FOREIGN DIRECT INVESTMENT, ECONOMIC GROWTH AND EMPLOYMENT IN KENYA.

MULI DANIEL KYALO

C50/CE/11223/2007

A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF ECONOMIC THEORY IN THE SCHOOL OF ECONOMICS, IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF DEGREE OF MASTERS OF ARTS OF KENYATTA UNIVERSITY.

2019
DECLARATION

This research project is my original work and has not been presented for examination in any other University or any other award.

Signature ……………… Date……………………

Muli Daniel Kyalo (BED ARTS)

C50/CE/11223/2007

This research project has been submitted with my approval as university supervisor

Signature……………. Date ……………………

Dr. Samuel Muthoga (PHD)

Department of Economic Theory

Kenyatta University
DEDICATION

This research project is dedicated to my late dad who laid a firm foundation for my education.
ACKNOWLEDGEMENTS

I am so much grateful to the Almighty God, to whom my life is owed. “Thank you Lord for your wisdom, divine intervention and guiding me throughout my entire life of studying”. I wish to record my sincere thanks to my supervisor, Dr. Muthoga, for the help, overall guidance, prompt comments, understanding and helpful remarks.
# Table of Contents

DECLARATION .................................................................................................................. ii

DEDICATION ..................................................................................................................... iii

ACKNOWLEDGEMENTS ................................................................................................. iv

LIST OF FIGURES ........................................................................................................ viii

ABBREVIATIONS AND ACRONYMS ........................................................................... ix

Operational definition of terms ...................................................................................... x

ABSTRACT ...................................................................................................................... xi

CHAPTER ONE ............................................................................................................... 1

INTRODUCTION ............................................................................................................. 1

1.1 Background .............................................................................................................. 1

1.1.1 Economic growth, FDI and Employment in Kenya ............................................. 4

1.2 Statement of the problem ......................................................................................... 7

1.3 Research questions .................................................................................................. 8

1.4 Objective of the study .............................................................................................. 8

1.4.1 Specific objectives .............................................................................................. 8

1.5 Significance of the Study ......................................................................................... 8

1.6 Scope of the Study .................................................................................................. 9

1.7 Organization of the study ....................................................................................... 9

CHAPTER TWO ............................................................................................................. 10

LITERATURE REVIEW .................................................................................................. 10

2.1 Introduction .............................................................................................................. 10
CHAPTER FIVE .................................................................................................................. 34

SUMMARY, CONCLUSION AND POLICY RECOMMENDATIONS........................................... 34

5.1 Introduction .................................................................................................................. 34

5.2 Summary and conclusion ............................................................................................ 34

5.3. Policy implications ...................................................................................................... 36

5.4 Conclusion .................................................................................................................. 37

REFERENCES ................................................................................................................. 39

Appendices ....................................................................................................................... 43
LIST OF FIGURES

Figure 1.1: Growth rate of GDP, FDI and Employment in Kenya...............................pg 5
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBK</td>
<td>Central Bank of Kenya</td>
</tr>
<tr>
<td>EMR</td>
<td>Employment</td>
</tr>
<tr>
<td>ER</td>
<td>Exchange rate</td>
</tr>
<tr>
<td>FDI</td>
<td>Foreign Direct Investment</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>POP</td>
<td>Population</td>
</tr>
<tr>
<td>KNBS</td>
<td>Kenya National Bureau of Statistic</td>
</tr>
</tbody>
</table>
Operational definition of terms

Gross domestic product (GDP); it is used to mean the market value of final goods and services produced within the boundaries of a nation within a given period usually a year.

Foreign Direct Investment (FDI); These are investment made by organizations outside the country of origin into another country with over 30% shareholding in the host country.

Employment Rate: This definition of employment is based on Jansen, M., & Von Uexküll, E. (2010), and refers to the total annual number of people involved in the process of producing goods and services and have an income. This will be measured in reference to the total population of Kenyan citizens able and willing to work.

(iii) Population (POP); It stands for population growth in the economy. This has been captured by the rate of change of the population in the period of study.

(v) Exchange Rate (ER): It is the price of one currency in terms of another, majorly expressed in terms of US dollars in the case of Kenya.

(vi) Inflation Rate: This refers to the general price level increase for goods and services within a nation over a certain period of time usually a year.
FDI can be defined as capital inflow into a country aimed to acquire investment in another country for profit or any other purpose. On the other hand, gross national product is the basic national accounting measure of the total national output of goods and services within a period of one year. Since FDI is a foreign capital that supplements domestic capital, it is expected that, its increase should lead to the growth of the national output. In the recent past, Kenya has experienced a consistent growth in FDI yet little can be said about the growth of the national output. This raises the question on the relationship between the two indicators. It is expected that, FDI increase should cause growth of employment. This reasoning is based on the effect that FDI has on the capital stock. This has not been the case in the country as employment continues to fall with increase in FDI. This paper’s objective was to investigate the effect of foreign direct investments (FDI) on GDP and employment in Kenya. To address this problem, the study used time series data for FDI, GDP, employment and other variables as identified in literature for the period 1990-2016. Diagnostic tests such as tests of unit root were done to achieve stationarity of the variables used in order to obtain reliable estimates. To address the objectives of this study, the ordinary least squares (OLS) method was used to explore the effect of FDI on both employment and GDP in Kenya. The study found out that, FDI was an important variable affecting both growth of output and employment in the country. The study recommended adoption of policies that can enhance the flow of FDI to ensure consistent improvement of the variables.
CHAPTER ONE

INTRODUCTION

1.1 Background

Many theories can be used to explain the relationship between accumulation of capital stock and the growth of national output in a country. One example is the Classical theory which argues that, availability of capital makes use of the available labor increasing output of goods or services within a nation. The theory holds that there is a positive relationship between capital stock and the growth of the national output.

Capital stock in a country can be divided into two broad categories depending on whether it is generated in the country or not. If the capital stock is generated from outside the country, it is generally called foreign capital and therefore carries returns to the owners and can therefore be regarded as some form of debt (Oduor, 2010).

Since foreign capital adds to the domestic capital, it can be argued that, where it is properly utilized, it can lead to both the economic growth and increase in employment. This argument is from the Solow model of growth that postulates that, capital works with labor to enhance the growth of the national output.

In general terms, foreign capital also known as Foreign Direct Investment[FDI], is defined as an investment done to acquire an interest of more than 10% of voting stock right in an institution operating in a foreign country (World Bank, 2004). It can also be defined as capital inflow into a country aimed to acquire investment in another country for profit or any other purpose.
There are various opposing views on the importance of FDI to the host country. More generally, two divide of thought that exist. There is one school of thought that sees FDI as adding new capital and technology, management skill and technical know-how to the host economy (Dees, 1998). For this reason, FDI in general has been seen as potent enough to expand the existing production capacity of the recipient country which stimulates faster economic growth. This line of argument is critical and has been pursued by many countries as it has been argued that faster growth leads to more utilization of resources within the boundaries of a country. For this reason, FDI has been regarded useful in eradicating unemployment since it leads to more utilization of labor within an economy.

The other school of thought is critical about effect of FDI to output growth and development in a nation and is therefore in serious doubt that huge investment by foreign firms can lead to more employment. This school of thought draws its argument from Marxist dependency theory (Chowdhury 2006). The main argument is that firms that invest in foreign countries do soak local resources for their profits. This cannot therefore lead to development in the host country because foreign investors consider host economies as servant of their home countries in supplying basic needs in their companies. This divide see foreign investors as predators that exploit the world in order to help few corporates well as entrenching a net of political and economic dependence.

The second school of thought could apply to most developing countries Kenya included. The reason for this argument is that, in the past, Kenya has experienced massive inflow of foreign capital yet little can be said about growth of employment and the national output (Kinaro, 2006). The reason could be that, the gains from the inflow are repatriated back to the country of origin. This leaves the host country with little to gain from the foreign capital at any given period.
A more interesting view about FDI is that it’s a resource that is considered by economies in transition and those experiencing rampant unemployment especially of labor (Mathew. etal, 2010). This particular reasoning can be applied for the case of Kenya since it is a developing country that has adopted various measures to accelerate growth and development, CBK, 2010).

Other studies on the topic have highlighted the importance of FDI on the growth of national output. According to Chowdhury, (2003), who contributed to the debate on the importance of FDI, FDI may permit a nation to access technologies and knowledge not readily available to domestically, helping improve productivity throughout the nation. New expertise may also be brought in, and access to global markets. The study concluded that, increasing aggregate investment by 1 percentage point of GDP increased economic growth of Latin American countries by 0.1% to 0.2% a year, but increasing FDI by the same amount increased growth by approximately 0.6% a year during the period 1950–1985, thus indicating that FDI is thrice efficient than domestic investment. Borensztein et al., (1980); Glass and Saggi (1999) have also noted that FDI significantly affect economic growth and development of a country. Dees (1998) convincingly argued that FDI is very critical for growth and added that FDI is an important explainer to China’s economic growth.

If these studies are anything to go by, the basic question to most development practitioners is, why the national output and employment in Kenya has not been responding to foreign capital inflows? If this is the case, that there are no benefits to be gained from the foreign capital, why should developing countries put measures to attract foreign debt? These questions points on the need to revisit the concept and apply different methodologies as those used in foreign countries to find out if there are benefits to be gained from foreign capital.
Another controversial view of FDI was put forth by Kokko, A. (1994) who contend that FDI have both positive and significant effect on economic growth both in the short run and longrun but up to a certain extent and below which it does not. Only those countries that have reached a certain income level can absorb new technologies and benefit from technology diffusion, and thus reap the extra advantages that FDI can offer.

1.1.1 Economic growth, FDI and Employment in Kenya.

Kenya as a country in the eastern Africa is strategically positioned to encourage FDI. However, this potential had not been realized until in the recent past when the amount of FDI flowing into the country showed a tremendous increase. This positive development has also been attributed to government efforts through formulation of various policies. One of the policies has been on tax holidays on foreign firms. Figure 1.1 shows the trend in GDP, FDI and Employment in Kenya.
From figure 1.1, the low level of FDI and GDP growth for the period 2007 to 2008 was attributed to post election violence witnessed in the period. This discouraged foreign firms from investing in the country a factor that also contributed to low levels of the national output. During the coalition period when the country witnessed political stability, the country’s output continued to rise partly attributed to the inflow of FDI, (CBK, 2009).

There has been a consistent increase in the flow of FDI but the same cannot be said about the GDP and employment in the country. This observation raises question on the nature of relationship between these macroeconomic variables.

The amount of FDI rose later in the year 2009 but witnessed a slight decline in the year 2010 to 2012. Since the end of 2012, there was a consistent increase in foreign direct investment flowing into the country.

Many empirical findings on FDI and national output indicate a positive relationship between the two variables. Other studies have also found that, in developing countries, positive relationship exists in the long run but not in the short run (Wawire, 2008). However, these results contradicts findings by other studies that found the case to be true both in the short run and the long run (Oduor, 2010).

Employment is a situation in which labour resources in a country are put to optimal use. On the other hand, unemployment is a situation in which some labour resources within an economy have not been optimally utilized. In the context of labor as a resource, it has been defined as a
situation in which some people are willing to work at the prevailing wage rate but cannot find employment. When more people are employed, production of goods and services increases leading to economic growth.

Various authors on the topic of employment argue that, increase in employment leads to improvement in welfare (Rizvi & Nishat 2009). This is based on the fact that, employed people have an income to purchase the various goods and services that they need. For this reason, many governments formulate policies to encourage employment growth especially in the developing countries.

Various studies conducted in Kenya on employment indicate various reasons why employment has not been responding to policy expectations. One of the reasons for low level employment in the recent past is skill mismatch where people cannot meet the skill requirement for an advertised opportunity. Other reasons include information asymmetry among job seekers, shortage of land, adoption of capital intensive technology in the manufacturing sectors that deny people employment opportunities and imperfect labor market. These factors interconnect to produce the current state of our economy with rampant unemployment, (Omolo, 2012).

Given the low level of employment in the country, policy makers have been advocating for various measures that can be adopted to help the country address the crisis. One of the area that has been identified as pivotal in fighting the menace not only in Kenya but in many developing countries is increasing the inflow of FDI (CBK, 2014).

Although there has been an upsurge in FDI in the country, the change in employment has not been consistent over the years. If FDI is significant in increasing employment as identified from various literatures, it is important for policy makers to have clear understanding on the
relationship between the two variables. Fig 1.1 shows the trend in employment in Kenya alongside that of GDP and FDI. From the figure, employment in Kenya declined from 2011 to 2014 while FDI showed a consistent rise in the same period.

1.2 Statement of the problem

Accumulation of capital stock is an important factor that can achieve many macroeconomic goals such as employment creation and growth of national output in a country. This is generally the classical way of thinking and goes further to divide capital stock into two broad categories depending on whether it is generated within the country or not.

Foreign investment has been regarded as important in generating employment and national output growth. For this reason, many developing countries Kenya included have been formulating policies to encourage FDI inflow (Kinaro, 2006). Kenya in particular is refocusing its development strategy of increasing economic growth and employment by reducing the tax on foreign firms setting production plants in the country (CBK, 2013).

The policy has worked since in the recent past, the number of firms investing in foreign capital in the country has been increasing significantly as shown by growth in FDI. This situation is expected to increase the national output and employment. However, this has not been the case for the GDP and employment growth as the two variables are yet to show a consistent trend as depicted by FDI growth. This further raises question on the relationship between the three variables in the country.

In the country, the amount of FDI continuous to rise, yet the same cannot be said about the growth of GDP and employment. This raises the question on the kind of the relationship among the three variables, the effectiveness of the policies put in place to enhance economic growth and
employment. Therefore, this study aimed at addressing the effect of FDI effects on growth of the economy and employment in Kenya.

1.3 Research questions

The study sought answers for the following research questions:

(i) What was the effect of FDI on the Economic Growth in Kenya?

(ii) What was the effect of FDI on employment in Kenya?

1.4 Objective of the study

The general objective of the study was to find out the effect of FDI inflow on economic growth and employment creation in Kenya.

1.4.1 Specific objectives

(i) To establish the effect of FDI on economic growth in Kenya.

(ii) To find out the effect of FDI on employment in Kenya

1.5 Significance of the Study

This study was important to the policy makers as it did shed light on the relationship between the variables and the effect of FDI on economic growth and employment. The study also gave light to the policies that need to be manipulated to increase FDI inflows into the country so as to increase GDP and employment. The study added to the empirical literature on the relationship between FDI, GDP and employment in Kenya.
1.6 Scope of the Study

The research study was conducted in Kenya using secondary data from various sources including government documents and economic surveys which are rich in data that is required to address the objectives. The study used time series data for FDI, GDP, employment and other variables for the period 1990 to 2016. To address the objectives of this study, the ordinary least square method was applied to explore the effect of FDI on both employment and GDP in Kenya.

1.7 Organization of the study

This study is composed of five chapters. Chapter one provided a background section, which shows the research motivation, problem statement, objectives and significance of the study. Chapter two looked at the theoretical and empirical literature associated with the topic. Chapter three explains the methodology required to address the objectives of the study objectives. Chapter four comprises of analysis and interpretation of results while chapter five consist of summary, conclusion and policy recommendations.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Theoretical and empirical literature on the effect of FDI on output growth and employment in Kenya is considered in this chapter. Section 2.2 analyzes the theoretical literature while Section 2.3 discusses the various empirical studies. Section 2.4 provides an overview of the literature.

2.2 Theoretical literature

There are majorly two schools of thought on the effect of economic growth, FDI and employment. The first one is aligned to foreign international school of thought that consider FDI as putting new resources in terms of capital, technology, managerial skill and technical know-how, productivity gains to the home economy (Borensztein 1998). This school of thought sees FDI as good enough to enhance the local efficiency in the productive sector that encourage faster economic growth, create work and hence reduce unemployment in a country and improve welfare.

The second school of thought borrows from the Marxist dependency theory. The contribution of this school is that FDI soaks up local resources from the home country and doubts that it can enhance economic progress and employment creation. Foreign investors view host economics as servant of their home countries in supplying basic needs for their organization. The school sees foreign investors as imperial predators specializing in exploitation of the entire world to assist fcorporates and create a political and economic hegemony on the rich and dependence among the weak nations.
2.2.1 A Neoclassical Model of Growth

Many studies on the effect of capital stock on economic growth apply the aggregate production function approach. The relationship is explained in terms of an economy’s output and tangible primary inputs that are taken to be physical capital and labor.

The work of (Solow, 1956) is taken by many researchers as the basis for much of applied growth theory analysis within the neoclassical model of output growth. Most of the work in tries to bring together the aggregate production using macroeconomic data. The role of capital stock via investment in this model can be given by the following equations:

Equation 2.1 show the relationship between total production function \( Y \), total capital stock within an economy \( K \), labour input \( L \) and technological improvement in the economy \( A \):

\[
Y = A\ast f(K,L) \tag{2.1}
\]

Equation 2.2 shows how capital within an economy evolves over time and can be represented by:

\[
\Delta K_t = I_t - \alpha K_{t-1} \tag{2.2}
\]

Where

\( \Delta K \) represents a discrete change in capital stock,

\( \alpha \) represents depreciation amount, and

\( I_t \) is the gross investment at time \( t \).

According to Solow (1956), the gross investment term is given endogenously by profit maximizing firms or assumed to be a given proportion of output, say \( sY_t \). The neoclassical model assumes competitive factor markets and constant returns to scale where all inputs are paid their marginal products. Linearizing the production function yields the following equation

\[
\ln Y = \beta \Delta \ln K + \beta \Delta \ln L + \Delta \ln A \tag{2.3}
\]

In the model, \( A \), is assumed to be exogenous and evolves according to equation 2.4
\[ A = A_0 e^{\gamma} \] .................................................................

(2.4), where \( g \) grows exponentially,

Where \( A \) is the technical efficiency in the economy.

Equation 2.1 and 2.3 show the direct link between investment in tangible assets and economic growth. According to these equations, capital accumulation affects economic growth in proportion to capital’s share of national output.

2.2.2 Solow model of growth

The Solow model of growth is an extension of other models of growth and assumes that, the growth of a country’s income is a function of capital and labor and technical progress. The model gives the possibility of substitution between capital and labor in the production function. It argues that, as the economy nears a steady state where the savings of the economy are balanced by requirements for investment to maintain a constant capital-labor ratio (Solow 1956).

Capital and labor are considered as substitutes and can be combined in various proportions to attain national output. The steady state growth rate in the economy is equal to the rate of population growth added to the rate of technical change. The population growth rate is an important factor in explaining growth of the national output.

To the opposite of Harrod Domer model, flow of aid does not affect the economy’s growth rate once it reaches the steady state. The model can be reproduced as follows;

\[ Y = F(K, L) \] .................................................................

(2.5)

Where \( Y \) is the national output

\[ K \] are the unit of capital stock, and

\[ L \] represents the labor force

According to the model, capital evolves according to the following equation;
\[ K = I - \delta K \] …………………………………………………………………………………………………………………..(2.6)

The model assumes further that;
\[ I = S \] ……………………………………………………………………………………………………………………………..(2.7)

The model assumes that the savings is a function of the national output. The growth in the capital stock takes the following functional form;
\[ K' = SF(Y) - (n + \delta)K \] …………………………………………………………………………………………………………………………..(2.4)

Where \( Y \) is the national output

\( n \) is the growth rate of population

\( K' \) is the growth rate of the capital stock

\( \delta \) is the depreciation rate of the capital stock

2.3 Empirical literature

Alfaro, Chanda, Ozcan and Sayek (2003) did a paper to determine various links among FDI, financial markets, and economic growth using cross-country data between 1975-1995. The study found a positive effect of FDI on economic growth. Financial system of the economy also influenced the various linkages between FDI and economic growth. This implied that, if there is stability in the financial system of an economy, the economic growth will be affected by the FDI effectively and efficiently. According to the research the benefits of the FDI are utilization of the resources, introduction of new process to the domestic market, training of the labor force etc.

Li and Liu (2005) conducted a research to establish the effect of FDI on economic growth of the host country. The study employed a time series data from the period 1970 to 1999 from 84 different countries. To achieve the objective of the study endogeneity was tested using the Durbin-Wu-Hausman (DWH) test, and result showed that for the sample as whole endogeneity
was not significant but when the period was split, 1985 to 1999 showed a significant relationship between FDI and Gross Domestic Product (GDP). The study concluded that a strong and significant effect of FDI on economic growth existed.

Egger, P., & Pfaffermayr, M. (2005), conducted a study to determine the impact of Foreign direct investment (FDI) on selected regions of the Slovak Republic (Bratislava, Zilina, Presov and Kosice) between 1998 and 2013. First a correlation analysis was conducted, examining an impact of the FDI inflow on employment and development in the selected regions. Subsequently, interdependencies between the variables were examined through regression analysis. The indirect dependence between the examined variables was confirmed. Moderate indirect dependence was recorded in the region of Bratislava, and a significant one in the regions of Trencin and Presov.

Morrissey (2006) conducted a study to determine the effect of private and public investment on the GDP of Kenya using a multivariate approach on time series data over the period 1964 – 2002. The econometric results of the study indicated that shares of private and public investment on GDP had strong beneficial effects on per capita income in Kenya. However, aid in the form of net external loans was found to have a significant negative impact on long run growth. Private investment related to government investment and imports negatively, but positively to foreign aid. The implication for policy is that in order for Kenya to foster and sustain growth, closer attention needed to be given to factors that promote private investment.

Kinaro (2006) did a research in Kenya to determine the effects of FDI on economic growth and other factors that determine the flow of FDI in the country. The study found that FDI flow in the country is determined by a series of factors such as economic openness, taxation, human capital,
real exchange, inflation, and FDI in the other periods. Variables that were thought to have a significant effect of FDI flow such as government consumption of goods and services, financial development, natural resources, wage and political rights were insignificant. The principal conclusion of the study was that FDI affects economic growth positively.

Milner (2008) conducted a study to establish the contribution of Foreign Direct Investment into developing nations in areas of economic growth and employment generation. The results indicated that international and preferential trade protocols have a big effect on the FDI inflows in less developed nations. This influence trade across borders and attracts the FDI, enhancing economic growth of the affected nations.

Rizvi and Nishat (2009) examined the impact of FDI on employment in Pakistan, India and China. The study covered the time period from 1985-2008. The Im-PesaranShin (IPS) unit root test was used to determine order of integration. Long run relationship was checked through Pedroni (1999) test of panel Co-integration. Seemingly Unrelated Regression (SUR) method was used to estimate impact of Foreign Direct Investment on employment. Results suggested that FDI does not have a direct impact on employment opportunities. It was concluded that besides FDI enhancement policies, other measures should be taken to encourage reduction of unemployment.

Pradhan, (2009) conducted a study to determine the relationship between economic growth and foreign direct investment (FDI) in ASEAN nations namely: Indonesia, Malaysia, Philippines, Singapore and Thailand. The paper employed time series data for the period 1970 to 2005 for all the countries. When Granger causality test was employed evidence of bidirectional causality both at individual and panel level with exception of Malaysia was detected.
The effect of FDI on employment generation for a group of Latin American countries for the period 1980–2006 was examined by Vacaflores, (2011). The findings from an annual data set collected from 12 countries showed that FDI had a positive significant effect on employment generation. It meant that the countries with high level of inflation and those attracting low inflows of FDI could harvest the benefit.

Mucuk et al. (2013) did a research to establish the relationship between Foreign Direct Investment and employment in Argentina, Chile, Colombia, Philippines, Thailand, Turkey and Uruguay using time series data for the period of 1981-2009. Many diagnostic tests were subjected to the data such as unit root, Panel Co-integration and causality tests. A long run relationship concluded from the results was since the variables were co-integrated. Further, the study found out that FDI reduced employment in Turkey and Argentina which was not the case in Thailand as FDI increased employment.

Balcerzak and Żurek (2011) investigated the influence of FDI on the labour markets. The paper analyzed the interdependencies between FDI and employment in Poland. Based on aggregate quarterly data for period 1995-2009 VAR methodology was used. The findings confirmed interdependencies between the two variables. It was observed that FDI impulse led to an upsurge in the level of employment though the positive influence tended to be for a short term. The study suggested that government policies for investment should be reformed in order to make conditions for positive influence long term.

Shaari, et al (2012) conducted a study to determine the impact of FDI on employment rate and economic growth in Malaysia using time series data for the period 1980 to 2010. The study employed ordinary least squares method to analyze the data after numerous diagnostic tests.
study found that FDI increased employment level and positively affected the gross domestic product.

Mustafa, A. M. M., & Santhirasegaram, S. (2013) conducted a study to determine the impact of FDI on economic growth and employment in Sri Lanka. A significant impact of FDI on the economic growth in the short run was not found by the study. In contrast, it found that, in the Sri Lankan, there is a long run equilibrium relationship between the two variables. However, the study found that there was a significant impact of economic growth on the employment level. In contrast, in the long run there was no relationship between output growth and employment.

Ojiambo (2013) conducted a study to determine the effect of foreign aid on economic growth in Kenya between 1966 to 2010. This study used time series data which was collected from various secondary sources such as the KNBS. This study used autoregressive distributed lag model to arrive at the results. The study found out that there was positive effect of the foreign aid on the economic growth in the country.

Njeru (2013) conducted a study to explores the impact of foreign direct investment on the Kenyan economy using FDI and GDP inflow data series from 1982 to 2012. The study used SPSS to analyze the data. Graphical analysis of FDI and GDP showed a direct positive relationship between the two variables. The Pearsonian correlation coefficient was calculated for GDP and FDI data series amounting to 0.565 at the 0.001 (2 tailed) significance level which indicates a strong positive correlation between the variables. This implied a direct proportional relationship between foreign direct investment and economic growth in Kenya. Though the impact was a positive one it would depend on policies put forth by the government and therefore likely to vary in different periods.
Stamatiou and Dritsakis (2014) examined employment levels, FDI and economic growth in Greece between 1970 and 2012. The VECM Granger causality results indicated both in the short run and in the long run a strong unidirectional causality between economic development and foreign direct investments. The results offered a new perspective and insight for policymakers on the variables involved.

Akram, (2015) conducted a study to determine the impacts of foreign direct investments (FDI) on both the employment rate and economic growth in Jordan using empirical analysis using data from 1998-2015. Diagnostic tests on the data were done which concluded that the variables used were non-stationary at levels and stationary in the first difference. Further evidence of autocorrelation and heteroscedasticity problem was not found. It was found out that a percentage increase in FDI caused an upsurge of (0.009%) of the employment which resulted to an increase of 1.219% in real Gross Domestic Products.

2.4 Overview of Literature

The foregoing section reviewed both theoretical and empirical literature on FDI, economic growth and employment. Pro-foreign international school of thought saw FDI as adding new resources to the home economy. Examples include capital, technology and managerial skills. The implication of this is that FDI can enhance economic growth and therefore employment growth in a country.

The other theoretical literature on FDI, output growth and employment is based on Marxist theory of output growth. The main argument by this theory is that FDI soaks up local financial resources from the host country and therefore doubts that it can contribute to economic progress and employment generation.
The study also reviewed various empirical studies both in the country and abroad. Some of the studies found positive relationship between FDI, economic growth and employment generation in the various countries. Others found no relationship between the variables. However the studies used different methodologies in the analysis of data which can be used as a possible explanation on the differences in the results.

In Kenya, the period between 2010 and 2015 has experienced high growth in FDI yet economic growth and employment remains low and are yet to improve. If findings by other studies in the country is anything to go by, economic growth and employment were expected to rise but this has not been the case. To better understand the nature of relationship between these variables in the country, the study aims to include the current period in the analysis. The period between 2010 and 2017 has witnessed rapid rise in FDI but the growth rate and employment are yet to respond. The current study therefore sheds light on the nature of relationship among the variables using the current data.
CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter explores the research methodology employed in this study. This chapter includes the research design, the theoretical framework, the model specification, definition and measurement of variables, study area, data types and sources.

3.2 Research design

The objective of the study was to establish the effect of FDI on output growth and employment in Kenya. The study adopted a non-experimental research design since the variables of the research are not manipulated. Quantitative time series data was collected from various sources including government documents, Kenya national bureau of statistics (KNBS) annual reports and economic surveys.

3.3 Theoretical Framework

3.3.1 FDI and output growth

Assume an economy produces a single consumption good according to the following relation corresponding to the classical model of output growth. This model also links to equation 2.1 and assuming a constant return to scale.

\[ Y = AH_i^\alpha K_i^{1-\alpha} \]

where:
A represents the exogenous state of the ‘environment’, H represents human capital, and K represents physical capital. Allowing capital accumulation to take place through the expansion of a number of different varieties of capital goods, each one denoted by x(j) as in Ethier (1982), such that at each instant in time, the stock of domestic capital is given by:

$$K = \left\{ \int_0^N X(j)^{1-\alpha} \, dj \right\}^{1/1-\alpha}$$

(3.2)

Where, xj is the varieties of capital goods.

Assuming that N represents total variety of capital goods and two types of firms in the economy such that N= n + n*

Where n represents domestic firms, and

n* represents foreign firms.

The total cost of xj units of capital goods denoted as m(j) will be given by

$$m(j) = A(1-\alpha)H^\alpha X(j)^{-\alpha}$$

(3.3)

Production of more variety of capital goods requires adoption of more advanced technologies but this requires a set up cost F. FDI is one of the channels through which more advanced technology gets into an economy. In adopting more advanced technology, there is a set up cost which depends positively on variety of capital produced domestically to that produced outside country (N*).

For countries with lower N/N*, adoption of foreign technologies is higher and hence the set up cost is low. The set up cost F can be formulated as follows:

$$F = F(n^*/N, N/N*)$$

(3.4)
The profits to a producer of new capital goods can be formulated as follows;

\[ \Pi(j) = - F(n^*/N, N/N^*) + \int_0^\infty [m(j)x(j) - x(j)]e^{-r(t-t')} ds \] ……………………………………………………(3.5)

Maximizing the above equation s.t equation 3.4 produces the following;

\[ x(j) = HA^{1/\alpha} (1 - \alpha)^{2/\alpha} \] …………………………………………………………………………………………..(3.6)

Assuming zero entry cost, the rate of return \( r \) will be given by

\[ r = A^{1/\alpha} \theta F(n^*/N, N/N^*)^{-1} H \] …………………………………………………………………………………………….(3.7)

Where

\[ \theta = \alpha(1 - \alpha)^{2-\alpha/\alpha} > 0 \]

Equation 3.7 implies that FDI measured by fraction of products produced by foreign firms in the total number of products \( (n^*/N) \) reduces cost of new varieties of capital goods hence increasing the rate of growth of national output.

3.3.2 Employment and FDI.

Derivation of the effect of FDI on employment was based on the theoretical framework of labor demand functions as postulated by Waldkirch et al, 2009. A typical production function is assumed to take the following form;

\[ Y = AK^{\alpha_1}L^{\alpha_2} \] …………………………………………………………………………………………(3.8)

Where \( Y \) is the output level for industry at time \( t \),

K is the quantity of the capital stock,

L is the labor units, and
A is efficiency parameter.

A firm’s objective is profit maximization which indicates optimal capital is selected “such that the cost of capital R equals capital’s marginal revenue product (MRP) and wage equals labor’s MRP” (Waldkirch et al, 2009).

The solution to the optimization problem results in the following:

\[ Y = A(\alpha_1 LW, / \alpha_2 R) L^\alpha \] .................................................................(3.9)

The parameter A in equation 3.9 is assumed to vary with an industry’s interaction with FDI as follows;

\[ A = B(FDI)^\rho \] .................................................................(3.10)

To show the relationship between the employment and FDI, substitute the parameter A into the equation 3.9 leading to the following equation;

\[ L = \beta_0 + \beta_1(w_i - r_i) + \beta_2 Y_i + \beta_3 FDI + \epsilon \] .................................................................(3.11)

3.4 Empirical model estimation

3.4.1 FDI and Output

The following model was used to estimate the effect of FDI on economic growth in Kenya after including other variables that affect economic growth. It was adopted from the work of Ojiambo (2013), on the effect of FDI on economic growth and modified as in equation 3.12.

\[ Y = \beta_0 + \beta_1 FDI + \beta_2 INF + \beta_3 PI + \beta_4 OT + B_5 GE + \epsilon \] .................................................................(3.12)

Where, \( Y = \) Gross Domestic Product

FDI = Foreign Direct Investment

INF= Inflation

OT = Openness to trade
GE = Government expenditure

$\varepsilon$ = stochastic error term

PI = Private investment

### 3.4.2 FDI and employment

The following model was used to analyze the effect of FDI on employment in Kenya. It was adopted from the work of Waldkirch et al, (2009), on the relationship between FDI and employment.

$$L = \beta_0 + \beta_1 FDI + \beta_2 INF + \beta_3 ER + \beta_4 POP + \beta_5 GE + \nu \tag{3.13}$$

Where L is employment growth rate

- FDI is foreign direct investment
- INF is inflation
- ER is the exchange rate
- POP is population growth
- GE is government expenditure

### 3.5 Definition and measurement of variables

(i) **FOREIGN DIRECT INVESTMENT (FDI):** FDI in this study is an investment made by organizations outside the country of origin into another country with over 30% shareholding in the host country.

(ii) **EMPLOYMENT RATE:** This definition of employment is based on Jansen, M., & Von Uexküll, E. (2010), and refers to the total annual number of people engaged in production of goods and services and have an income. This was measured in reference to the total population of Kenyan citizens who are ready and willing to work.
(iii) POPULATION (POP): This represents the population growth in the economy. Was captured by the rate of change of the population in the period of study.

(v) EXCHANGE RATE (ER): This is the price of one currency in terms of another currency usually in terms of US dollars in the case of Kenya.

(vi) INFLATION RATE: This refers to the general increase in the price level for all the goods and services within an economy over a certain period of time usually a year.

(vi) OUTPUT GROWTH (GDP): This was measured by the value of goods and services produced in the country within a period of one year.

(vii) GOVERNMENT EXPENDITURE (GE): This represents the amount of money used by the government to buy goods, services and to undertake various projects in the country within a year.

(viii) OPENNESS to TRADE (OT): This is a measure of volume of external trade as captured by the amount of imports and exports.

3.6 Data type and source

The study used quantitative secondary time series data in Kenya for the period 1990 to 2018 for the variables of interest. The data was obtained from various sources such as KNBS annual statistical surveys and other sources such as World Bank that is rich in data on such variables such as inflation and output of various countries in this case with specific interest of Kenya.

3.7 Diagnostic tests

3.7.1 Unit root test

The study conducted various tests such as the test for stationarity. This was aimed at avoiding estimating and getting spurious results in case the data was estimated when it was not stationary.
To confirm the stationarity, the study used augmented Dickey Fuller test. The (ADF) test for stationarity in a series of say GDP, involves estimating the equations.

\[ \Delta GDP = \alpha_0 + \beta_t + \theta_{t-1} + \sum_{i=1}^{m} \rho \Delta GDP_{t-i} + \epsilon_t \] (For level) .....................................................(3.14)

\[ \Delta \Delta GDP = \alpha_0 + \beta_t + \theta_{t-1} + \sum_{i=1}^{m} \rho \Delta \Delta GDP_{t-i} + \epsilon_t \] (First difference) .....................................................(3.15)

There are cases where ADF doesn’t have a drift and a trend but the example has both a drift (intercept) and a trend. Where \( \alpha_0 \) is a drift, \( m \) is the number of lags and \( e \) is the error term and \( t \) is trend.

The null hypothesis will be \( H_0: \alpha_0, \beta, \theta = (\alpha_0, 0, 1) \) (No– stationarity)

The alternative hypothesis \( H_1: \alpha_0, \beta, \theta = (\alpha_0, \beta, 1) \) (Stationarity)

If the test reveals that null hypothesis should be rejected then the variable will be said to be stationary. The results of the ADF test presented at the appendices shows the data was stationary and we do not face the possibility of spurious regression results. The results showed that the ADF test statistics are less than the t-critical at the 1%, 5% and 10% and we therefore reject the null hypothesis of non- stationarity and accept that the series are stationary and the OLS regression could be conducted.

### 3.7 Data analysis

To achieve the first objective on the effect of FDI on economic growth, regression was conducted on equation 3.12. The other variables in the equation have been included as they have been identified as important in affecting the level of output. To achieve the second objective on the effect of FDI on employment growth in the country, the study conducted a regression analysis on equation 3.13.
CHAPTER FOUR

FINDINGS, INTERPRETATION AND DISCUSSION

4.0 Introduction

This chapter presents the empirical findings of the study. The chapter gives a detailed analysis of the effect of FDI on economic growth and employment. To achieve the first objective on the effect of FDI on economic growth in Kenya, equation 3.12 was estimated. To achieve objective two on the effect of FDI on employment in Kenya, Ordinary Least Square method was applied on equation 3.13.

4.1 Effect of FDI on economic growth

In order to achieve the first objective on the effect of FDI on economic growth, Ordinary least square method was used. Table 4.1 summarizes the results of the process.

Table 4.1 Regression estimates on the effect of FDI on economic growth

<table>
<thead>
<tr>
<th>Dependent variable; GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>FDI</td>
</tr>
<tr>
<td>Govt Exp</td>
</tr>
<tr>
<td>Open Trade</td>
</tr>
<tr>
<td>Priv Investment</td>
</tr>
</tbody>
</table>
The results from table 4.1 indicate that, FDI, government expenditure and private investment are the important variables affecting the growth of the GDP in Kenya. The coefficients are significant in explaining the growth of the GDP. However, the coefficient of openness of trade was not significant in explaining the growth of the GDP in the country.

There was a positive relationship between the growth of FDI and growth of the gross domestic product in the country. A one percent change in the growth of the foreign direct investment (FDI) increases the growth of gross domestic product (GDP) by 0.4623 percent holding all the other factors constant. The coefficient of FDI growth was significant at 1%, 5% and 10% as can be seen from the p value.

The explanation of this observation can be derived from the classical theory of growth. The theory sees capital as important in the growth of the national output as it is needed to work with
labor. The theory states that, in the short run, the growth of output is minimal as the amount of capital stock in the production process is limited. In the long run however, the growth of the national output is high as both capital and labor can be varied.

Although FDI is a form of investment from foreign countries, it has potential of increasing the total capital available in a country. This capital requires labor to work with which is readily available therefore increasing the amount of goods and services produced within an economy.

There is a positive relationship between growth of the GDP and amount of investment by the government in the country. This implies that, high government expenditure increases growth of the national output. A one percent increase in government expenditure increased growth of the GDP by 0.5214 percent holding all the other factors constant. The coefficient of government expenditure is statistically significant at 1% level of significance as can be seen from the p value.

The findings by the current study is consistent with the Keynesian theory of growth that sees government as important in bringing about economic stabilization. If there is depression for example, the government can intervene by expanding its expenditure. The theory further states that, the government should reduce its expenditure during the period of inflation.

Government expenditure on various projects may also increase employment and income in an economy. High income by the citizens raises the demand for various goods and services. High demand motivates firms to produce more goods and services. Higher production of goods and services is what results to growth of the national output.

There is a positive relationship between growth of the national output and openness to trade in the economy. In this case, openness to trade is an indication of limited barriers in the trade
between countries. A reduction in trading barriers increases growth of the national output by 0.02478 per cent holding all the other factors constant. However, the coefficient of trade barriers is not statistically significant in influencing growth of the national output.

Limited barriers to trade encourages firms to relocate to areas where they can enjoy competitive advantage in the production of various goods and services. The relocation increases employment and production and therefore the growth of the national output. The is the reason behind the positive relationship between GDP and openness to trade.

There is a positive relationship between the growth of the national output and the growth of private investment in the country. A one percent change in private investment caused national output to increase by 0.2651 percent holding all the other factors constant. The coefficient of private investment is statistically significant in causing the growth of the national output at all the three levels of significance.

The findings of this study are also consistent with the classical theory of growth. According to the theory, domestic capital that comes inform of private and public capital work together with foreign capital to improve the level of production of various goods and services. Higher amounts of private investments by the citizens is therefore expected to increase the rate of growth of the national output.

From the adjusted R squared, it can be seen that, the explanatory power of the model is about 70.28 per cent. This implies that, about 70.28 percent of all the variations in the growth of the GDP can be explained by the FDI, government expenditure, openness of trade and private investment, leaving about 20.72 percent of the growth to be explained by other factors not included in the model.
4.2 Employment and FDI

To achieve the second objective on the effect of FDI on employment, the study estimated equation 3.13 using the method of ordinary least square. The results are as reproduced in table 4.21.

Table 4.21 FDI and employment growth

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation</td>
<td>0.3672*</td>
<td>0.09327</td>
<td>0.06961</td>
</tr>
<tr>
<td>FDI Flow</td>
<td>0.5017***</td>
<td>0.03945</td>
<td>0.0004</td>
</tr>
<tr>
<td>Pop</td>
<td>-1.3621***</td>
<td>0.02341</td>
<td>0.0000</td>
</tr>
<tr>
<td>Gvt. Exp</td>
<td>1.2781***</td>
<td>0.01642</td>
<td>0.0001</td>
</tr>
<tr>
<td>Exchange rate</td>
<td>0.05821</td>
<td>0.07431</td>
<td>0.07841</td>
</tr>
</tbody>
</table>

Prob>F =0.000
R- Squared=0.3814
***Significant at 1%
Level
**Significant at the
5% Level
*Significant at the
Table 4.21 summarizes the effect of FDI flow on the growth of employment in Kenya. Economic theory states that, FDI as a form of capital supplements domestic capital raising the level of total capital in a country. Holding everything constant, it is expected that the level of employment of labor needed to work with the capital would go up. This would also lead to higher production of goods and services and therefore economic growth.

There is a positive relationship between growth of employment in the country and the level of inflation. A one percent change in inflation raises the level of employment by 0.3672 percent holding all the other factors constant. The coefficient of inflation was statistically significant in influencing the growth of employment at 10 per cent level of significance as can be seen from the p value.

The findings of the current study are consistent with the economic theory of inflation and how it affects the level of employment in a country. According to Phillips curve, there is an inverse relationship between inflation rate and unemployment. This means that, higher levels of inflation reduces unemployment. The other way of saying this is that, high levels of inflation increases employment level in a country.

There is a positive relationship between the growth in employment and the flow of FDI in the country. A one per cent change in the flow of FDI increases employment by 0.5017 percent holding all the other factors constant. The coefficient of FDI is statistically significant in influencing employment growth at all the levels of significance as can be seen from the p value.
The implication here is that, FDI is an important factor that influences growth of employment in the country.

The findings of current study is consistent with the work of Romer (1990) who found importance of capital in alleviating unemployment. He classified capital into domestic and foreign capital. The study found that foreign capital was important in supplementing domestic capital. Both capital were important in increasing employment and economic growth.

There was a negative relationship between growth of employment and growth of the population in the country. A one per cent growth in the population reduced employment by 1.3621 percent holding all the other factors constant. The coefficient of employment is statistically significant in influencing growth of employment at all the three levels of significance as can be seen from the p value. This indicates than growth of population is an important variable affecting the level of employment in a country.

Most developing countries Kenya included face a problem of shortage of the capital equipment. They also experience surplus labor who cannot be absorbed in the production of goods and services because of the scarce capital stock. An increase in the population is therefore likely to be problematic as the excess people are likely to join the surplus people willing to work but cannot find employment. This argument can be used to explain why there is a negative relationship between population growth and the level of employment.
CHAPTER FIVE

SUMMARY, CONCLUSION AND POLICY RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary and conclusions derived from the study findings. The policy implications and areas for further research are also suggested.

5.2 Summary and conclusion

The objective of the current study was to investigate how FDI affects the growth of the GDP and employment in Kenya. To achieve this objective, the study relied on secondary data from various sources such as the Kenya Bureau of Statistics (KNBS) and other reliable sources such as the world bank. To achieve the two objectives, the study went further to estimate regression equation that were developed based on economic theory on the relationship between the variables. Other variables were added in the regression equation as informed by economic theory.

There was a positive relationship between the growth of the national output and the growth of foreign direct investment. A one percent increase in growth of the foreign direct investment (FDI) increased the growth of the gross domestic product (GDP) by 0.4623 percent holding all the other factors constant. The coefficient of FDI was also statistically significant in changing the growth of the national output. The implication here is that, the FDI is an important variable in affecting the growth of domestic output.

The observation here was explained by various theories such as the classical theory of growth. According to the theory, capital stock is an important factor in influencing growth of national
output as it is required to work with the labor in the production process. FDI is an important source of capital as it supplements the domestic capital.

The study further found that, there was a positive relationship between growth of GDP and government expenditure. This was also explained by the Keynesian theory of growth that sees government as important in correcting market instabilities. Increase in government expenditure increases income, demand and therefore growth of the economy.

There was also a positive relationship between openness to trade and growth of the national output. Openness to trade in this case was considered as a reduction in barriers so as to encourage exports and the imports. This brings in competition in an economy and therefore the growth of the national product.

There was a positive relationship between private investment in the country and the growth of the national output. Private investments in the country add to the total capital stock that is available. This increases the number of people needed to work with the capital stock, amount produced and therefore economic growth.

There was a positive relationship between the growth of FDI and employment in the country. A one per cent change in the flow of FDI increased employment by 0.5017 percent holding all the other factors constant. The coefficient of FDI was also statistically significant in influencing employment growth at all the levels of significance. This indicated the importance of FDI as an important factor in raising the level of employment in a country.

The study further found a positive relationship between the inflation rate and growth of employment in the country. The explanation here was derived from the Philips curve that states that, there is a negative relationship between the inflation rate and unemployment. A rise in the
level of inflation would reduce unemployment. The other way to this is that, high levels of inflation would raise the level of employment.

5.3. Policy implications

There are various policies that can be drawn from the study findings on the relationship between FDI, economic growth and employment in Kenya. The results of the study indicated that, there was a positive relation on the three variables. Increase in the flow of FDI increased the growth of national output and employment in Kenya.

Since FDI is important in raising the level of employment, it is important for the government to continue providing a conducive environment that will encourage flow of foreign capital into the country. One way to do this is reduction in the cost of doing business in the country such as the cost of land.

Reducing the cost of doing business encourages relocation of many firms aiming to make high profits. Cost and availability of land are important factors that firms look up to when making investment decisions. Relocation would mean establishment of new businesses in the country to increase GDP and employment. Whatever other benefits may accrue from FDI it should not be expected to create employment opportunity in the country directly and FDI enhancement policies must be supplemented by the other measures to stimulate employment growth.

Policies such as opening up of the economy by engaging in more bilateral and multilateral trade agreements, improving the quality of infrastructure by way of channeling more resources to its development especially in marginalized regions of the country in the backdrop of the discovery of oil and water in Turkana, and demonstrating more political will in the fight against corruption
so as to instill more confidence on foreign investors. These policies may enhance the attraction of FDI thereby increasing economic growth and employment.

Government expenditure was also another factor that contributed to the growth of the national output. For this reason, the government should adopt policies that encourage higher government expenditure. This could include investment in infrastructure. This not only raises the national output in a country but also the level of employment.

The study also found that, domestic capital was an important factor in the growth of the national output. For this reason, the country should adopt various policies that encourage domestic investment. This could include subsidies to the domestic firms. This functions to reduce the cost of operations for such firms therefore producing competitive products for both the domestic and the foreign firms.

5.4 Conclusion

The study investigated the relationship between the flow of FDI, economic growth and employment in the country. Flow of FDI was found to be important in the growth of the two variables. For this reason, the study recommended adoption of policies that will encourage the flow of foreign capital.

Some of the policies that the study recommended include reduction in tax, subsidies for the domestic investors, provision of affordable land to the foreign investors and increase in government expenditures in various areas such as infrastructure.

The study has argued that, some of the policies reduce the cost of doing business and therefore encouraging relocation of foreign firms. This creates employment growth for the domestic...
residents. It also raises productivity of the domestic economy leading to the growth of the national output.

Policies on increase in government expenditure are important in opening the country for business in various ways. Part of the ways include reduction in the cost of transport that forms a major component of the total cost facing a firm. Increase in government expenditure is also important as it raises the level of employment.
REFERENCES


## Appendices

Null Hypothesis: FDI_NEW has a unit root  
Exogenous: Constant  
Lag Length: 7 (Automatic - based on SIC, maxlag=9)

<table>
<thead>
<tr>
<th></th>
<th>t-Statistic</th>
<th>Prob.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Augmented Dickey-Fuller test statistic</td>
<td>-4.088797</td>
<td>0.0037</td>
</tr>
<tr>
<td>Test critical values:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1% level</td>
<td>-3.679322</td>
<td></td>
</tr>
<tr>
<td>5% level</td>
<td>-2.967767</td>
<td></td>
</tr>
<tr>
<td>10% level</td>
<td>-2.622989</td>
<td></td>
</tr>
</tbody>
</table>


Null Hypothesis: GDP_NEW has a unit root  
Exogenous: Constant  
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

<table>
<thead>
<tr>
<th></th>
<th>t-Statistic</th>
<th>Prob.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Augmented Dickey-Fuller test statistic</td>
<td>-5.390649</td>
<td>0.0001</td>
</tr>
<tr>
<td>Test critical values:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1% level</td>
<td>-3.626784</td>
<td></td>
</tr>
<tr>
<td>5% level</td>
<td>-2.945842</td>
<td></td>
</tr>
<tr>
<td>10% level</td>
<td>-2.611531</td>
<td></td>
</tr>
</tbody>
</table>


Null Hypothesis: GOVERNMENT_EXPENDITURE has a unit root  
Exogenous: Constant  
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

<table>
<thead>
<tr>
<th></th>
<th>t-Statistic</th>
<th>Prob.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Augmented Dickey-Fuller test statistic</td>
<td>-4.612421</td>
<td>0.0007</td>
</tr>
<tr>
<td>Test critical values:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1% level</td>
<td>-3.626784</td>
<td></td>
</tr>
<tr>
<td>5% level</td>
<td>-2.945842</td>
<td></td>
</tr>
<tr>
<td>10% level</td>
<td>-2.611531</td>
<td></td>
</tr>
</tbody>
</table>


Null Hypothesis: OPENESS_IN_TRADE has a unit root  
Exogenous: Constant  
Lag Length: 0 (Automatic - based on SIC, maxlag=9)

<table>
<thead>
<tr>
<th></th>
<th>t-Statistic</th>
<th>Prob.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Augmented Dickey-Fuller test statistic</td>
<td>-5.944592</td>
<td>0.0000</td>
</tr>
<tr>
<td>Test critical values:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1% level</td>
<td>-3.626784</td>
<td></td>
</tr>
</tbody>
</table>
Null Hypothesis: PRIVATE_INVESTMENT has a unit root
Exogenous: Constant
Lag Length: 8 (Automatic - based on SIC, maxlag=9)

<table>
<thead>
<tr>
<th>Test Statistic</th>
<th>t-Statistic</th>
<th>Prob.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Augmented Dickey-Fuller test statistic</td>
<td>-3.930943</td>
<td>0.0056</td>
</tr>
</tbody>
</table>

Test critical values:

- 1% level: -3.689194
- 5% level: -2.971853
- 10% level: -2.625121