks and empirical literature discussed in the above section. In order to assess the impact of foreign capital inflow on growth of Ethiopian economy, a semi-logarithmic growth function is selected as the components of foreign capital inflow among its explanatory variables. Based up on the approach, real Gross Domestic Product (GDP) growth is a function of capital, labor force, foreign direct investment, foreign aid, inflation and government expenditure among others. Domestic capital, however, is proxied by domestic saving.

Thus, the semi-logarithmic functional form becomes;

$$lnRGDP = \beta_0 + \beta_1 GDS_t + \beta_2 LF_t + \beta_3 FDI_t + \beta_4 Aid_t + \beta_5 N_t + \beta_6 GE_t + \varepsilon_t$$

Where lnRGDP represents natural logarithm of real gross domestic product i.e. real Gross Domestic Product growth;

GDS (+) represents saving at time t, measured as gross domestic saving as percentage of GDP;

LF (+) represents labor force at time t, measured as the percentage of total population aged 15 – 64;

FDI (+) represents foreign direct investment at time t, measured as foreign direct investment as percentage of GDP;

LAid (+) represents foreign aid at time t, measured as foreign aid as percentage of GDP;

N (-) represents inflation rate at time t;

GE (+) represents government expenditure at time t, measured as government expenditure as percentage of GDP;

$\varepsilon_t$ is the error term assumed to be normally and independently distributed with zero mean and constant variance, which captures all other explanatory variables which influence economic growth but are not captured in this model.

$\beta 1, \beta 2, \beta 3, \beta 4, \beta 5, \beta 6$ are the partial elasticities of real GDP growth with respect to $GDS_t$, $LF_t$, $FDI_t$, $Aid_t$, $N_t$ and $GE_t$ respectively.

Signs in parenthesis are expected signs to be met based on theoretical as well as empirical reviews.

## Chapter Four

## Results and Discussion

### 4.1 Descriptive Analysis

### 4.1.1 Trend of GDP over time

Trend of Gross Domestic Product (GDP) is presented back from the socialist period to the period under consideration; 1974/75 – 2013/14. The subdivision of the period is 1991/92 where in the shift is made from command economy to market led and the period under consideration for the empirical analysis is from the shift onwards. The data is taken from the National Bank of Ethiopia (NBE). The period from 1974/75 – 1991/92 is characterized by practice of a socialist state. During the time, the GDP has shown fluctuations that a slowdown in economic growth revealed initially due to the government's nationalization measures and the unstable political climate followed by a slight recovery which was not much sustained and fluctuated by the agricultural output decline.

The 1991 onwards trend of GDP reveals a slight growth pattern for the first decade. It can be seen in the figure below that Ethiopian economy experienced a sustained fast growth rate for the last decade. The rate of GDP growth sustained an average of 11% per annum subject to the period of Plan for Accelerated and Sustained Development to End Poverty (PASDEP) made in place for the year 2005/06-2009/10 and kept the pace of double digit growth in the GTP period from 2009/10 onwards. The Economy had been around Birr 200 billion in year 2004/05 which tripled to around Birr 600 billion in 2013/14.
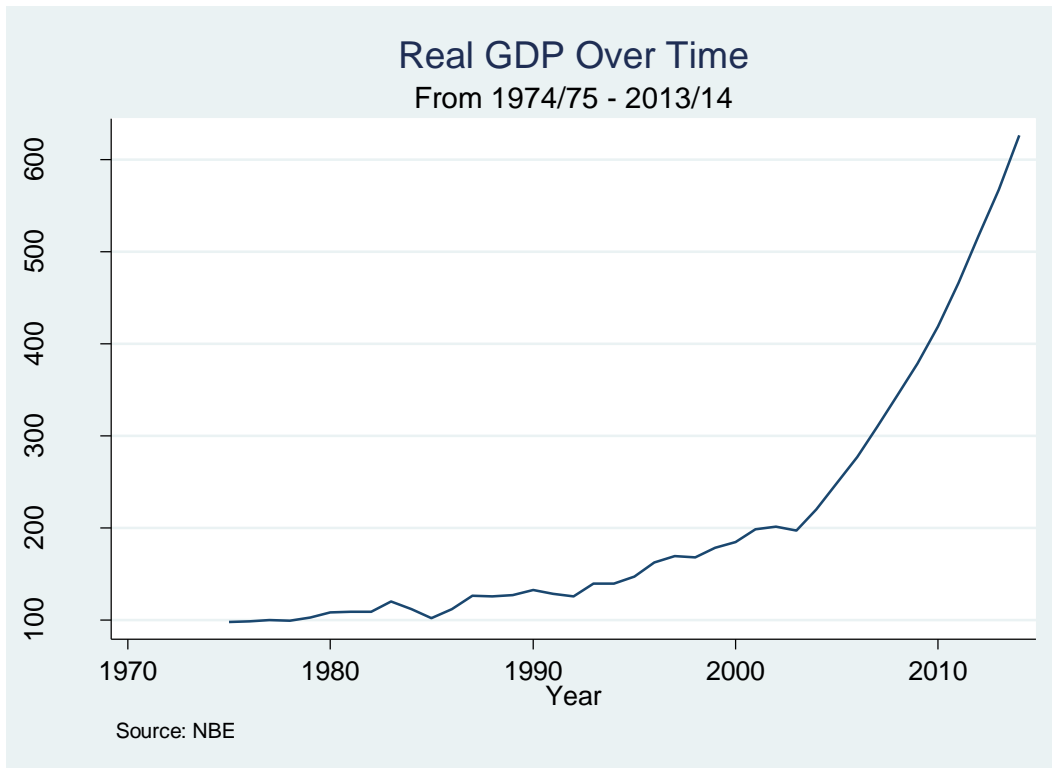
Figure 3: Trend of Real GDP in Ethiopia

## 4.1.2 Domestic Saving and Growth pattern

Saving is an essential factor to the working of any economic growth as explained in Harrod Domar and Neo Classical growth models. It determines economic growth through facilitating financial opportunities for investments. Thus, the necessary resources for investment are obtained through cumulative savings of income.

In Ethiopia, during the 1974/75 - 1991/92, gross domestic saving (GDS) as a percent of GDP was minimal and even deteriorated during the end of the Derg regime due to military consumption expenditure. For the last decade, from the period 2003/04 onwards, gross domestic saving followed the growth of real GDP and shown a double digit trend which averaged to 13%. However, this rate is very low as compared to gross fixed investment as percentage of GDP which drives Ethiopia to continue facing a potential shortage of resource to finance public and private investments.



Figure 4: Trend of Real GDP and Gross Domestic Saving in Ethiopia

## 4.1.3 Trend of Capital inflow over time

To finance investment, a nation needs to generate sufficient domestic saving or it should borrow abroad and/or attract FDI. The inflow of FDI during the pre 1991 period was insignificant in Ethiopia. The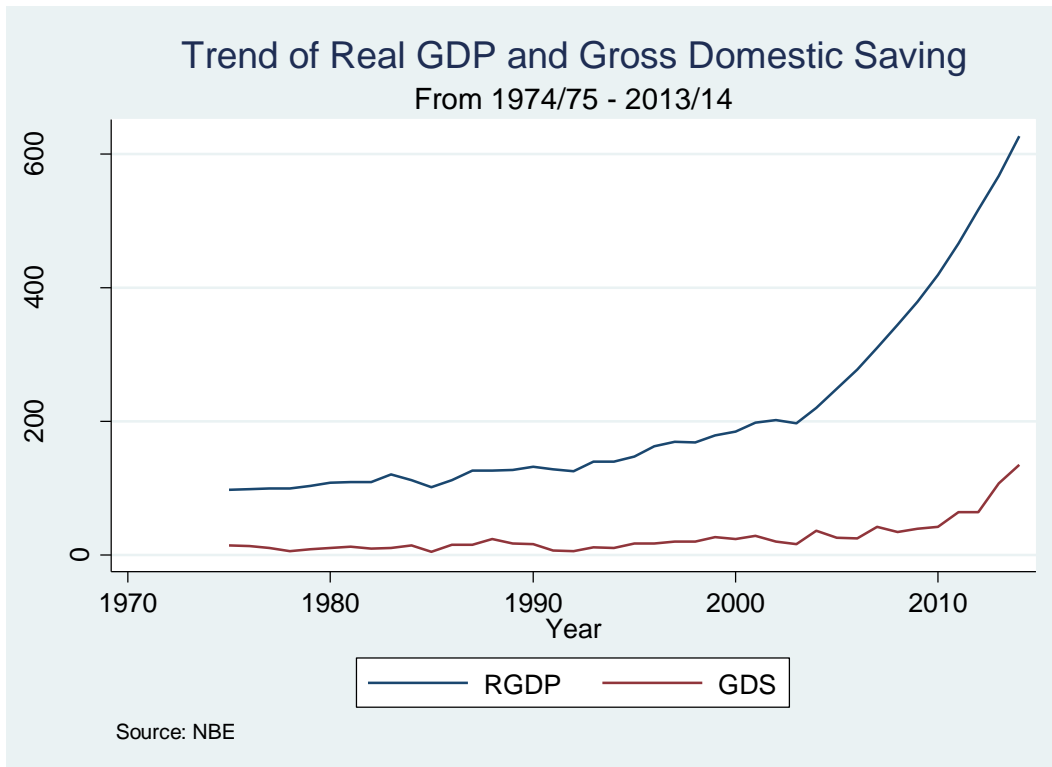 1974-1991period was characterized by the socialist command system and it is after the downturn of the military regime that the economy shifted to free trade wherein inflow of FDI started to get momentum. This period was also a transition period for most of the countries across the globe. The liberalization process of developing and transition countries in the 1980s and 1990s has been accompanied by an exponential increase in Foreign Direct Investment (FDI) inflows (Liesbeth C, Miet M. and Jo Swinnen L, 2008). Following the 1992 liberalization in Ethiopia, the reforms as well as the government introduction of investment guarantee schemes and incentives helped to raise the share of inward FDI of total investment. According to Ethiopian Investment and Innovation Policy Review (UNCTAD, 2002), the Middle East accounted for the largest share of the post-1992 FDI projects in the country. This was followed by the European Union as the second largest source of FDI to Ethiopia during the time. On average, FDI accounts for around 1.8% of real GDP for the period covering 1991/92 – 2013/14.

The second alternative to finance domestic investment is through aid. In Ethiopia, an inflow of external resources such as loans and grants has started in 1950, the year in which the relationship between the United States and Ethiopia reached a higher level. Ethiopia is also the first country to have applied for a loan from International Monetary

Fund in 1947 (Alemayehu, 2011). For the period 1979-1983, 37 percent of total investment expenditure was financed by foreign aid (Dejene 1989; p 13). For the period 1991/92-2008/09, average annual flow of aid has reached to Birr 10.8 billion and its share in the GDP also rose to 13 percent from a 4.8 percent in the Derg period. For the period 1991/92 – 2013/14 aid accounts for 2.6% of the real GDP on average.
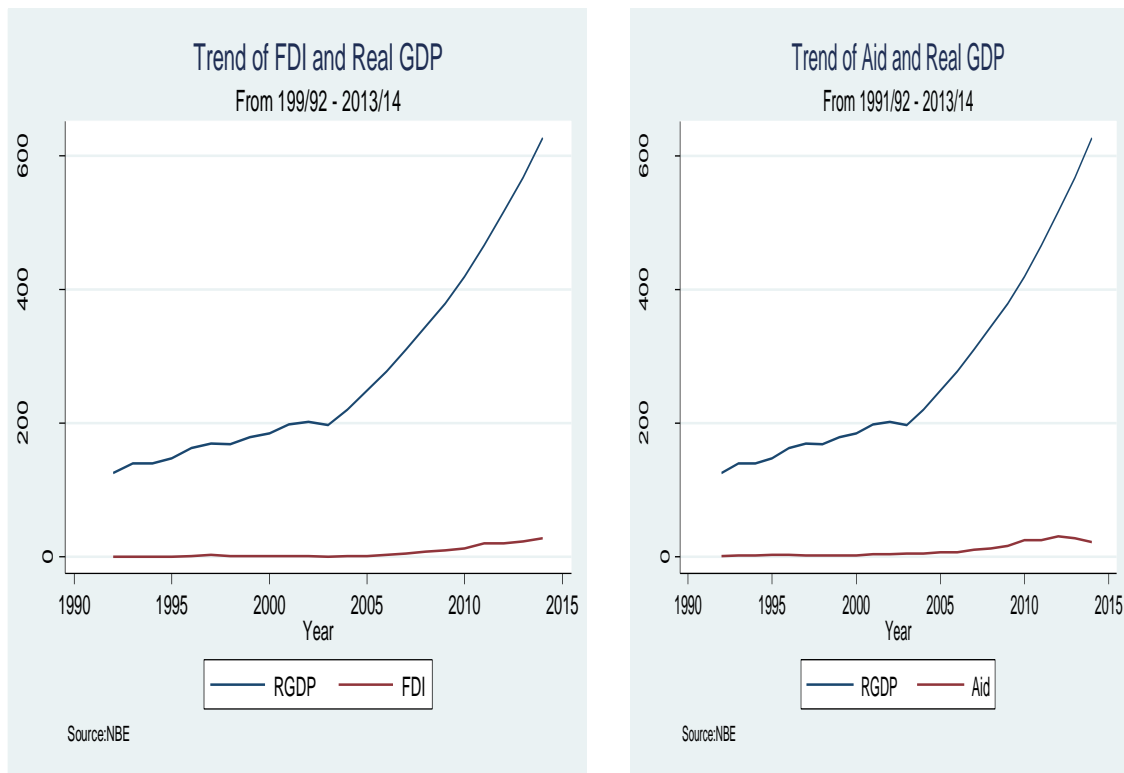


(a)                                                    (b)

Figure 5: (a) Trend of Aid and Real GDP        (b) Trend of FDI and Real GDP in Ethiopia

## 4.1.4  ODA Disbursement in GTP Period

It is earlier indicated that the Government of Ethiopia (GoE) put the low national saving rate as a risk factor of its five year medium term national development strategy called Growth and Transformation Plan (GTP) 2010/11-2014/15 and has set mobilization of external finance as a risk mitigation mechanism besides a continued effort for mobilization of internal resources. During the four years of the plan period, as per the MoFED's annual statistical bulletin on Official Development Assistance (ODA), it was managed to obtain a total official development assistance disbursement of around 11.4 Billion USD of which 6.9 Billion USD was a grant and the remaining 4.5 Billion USD was in the form of concessional loan (MoFED, 2015).

Table 2: ODA Disbursement for GTP Periods (Millions of US$) (2010/11 – 2013/14)

| Group | 2010/11 | | | 2011/12 | | | 2012/13 | | | 2013/14 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Grant | Loan | Tot | Grant | Loan | Tot | Grant | Loan | Tot | Grant | Loan | Tot |
| Tot EU | 626.6 | 0.9 | 627.4 | 606.3 | 6.0 | 612.4 | 758.7 | 26.1 | 784.8 | 952.8 | 43.8 | 996.6 |
| Tot Other | 242.8 | 214 | 456.8 | 250.8 | 328 | 579.1 | 339.7 | 352 | 692.1 | 458.2 | 191 | 649.1 |
| Total IFIs | 451.5 | 597 | 1048 | 327.4 | 636 | 963.7 | 209.8 | 1016 | 1226 | 131.9 | 1036 | 1168 |
| Total UN group | 570.2 | 0.0 | 570.2 | 396.4 | 0.0 | 396.4 | 250.6 | 0.0 | 250.6 | 403.8 | 0.0 | 403.8 |
| **Grand Total** | **1891** | **812** | **2703** | **1581** | **971** | **2552** | **1559** | **1394** | **2953** | **1947** | **1271** | **3218** |

**Source:** MoFED, 2015

As per the projected budget gap during GTP period, with base case scenario, a grant of around 116.6 billion Ethiopian Birr was set to bridge the financing gap for the five years of the plan period (MoFED, 2010). Actually, more than the base case scenario planned volume of grant is disbursed during the four years of the plan period which is roughly around ETB 130 Billion which is around 112% of the five year base case scenario target.

## 4.2    Empirical Analysis

The classical methods of estimation are based on the assumption of stationary stochastic process i.e. mean and variance are constant over time and the value of the covariance between the two time periods depends only on the distance or gap or lag between the two time periods and not the actual time at which the covariance is computed. However, many economic data are trending and direct application of OLS to trended time series variables frequently exhibits false correlation rather than the actual one. Estimation based on non-stationary variables may lead to spurious results which produce high $R^2$ and t-statistics, but without any coherent economic meaning. Therefore, a practical questions arise here are whether a given time series is stationary and finding a way to make stationary if found not stationary before proceeding to estimation (Gujarati, Porter and Gunasekar, 2009). The standard practice then is to first check for stationarity of the time series prior to estimation. Thus, the empirical analysis shall start with test of stationarity of the time series data.

## 4.2.1 Stationary Test

Test of stationarity is made through Augmented-Dickey-Fuller (ADF) test procedure. Since the usual t test biased in the case of unit root (in the case of non stationary stochastic process), the tau statistic/the Augmented Dicky-Fuller (ADF) test is applied. The null hypothesis of the test procedure is presence of unit root/non stationary time series and the decision rule is to reject the null if the absolute value of the ADF test statistic is greater than the absolute value of the critical value. The software applied for the test, EViews 5, selects the lag length based on Scwarz criterion and the test was conducted on time series of each variable at their level and with trend and intercept.

As shown in the table below, the unit root test of the time series of individual variables specified in the model revealed to be non-stationary at their level (i.e., the absolute value of the computed t-statistics do not exceed the critical values) except for aid as percentage of real GDP. This implies the ordinary least square estimation technique could not be directly applied. Thus, it requires for removing the non-stationary trends. At their first difference, however, the series of the variables found to be stationary (i.e, absolute value of the computed t-statistics values are higher than critical values). Thus, the variables are integrated of order one (I(1)); stationary at their first difference. But foreign aid as percentage of GDP is stationary at its level as shown here under.

Table 3: Augmented-Dickey-Fuller (ADF) Unit Root Test Results

| Variable | | At Level (with constant & trend) | First Difference (with constant & trend) |
|---|---|---|---|
| lnRGDP I(1) | ADF test statistic | -0.396924 | -4.398659 |
| | Critical value | -3.632896 | -3.644963 |
| GDS I(1) | ADF test statistic | -2.979951 | -4.180321 |
| | Critical value | -3.632896 | -3.658446 |
| LF I(1) | ADF test statistic | -3.010165 | -4.653751 |
| | Critical value | -3.658446 | -3.658446 |
| FDI I(1) | ADF test statistic | -1.292083 | -5.350795 |
| | Critical value | -3.632896 | -3.644963 |
| Aid I(0) | ADF test statistic | -3.695877 | |
| | Critical value | -3.673616 | |
| N I(1) | ADF test statistic | -3.485269 | -6.644840 |
| | Critical value | -3.644963 | -3.658446 |
| GE I(1) | ADF test statistic | 2.259175 | -6.297599 |
| | Critical value | -3.658446 | -3.644963 |

**N.B.** The test is made at 95% confidence interval

## 4.2.2  Co-integration and Long Run Relationship

Economically speaking, two variables will be cointegrated if they have a long term, or equilibrium, relationship between them. The valuable contribution of the concepts of unit root, co-integration, etc. is to force us to find out if the regression residuals are stationary (Gujarati, Porter and Gunasekar, 2009).

After conducting the unit root analysis of individual variables, the next step is checking whether the stochastic trend revealed in individual variable I(1) cancels out (i.e., become I(0)) through their linear relationship for checking the linear combination results meaningful estimate. This is conducted through checking the stationarity of the residual from their regression. The residual unit root test is conducted on the residuals resulted from the estimate of the equation without incorporation of the I(0) variables. In this case the estimation is made leaving out Aid as percentage of real GDP which is I(0) and unit root test is made on the residual produced. The result reveals the residual is I(0) that means the variables are cointegrated and have long-term or equilibrium relationship between them. Thus, estimation of the full model has been conducted with inclusion of all the specified time series variables to arrive at the long run relationship.

Before proceeding to the acceptance of the estimated coefficients, however, diagnostic tests have been made. The normal distribution of the residuals has been confirmed via the annexed Histogram-Normality test based on Jarque-Bera statistic. Likewise, inexistence of serial correlation between error terms has been confirmed through the annexed Breusch-Godfrey Serial Correlation LM Test and also the ARCH LM test confirms the problem of heteroscedastisity does not prevail.

The long run equation and results of estimation is as presented below:

LNRGDP = 10.25+ 0.002*GDS + 0.036*LF + 0.087*FDI + 0.058*AID + 0.002*N +

0.026*GE

Table 4: Results of Long run Estimation

Dependent Variable: LNRGDP
Sample: 1992 2014
Included observations: 23

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 10.25247 | 0.279666 | 36.65965 | 0.0000 |
| GDS | 0.001988 | 0.006842 | 0.290611 | 0.7751 |
| LF | 0.036228 | 0.007618 | 4.755798 | 0.0002 |
| FDI | 0.087430 | 0.029908 | 2.923297 | 0.0099 |
| AID | 0.058234 | 0.022085 | 2.636846 | 0.0179 |
| N | 0.002029 | 0.001619 | 1.253087 | 0.2282 |
| GE | 0.026204 | 0.007090 | 3.695961 | 0.0020 |

| | | | | |
|---|---|---|---|---|
| R-squared | 0.985828 | Mean dependent var | | 12.41170 |
| Adjusted R-squared | 0.980514 | S.D. dependent var | | 0.492440 |
| S.E. of regression | 0.068741 | F-statistic | | 185.4997 |
| Sum squared resid | 0.075606 | Prob(F-statistic) | | 0.000000 |
| Durbin-Watson stat | 1.660282 | | | |

The sign of coefficients of estimation result is found as expected that all the variables met the expected signs except for inflation. As the model is log linear form the coefficients are interpreted as multiplication of 100 to describe their percentage effects on growth of real GDP which is put in logarithmic form.

Accordingly, if all the explanatory variables are kept constant, the real GDP will grow by 10.25 percent annually. The effect of Gross Domestic Saving on growth of real GDP is

unfortunately statistically insignificant in the long run even though it is with the expected negative sign. This relation is consistent with some empirical findings like Ozkan, Gunay and Ortac (200_) and Carol & Weil (1994). However such kind of relation in developing country like Ethiopia provokes further investigation on the area. Labor force, on the other hand, found to have highly statistically significant positive effect on growth of real GDP in the long run at 1% significance level that its unit increment will result in 0.6 percent increase in real GDP growth holding all other independent variables constant. This shows the absorption capacity of the economy and indicates that increase in labor force is growth enhancing in Ethiopia.

The main outcome of the empirical assessment confirms that the impact of foreign capital inflow in both forms (i.e., FDI and Aid) is having statistically significant positive influence in the long run. While FDI as percentage of real GDP is highly statistically significant at 1% level, Foreign Aid as percentage of real GDP is also significant at 5% level of significance. A unit increment in share of FDI and Aid to real GDP results in an 8.7 percent and a 5.8 percent rise in growth of real GDP, other things remains constant. These two results reveal capital inflow to Ethiopia is growth enhancing whether in the form of Aid or foreign direct investment.

Inflation is also found to have a positive relationship with growth of real GDP. However, the effect is statistically insignificant which is also a research question for further study on the area.

On the other hand, government expenditure and growth of real GDP produce a positive and statistically significant effect. An increment in government expenditure as a percentage of GDP by a unit, on the other hand, results in a 2.6% rise in growth of real GDP, other things remain constant. This supports a theoretical argument that heavy government expenditure on infrastructural developments in early phases of developing economy encourages private investment where in a higher output per capital is generated.

The appropriateness judged from the result of $R^2$ indicates how much of the dependent variable is explained by the explanatory variables, the higher the value of $R^2$, the more the dependent variable is explained by the independent /explanatory variables included in the model. In this case, the value of $R^2$ found to be very much satisfactory (i.e 0.98). This means 98 percent of the variation in growth of real GDP is explained by the explanatory/independent variables included in the model and the rest is captured by the error term. The adjusted $R^2$, which is more dependable comparing to $R^2$ for it is not affected by just increase or decrease of the explanatory variables, is stable in this regard and its value is found to be 0.98 which reveals the specification of the model is adequate enough to show the extent of the explanatory variables in terms of explaining the relationship explained in the model.

Presence of autocorrelation between error terms is checked through the Durbin Watson test statistic. The decision rule is if the result is two (2) or closer to two there is no problem of autocorrelation between error terms. Hence, there is no problem of autocorrelation in the model since the result is shown to have a closer value to (2).

# Chapter Five

# Conclusion and Policy Implication

The need for mobilization of resources from foreign source is driven by the widening resource and foreign exchange gaps in developing countries, mostly for economical reason. Ethiopia, as one of the developing nations, continued to be supported by external sources of finance besides the need to focus for mobilization of internal resources However, the impact of foreign capital on economic growth is area of empirical debate. This study is, thus, aimed at conducting an empirical examination of the effect of foreign capital inflow on economic growth in Ethiopian. It has sought to make a contribution to the empirical debate over the issue. The empirical examination has been made using time-series data covering 23 years from 1991/92 to 2013/14. The results of the study confirmed that foreign capital inflows both in the form of FDI and Aid are having significant and positive effect on stimulating real GDP growth in the long run. Government expenditure and labor force have also been confirmed to have positive and statistically significant relation with growth of real GDP in the long run.

The result, therefore, implies that increased capital inflow is associated with improved growth performance in Ethiopia. Thus, it is important to make domestic conditions favorable for proper workings of foreign capital inflow as empirical reviews confirm that foreign capital inflow will not have determinant impact without improvements in domestic measures, thus.

In this regard, effective external aid management policy, improvement of institutional quality, protection of property right and infrastructural developments are important policy focus areas which enhance the inflows and workings of foreign capital inflow. Upon improvements in such areas, more FDI gets attracted in high long term investment areas and also more economical aid flows could be realized as empirical and theoretical reviews suggest. It is also important to consider effective FDI regulation and foreign aid management policy as a measure to assure proper distribution of the gains among all sections of the population which, thereby, serves to protect the incidence of dualism in the economy arising out of concentration to some portion of the population.

In general, it is important to have good fiscal, monetary and trade policies in Ethiopia in order to realize increased inflow of foreign capital and proper utilization since it is having significant and positive effect on stimulating real GDP growth in the long run.

# References

Abinet, G., 2005. *The impact of external debt on economic growth in Ethiopia,* Msc, Addis Ababa Univesity.

Abuzeid, F., 2009, *Foreign aid and the 'big push' theory: Lessons from sub-Saharan Africa*, Stanford journal of international relations.

Alemayehu, G., 2011. *Readings on the Ethiopian Economy*. Addis Ababa: Master Printing Press Plc, p 318.

Ali, M., 2012. *Role of Foreign Capital Inflows in Economic Development of Pakistan*.Msc. Charles University.

Ashra, S. 2006. *Introduction to Economic Growth*, MEC-004 Economics of Growth and Development, Indira Gandhi National Open University

Bhattacharya, R.S. and Upadhayay, V., 2005. *Endogenous Growth Model*, MEC-002 Macroeconomic Analysis, Indira Gandhi National Open University

Carol, D.C. and Weil, D.N., 1994. *Saving and growth: a reinterpretation*. Elsevier Science B.V.

Chenery, H.B., and Strout A M., 1966. *Foreign Assistance and Economic Development.* American Economic Review, 56 (4): 679-733.

Dejene, A. (1989). *Famine Causation, Food aid and Foreign Financial Assistance to Agriculture in Ethiopia*, Paper Presented in a National Work Shop on Food Strategy in Ethiopia. Alamaya University.

Dhingra, I.C,. 2006. *Harod-Domar Growth Model*, MEC-004 Economics of Growth and Development, Indira Gandhi National Open University

Dornbusch, R, and Fischer, S., 199_. *Macroeconomics*, 6th ed. McGraw-Hill

EEA (Ethiopian Economics Association). 2013. *Report on the Ethiopian Economy.* Addis Ababa: Central Printing Press.

Gujarati, D.N., Porter, D.C. and Gunasekar, S., 2012. *Basic Econometrics*. 5th ed. New Delhi. Tata McGraw-Hill.

Hassen, A., 2008.*Effectiveness of foreign aid in sub-Saharan Africa: A less aggregated analysis*. Unpublished Msc. Addis Ababa University

Havi, E.D.K., Enu, P., Gyimah, F.O., Obeng, P.A., and Oboku, C.D.K., 2013. *Macroeconomic Determinants of Economic Growth in Ghana: Cointegration Approach,* European Scientific Journal, vol.9, No.19 ISSN

Jhingan, M.L., 2007. *The Economics of Development and Planning*. 39th ed. Delhi: Virinda Publication.

Khan, S. and Upadhayay, V., 2005. *The Solow Model*, MEC-002 Macroeconomic Analysis, Indira Gandhi National Open University

Koepke, R., 2013. *Capital Flows User Guide.* Institute of International Finance

Krugman, P.R., and Obstfeld M. 2009. *International Economics: Theory and Policy*. 8th ed. Boston: Pearson Addison-Wesley.

Lewis, W.A., 1954. *Economic Development with Unlimited Supplies of Labor*

Liesbeth C., Miet M. and Jo Swinnen L., 2008. *Foreign Direct Investment as an Engine for Economic Growth and Human Development: A Review of the Arguments and Empirical Evidence*, Leuven Center for Global Governance Studies

Lucas, R. 1988. *On Mechanics of Economic Development,* Journal of Monetary Economics, pp 41-43.

Mankiw, N., Romer, D. and Weil, D. (1992), *A contribution to the Empirics of Economic Growth*. Journal of Economic Literature

MoFED (Ministry of Finance and Economic Development) 2010, *Growth and Transformation Plan 2010/11 – 2014/15*, Federal Democratic Republic of Ethiopia (FDRE).

MoFED (Ministry of Finance and Economic Development) 2014, *Growth and Transformation Plan Annual Progress Report for F.Y.2012/13*, Federal Democratic Republic of Ethiopia (FDRE).

MoFED (Ministry of Finance and Economic Development) 2015, *Ethiopia EFY 2006 Annual Statistical Bulletin on Official Development Assistance* (ODA)

Mekonnen, B., 2001. *Foreign Direct Investment in sub-Saharan Africa and its contribution to economic growth*. Unpublished Msc. Addis Ababa University.

Mohamed, A. & Wahed, M., 2003. *The impact of Foreign Capital Inflow on Savings, Investment and Economic Growth Rate in Egypt: an Econometric Analysis*. Scientific Journal of King Faisal University, Vol. 4 No. 1 1424H (2003).

Mulenga, S., 1997. *Determinants of Foreign Direct Investment in Zambia*. Unpublished Msc. Addis Ababa University

Ozkan, K.M., Gunay, A. and Ertac, S., 200_. *Determinants of Private Saving Behaviour in Turkey*. Bilkent University

Prasad, Eswar S., Raghuram G. Rajan., and Subramanian, A., 2007. *Foreign Capital and Economic Growth*. Brookings Papers on Economic Activity, 1:2007, p 205.

Raju, S. 2005. *Open Economy Macro Modeling*, MEC-002 Macroeconomic Analysis, Indira Gandhi National Open University

Rasmidatta, P., 2011. *The Relationship Between Domestic Saving and Economic Growth and Convergence Hypothesis: Case study of Thailand,* Msc, Sodertorns University

Rebelo, S., 1991. *Long Run Policy Analysis and Long Run Growth*, Journal of Political Economy, 99, pp. 500 – 521.

Soderstein, B., 1970. *International Economics*. Macmillan Publishing Ltd. USA

Todaro, M.P. and Smith, S.C., 2003. *Economic Development*, 8<sup>th</sup> edition; New Delhi: Dorling Kindersley (India) Pvt. Ltd.

UNCTAD (2002), *Ethiopia: Investment and Innovation Policy Review*, United Nations

Wondwesen, W., 2011. *The impact of Foreign Capital Inflows on Economic Growth, Savings, and Investment in Ethiopia*. Msc. Addis Ababa University.

# Appendices

## Appendix I. Summary Statistics for the Sample Period 1991/92-2013/14

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| Year | 23 | 2003 | 6.78233 | 1992 | 2014 |
| RGDP | 23 | 277694 | 149396.9 | 125406.3 | 626557 |
| GDS | 23 | 36241.82 | 30952.11 | 5678.112 | 134896 |
| GE | 23 | 41538.59 | 48522.21 | 4205.4 | 185471.8 |
| Inf | 23 | 10.10865 | 11.43943 | -10.5722 | 36.4 |
| Pop | 23 | 66.99629 | 11.67025 | 51.3 | 88.92954 |
| LF | 23 | 28.78514 | 6.587959 | 18.3088 | 39.82421 |
| Aid | 23 | 9312.041 | 9858.636 | 893.5 | 30848.47 |
| FDI | 23 | 5941.647 | 8562.851 | 87.6576 | 27982.08 |

**Note:** Descriptive analysis is made on the series of the variables as they are (i.e., not transformed as percentage of GDP) and at levels (I(0); values are in millions of Birr except for population & Labor force which is expressed in millions of persons and inflation is in percentage terms.
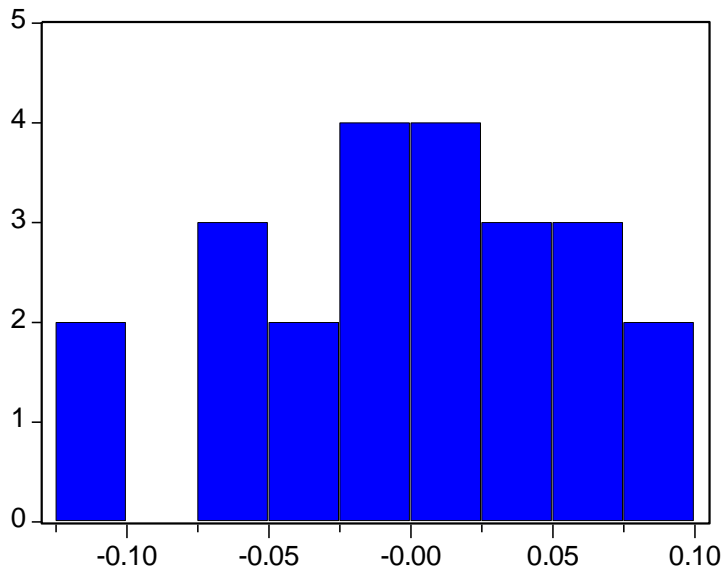
## Appendix II. Long run Model Residual Diagnostic Test Results

### 2.1 Test for Normality
Histogram Normality Test

$H_0$: The residuals are normally distributed

Decision rule: Reject $H_0$ if $P<0.05$

| | | |
|---|---|---|
| Series: Residuals | | |
| Sample 1992 2014 | | |
| Observations 23 | | |
| | | |
| Mean | | -2.63e-15 |
| Median | | 0.000334 |
| Maximum | | 0.093605 |
| Minimum | | -0.122901 |
| Std. Dev. | | 0.058623 |
| Skewness | | -0.338822 |
| Kurtosis | | 2.533904 |
| | | |
| Jarque-Bera | | 0.648261 |
| Probability | | 0.723156 |

Based on the Decision criteria the error terms are normally distributed as p>0.05

## 2.2 Test for Autocorrelation

Breusch-Godfrey Serial Correlation LM Test between adjacent error terms:

$H_0$: There is no autocorrelation between error terms

Decision rule: Reject $H_0$ if P<0.05

Breusch-Godfrey Serial Correlation LM Test:

| | | | |
|---|---|---|---|
| F-statistic | 0.954724 | Probability | 0.344016 |
| Obs*R-squared | 1.376310 | Probability | 0.240731 |

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 05/11/15   Time: 08:25
Presample missing value lagged residuals set to zero.

Based on the Decision criteria there is no autocorrelation between adjacent  error terms as p>0.05

## 2.3 Test for Heteroscedasticity

Arch LM test

H0: There is heteroscedacticity

Decision rule: Reject H0 if p<0.05

ARCH Test:

| | | | |
|---|---|---|---|
| F-statistic | 1.244805 | Probability | 0.277774 |
| Obs*R-squared | 1.289055 | Probability | 0.256222 |

Based on the Decision criteria the error variance is constant as p>0.05