FOREIGN DIRECT INVESTMENT AND LABOUR PRODUCTIVITY GROWTH IN KENYA

KIPSANG JOSIAH KIPKURUI

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DECLARATION

This research paper is my original work and has not been presented for any award in any other university.

Signature…….Date…….

Kipsang Josiah Kipkurui

Reg. No: X50/63788/2011

This paper has been submitted for examination with our approval as university supervisors.

Signed…….Date……

Name: Dr. Martine Oleche

Signed…….Date……

Name: Prof D. M. Kulundu

DEDICATION

I dedicate this project report to my family and friends who have been a source of inspiration and support all through my life. To you all-you are truly cherished for without you, I would not have accomplished this feat.

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I wish to acknowledge the enormous contribution made by several individuals in the course of this research work. I wish to recognize the work done by my supervisors- Dr M. Oleche and Prof D. M. Kulundu for their constant and analytical criticisms, corrections, guidance and encouragement, all through I admired their dedication. Special thanks go to my parents who have always been my model, and my colleagues who were handy in my research work. Last but not least, to God almighty for giving me continued good health as I pursued my academic goals.

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ACRONYMS/ABBREVIATIONS

AGOA	African Growth and Opportunity Act
BLS	Bureau of Labour Statistics
ECM	Error Correction Model
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GMMS	Generalized method of Moments
IFS	International Financial Statistics
ILO	International Labour Organisation
IMF	International Monetary Fund
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KNBS	Kenya National Bureau of Statistics
MNC's	Multinational Corporations
MNE's	Multinational Enterprises
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Squares
TOT	Terms of Trade
UNCTAD	United Nations Conference on Trade and Development
US	United States
USD	United States Dollar

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the study

Developing countries especially in Africa have increasingly resorted to seeking foreign capital through foreign entities investing in their economies. By allowing investment in their economies, the developing countries can develop economically through development of infrastructure, improved income growth, improved employment and poverty reduction (Ofosu and Waldkirch, 2010).

Developing countries have continually alluded to the importance of attracting FDI into their economies. This has been achieved through continuous formulation of policies so as to ensure foreign investments is attracted and retained within the economy, (Aitken and Harrison, 1999).

UNCTAD defines foreign direct investment as the investment done by foreign citizens in a foreign economy with an aim of satisfying the demands of that economy or for furtherance of export trade (UNCTAD, 2005). Investments done with sole intention of consolidating control functions for a long period in firms within an economy other than the investor's own economy (IMF, 1993).

Sustainable economic growth is achieved through investment. Developing countries experience low levels of national savings leading to a big difference between the required rate of investment and current existing rate of savings. To realize vision 2030 blueprint, the growth rate of Kenya has to be enhanced through increased investments. Investment growth is normally achieved through high rate of savings of which the current domestic saving level

in Kenya is low. To bridge the gap so as to achieve sustainable development, foreign direct investment is a good alternative as a source of capital.

Foreign direct investment (FDI) is a major and paramount source of capital formation, technical know-how, trade development and employment creation for developing countries. In its quest to achieve vision 2030, Kenya has had to realign its investment and taxation policies enable it attract foreign direct investments and retains the existing foreign direct investments.

For a country to realise economic growth and development, it is parsmount that it embraces attraction of FDI as one of its strategies (Todaro and Smith 2003). FDI plays a role in reducing the divide between investment and domestic savings. It increases tax revenues for the government, helps in enhancing managerial skills and improvement of technology in the recepient country. It is paramount in ensuring that vicious cycle of poverty and underdevelopment is reduced in the developing countries.

From the foregoing discussion it is evident that a great role is played by FDI in enhancing the economic growth of a country. In this study, I seek to investigate the nature of impact that FDI has on labour productivity for Kenya. Through this study, I will be able to highlight the relevant policies to be undertaken by Kenya so as to ensure there is continuous attraction and utilization of FDI with an aim of enhancing labour productivity.

1.2 Overview of Foreign Direct Investment Inflows in Kenya

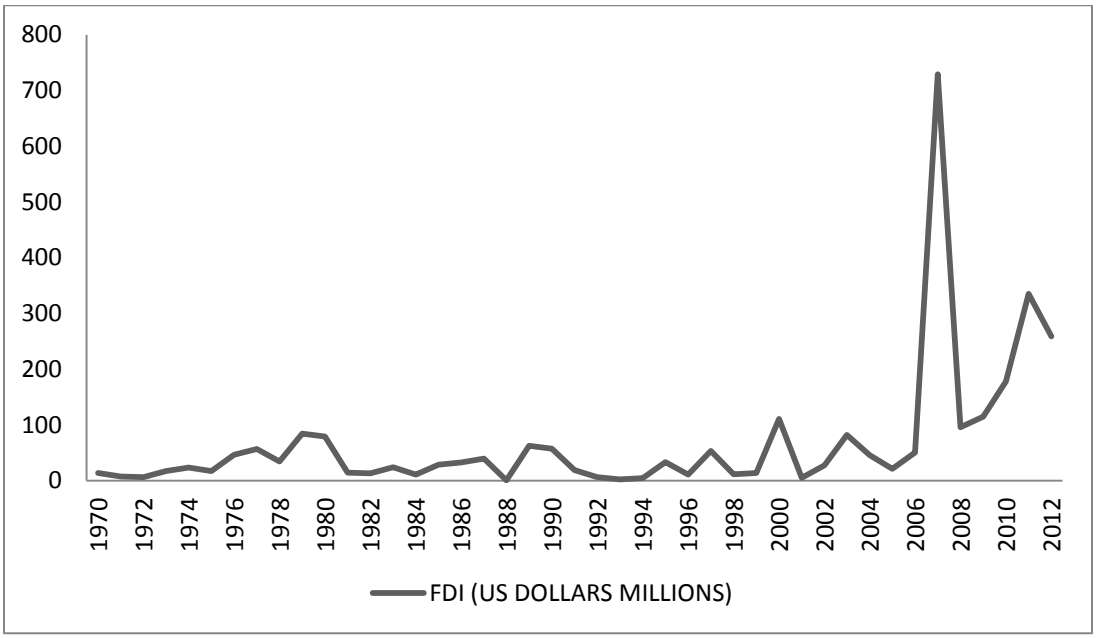
A report by UNCTAD postulates that in the 1970's Kenya was in the lead in terms of attracting foreign investors. Development levels during the 1970s were great. Presence of

infrastructure development and liberalization of trade was the main cause of improved development. Kenya has since then ceded the leadership on FDI attraction.

During the period 1980 to 1990, the foreign direct investments flow into the country deteriorated. This deterioration can be attributed to the sluggish and low growth of the economy, rising problems in the field of public governance, poor infrastructure, high cost of borrowing, inconsistency in economic policies, lack of investor confidence in the reforms and competition. An average of USD 22 million in FDI inflows was received in this period. Though Kenya was the lead attractor of FDI in comparison to other East African countries the relative level of inflows by developing countries standards was still very low.

During the period the period 1990 – 2000, the other Eastern African countries started economic reforms thus enhancing their attraction of FDI inflows. Due to good trading practices and good policies, other Eastern Africa countries overtook Kenya in FDI attraction. There was no economic growth hence the stagnation resulted. For the duration 1996-2003, USD 39 million in investment inflows was received. During this period, a lot of investors pulled out of Kenya due to its poor economic performance that was associated with massive corruption that was thriving in Kenya. In its issue of trade and investment report UNCTAD cited high operation cost being one of the prominent driving force of low FDI inflows to the country. Fig 1 Trend of Foreign Direct Investment inflow in Kenya 1970-2011.

Fig 1: Trend of Foreign Direct Investment inflow in Kenya 1970-2011



Source; UNCTAD 2013

Recent trends in FDI inflows can be traced to the horticulture, floriculture, garments and tourism industries. Flows in the horticulture and floriculture have been attributed to favorable climatic conditions and development of good infrastructure while for the garment is due to preferential access to US market under AGOA.

For the years 2006 and 2007, the net FDI inflows increased more than fourteen fold from USD 51 million in 2006 to USD 729 million in 2007 according to the world banks world development indicators. In the year 2008, there was a sharp drop in FDI inflows to USD 96 million while in 2009, it increased to USD 116 million and USD 186 million in 2010 (KNBS,2013).

Compared to other developing countries, the ability of Kenya to attract FDI is limited. During the period 2010-2011, the FDI Kenya attracted was equivalent to 0.8% of GDP in

2010-2011. Kenya has been receiving less long term capital inflows than any other Eastern Africa country (KNBS, 2013).

1.3 Foreign Direct Investment and employment

All over the world, employment has always been the priority of all governments' agenda. Economies attract foreign direct investment so as to assist in employment creation and enhancing consumerism through increased salaries. FDI flows into the country influences the employment levels within the country.

Job creation and increased employment opportunities for new workforce for new manufucturing firms is a potential of FDI thus improving the aggregate domestic employment by creation of jobs, increased wage levels, skill transfer and income distribution (Mickiewicz, Radosevic and Varblane (2000)).

Direct effects of FDI also leads to some indirect effects also referred to as spillover effects. The spillover effect can be in the form of transfer of skilled labour from foreignly owned companies to domestically owned companies, increment in income which in turn can create employment through higher levels of consumption savings and investments. Nevertheless, instances of FDI crowding out inefficient domestic firms arise. Local firms face stiff competition from foreign firms and as a way to stay afloat, they resort to scaling down employee numbers so as to save on labour costs. This action lowers the employment levels in an economy.

Theoretically, the level of employment within an economy is influenced to a certain extent by the magnitude of FDI inflows.

Below are the effects of the impact of Foreign Direct Investment on job creation:

- Creation of employment from introduction of new enhanced production capacity and new jobs.
- Crowding out of employment: increased competition due to FDI inflows leads to job cuts in the local firms so as to ensure they remain afloat.
- Employees shift from one economic sector to a different economic sector.
- Loss of employment i.e. the non-efficient workers lose their jobs.

Positive impact of FDI and negative impacts of FDI on labour market are shown in the table below.

Table 1: Effect of inward Foreign Direct Investment.

	DIRECT		INDIRECT	
	Positive	Negative	Positive	Negative
Quantity	Adds to net capital and creates jobs in expanding industries	Acquisitions may result in rationalization and job losses	Create jobs through forward and backward linkages and multiplier effects in the economy.	Reliance on imports or displacement of existing firms results in job losses
Quality	Pays higher wages and has higher productivity	Introduces practices in e.g. hiring and promotion that are considered undesirable	Spillover of "best practice" work organization to domestic firms	Erodes wage levels as domestic firms try to compete.
Location	Adds new and perhaps better jobs in areas with high unemployment.	Crowds already congested urban areas and worsens regional imbalances	Encourages migration of supplier forms to areas with available labour supply	Displaces local producers, adding to regional unemployment, if foreign affiliates substitute for local production or rely on imports.

Source: UNCTAD (1994) Table (IV)

1.4 Policies to enhance the attraction of Foreign Direct Investment

Kenya as a destination that attracts foreign direct investment has been poor due to infrastructural bottlenecks in the energy and roads. Government is currently engaged in massive funding of developmental projects so as to ensure that infrastructures are adequately developed. Good infrastructure will enable investors to earn returns on their investment thus boosting Kenya's standing in terms of foreign investor attraction (World Bank Group, MIGA, 2007).

Diverse regulatory frameworks in the country have been a source of impediment for FDI inflows. Presence of many licenses and regulations in several sectors with overlapping mandates is an impediment to investment. Firms had to spend more resources and time and terms of compliance. Kenyan government has embarked in reduction of the licensing procedures with the aim of reducing the number of licenses required, and conditionality's for foreign investors to enter the economy. Ken-invest was created in 2005 to facilitate investment in Kenya by foreigners (Kenvest, 2009).

Kenyan government adopted the public-private partnership concept. To realize this concept, it was necessary that a commissioned tasked with privatization of state companies be formed.

1.5 Statement of the problem

Debates centering on growth and productivity within an economy have been there for a long time among researchers. One of the major factors for economic growth and factor productivity is the level of inflows of foreign investments. One of the motives of a country in attracting FDI inflows and MNC's to invest is to enhance the levels of productivity and competitiveness of its economy.

Economists are in consesus regarding FDI being no panacea. Economists agree that there is need to marshall policies aimed at attracting FDI due to its positive effects in enhancing productivity of labour in developing countries. This can only arise as long as policies are in place to have the positive effects realized.We can also say that the impact that FDI has on labor productivity and other developmental goals in an economy depends principally on other factors such as; policies and governance framework in the host country, nature and quality of investment, nature of regulatory framework and many others (Mayne1997).

Widening access to employment especially to employment that has a greater impact on productivity is the key motive of attracting FDIdeveloping countries face high levels of unemployment which is mainly attributed to inadequate investment levels by both the foreign entities and domestic entities (Saravanamutto,1999)

Measuring the impact of foreign investments on labour productivity growth is difficult. Most of the studies in this field assume that existence of huge foreign direct investment projects will increase labor productivity and thus result in faster economic growth and rapid reduction of poverty. This study seeks to find out whether the above postulate holds i.e. is there in reality a relationship between economic growth, creation of employment, labour productivity enhancement and poverty reduction. I seek to find out whether a large amount of FDI inflow is labor productive.

1.6 Research Objectives

Generally this study seeks to find out the nature of impact that FDI inflow has on labour productivity in Kenya. Specifically, the objectives of this study are:

1) To examine the FDI and labour productivity profile in Kenya.
2) To investigate the nature of empirical relationship existing between the inflows of FDI and labour productivity growth in Kenya.

1.7 Significance of the study

For a country to achieve long – term growth and poverty eradication, it is paramount that a country invests in attraction of FDI. To do this, the government has got to improve the investment climate under which private sector will develop enterprises and also invest in infrastructure hence attracting FDI due to reduced operational costs (Buckley et al, 2007).

FDI is considered to be the best way of longrun funding of development since it has a long perspective and is more likely to be used productively i.e. has got strong effects on economic growth than just mere provision of capital (Balasubramanyam, 1996).

This study's main contribution will be on the knowledge base of the impact of FDI in enhancing labor productivity growth in Kenya. Through the findings of this study, we can conclude whether the employment generated due to FDI inflows impacted in any way on the labour productivity growth in Kenya. The findings will be of great importance to policy makers when streamlining policies on FDI to realize labour productivity growth (Kioko, 2012).

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Labor productivity

The technical relationship that exists in the production process among the input from workers and outputs (Mahmood, 2006). Labor productivity is an indicator of technical efficiency and thus it depicts the varying pattern of factors of production use. For a country to achieve economic growth, a growth in its labour productivity should be positive and increasing. Economic growth is also achieved through increasing the output of goods and services and not in increasing the labour time of production. It does this by ensuring that it adopts efficient production techniques. The US economy has improved because of undertaking this concept (BLS, 2008).

Developing countries suffer from inadequate human capital supply. Human capital is an important resource for the realization of economic growth. In view of this, economists worldwide appreciate the role played by foreign firms in developing human capital within developing economies. When they invest in the developing economies, they end up channeling developmental resources in the form of capital and other intangible assets (Aitken and Harrison 1999). This leads to increment in the productivity of workers within the economy due to the trainings they undergo and the work experience they get while working for the multinational corporations. As the workers later on move away from the multinational corporations so as to work in the domestic firms, they carry along with them a great wealth of knowledge acquired from the foreign enterprises. (Cuyvers et al, 2008).

In the developing economies, most of the domestic industries are not competitive in terms of prices and quality when it comes to the international market. The quality of their goods is below par and therefore this result in them fetching lower prices or rejection at the foreign markets. The manufacturing industries in the developing economies at times contribute much less than the agricultural industry the economy. The supposedly reason for this poor performance is the low productivity of factors of production (Gorg and Strobl, 2001; Mahmood, 2008)

It has also been proved empirically that the labour-augmenting effect of the inward FDI exceeds the capital-augmenting effect.

2.2 Theoretical literature

Theoretically, the effects of FDI inflows in general is a sum total of its direct effects and indirect effects that are attributed to the inflows. A direct effect of FDI is the impact that FDI has on firms that receive/benefit from it. Indirect effects are the spillovers that are resultant due to domestic firms associating with foreign firms.

When the output produced by MNE's increases more than that of local firms, direct productivity occurs within the economy. Success of operation of MNE's is dependent on the monopolistic tendencies which allow them to overcome high costs abroad (Hymer, 1976)

MNE's might have higher productivity than domestic enterprises due to their superior and advanced technological know-how, accessibility to the international network and highly developed and effective management structure (Girma et.al. 2001). Productivity levels are also increased due to presence of skilled employees and availability of technologically advanced machinery and equipment.

In the Brazilian economy, the direct productivity benefits are positive. This has been attributed solely to the presence of high number of foreign firms having high levels of labour productivity.

Indirect benefits of FDI occur when there is spillover of knowledge and technology to indigenous enterprises thus leading to increase in their productivity and competitiveness. Spillover effects can be decomposed into four categories;

- Demonstration-imitation effects occur when local firms interact with foreign firms leading to adoption of similar techniques utilised by foreign firms by the local firms.
- Competition effect. The presence of foreign firms influences indigenous firms to perform so as to ensure they retain their market share.
- Foreign linkage effect is a spillover effect that is as a result of foreign enterprises entering into transactions/trading with local enterprises
- Training effect arises through training of locals by the foreign companies thus improving their technical know-how.

Foreign investing firms are motivated by the high returns that will accrue to its investment due to tax concessions given to it and presence of market. At the same time the host economy's government is motivated to attract FDI so that its economy can improve through increased revenues from tax, increased employment levels and good terms of trade.

The interest of foreign investors in a domestic economy thrives due to the foreign firms possessing specific advantages in form of advanced technologies, special managerial skills, product design and branding, distribution network and marketing and other linkages in the value addition chain (Vahter, 2004)

Local consumers enjoy better welfare due to presence of readily available high quality products from foreign firms. This is achieved through competitive pricing of the products available within the economy and also the presence of goods of high quality. (Cuyvers ET, al 2008). Local firms may suffer negative effects that emanates from the product market; foreign firms may end up crowding out local producers due to huge difference in the technology employed by the two leading to reduction of sales for the indigenous firms hence forcing the indigenous firm to exit the market.

The theory of factor market effects on FDI predicts that foreign firms' investments will continue until the point where the factor prices are equalized across countries (Barba and Venables, 2005)

The spillover that emanates from the foreign investments benefits the hosts' country immensely (Ramirez, 2006). Gorg and Greenway (2004) are categorical in asserting that indirect externalities from multinational corporations are the only way through which benefits accrue to domestic firms. Vahter (2004) states that multinational corporations have better technological advantages and this makes them to be more competitive than the domestic firms.

Knowledge and technological spillovers from multinational corporations to domestic firms occur through several channels.

Spillover through imitation effects postulates that during the operation of the foreign companies in an economy, the technology that they use is exposed to the local domestic firms. The domestic firms therefore tend to strive to keep abreast with the techniques used by the foreign firms through imitation. Aitken and Harrison (1999) stated that at times through

observation of foreign firms by domestic firms, the productivity of the later increases. Gorg and Greenway have indicated also that when the multinational corporations undertake an upgrade of their technology spillover occurs and the local firms imitate the technology for their benefit.

Labor turnover from foreign enterprises to domestic companies is another way of technology transfer. At times the multinational corporation engages in direct training of personnel of the local enterprises. Previously trained employees of foreign firms may change their employment and move to work with the domestic firms. As they move, they carry along with them specific know how, managerial knowledge and expertise (Cuyvers et al 2008). Another form of spillover occurs when there is demand of intermediate goods to be supplied by the locally owned firms to foreign owned firms.

The host economy and the foreign investing firm benefits from their mutual association. Local firms in the host economy supply high quality raw materials to the foreign firms who in turn produce high quality goods. The foreign firms enable the local firms to embrace technology and thus enabling them to be competitive internationally thus boosting the country's productivity (Cuyvers et al, 2008). To ensure that the local firms deliver quality inputs, the multinational corporations might engage in provision of technical assistance or transfer of technological know-how to the domestic firms. By supplying high standard output to domestic companies, foreign companies enhance productivity of the local companies, i.e. forward linkage.

Presences of foreign companies negatively affect the performance of domestic firms. This occurs due to local firms being unable to compete with the multinational corporations in terms of inputs and output materials.

Overall in the theoretical literature we conclude that the benefits that accrue for inward FDI outweighs the cost of foreign presence.

2.3 Empirical Literature

Borensztein et al (1998) postulated that for a country to have enhanced economic growth there should be a level of interaction between foreign direct investment and Human capital. FDI complements human capital. Foreign direct investment and domestic savings are both complements and substitutes to each other. The growth of the economy due to FDI is thus determined by the extent of complementarity or substitution between the two.

Aitken and Harrison (1999) findings shows two different impact types of FDI on productivity increase. Effects that arise from technology transfer and spillover is what is called positive effects. Negative or competitive effect is determined by increasing competition from foreign firms. Sharing of the market leads to reduction of gross production of local enterprises.

De Mello (1999) studied the effects and impact that FDI has on the levels of productivity growth in 32 countries. For the sample under study, he found out that for the non-OECD countries, the level of negative impact on total factor productivity was higher than positive impact in the OECD countries. Findings were that there was a negative average growth. FDI can also be termed as one that fosters producer capital accumulation.

Golejewska (2009) undertook a study of Poland's economy on the impact that FDI has on laour productivity. The results of his study showed that there was no presence of spillover for

the manufacturing sector but for other sectors, there were significant contagion effects, both positive and negative.

Djankov, Hoekman (1999) undertook a study in Czech Republic of which their result on the impacts was variable. They found out that the biggest beneficiaries of the economy were foreign companies and joint venture companies. The domestic companies that do not have any foreign element in them though active end up suffering significant operational costs. The main cause of this is attributed to competition, inability to adjust to current technology used by foreign firms. This therefore leads to a drop in labour productivity.

Murkhejee (2007) using the Leontief production function was able to identify the contradicting impact of FDI. He calculated the maximum equilibrium output that foreign companies are able to produce under two different motives that lead to foreign presence i.e. presence of readily available cheap labour and cost saving that emanates from transport. Findings from his research showed that a country's welfare is increased in the second implantation type which is attributed to productivity spillover while there is no positive advantage in the first.

Baned and Pain (1997) and Hubert and Pain (2000) found out that there is no enhanced productivity in the host country due to hiring of foreign experts only in key positions within the foreign company. Domestic employees are utilized in the low cadre tasks that don't require high qualifications and developed skills. This therefore results in the domestic employees lacking the technical know-how that is brought by foreign companies.

Bloomstrom and Persson (1983) researched on the effect of foreign investments on labour productivity using industry level data. Domestic labour productivity is influenced positively

by the total share of foreign employment in the whole industry. It is key that the local employees have access to the core activities of foreign firms so as to have an impact in improving the labour productivity. Since the foreign firms enjoy specific advantages over the local firms within the economy in terms of the mode of production and efficient distribution networks, the workers of from host country benefit through access of these advantages from inside the company and they can spill it over to the domestic company.

Figini and Gorg (1999) estimated the impact multinational companies have on the wages and the wage inequality emanating from their presence. They found out that the wage gap increases as FDI increases. Increment of labour productivity of domestic labour force is attributed to high demand for skilled labour and technological spillover.

Driffield and Taylor (2000) identified a function that can be used to determine the size of productivity advantage that explains the effect that FDI has on the productivity of skilled employees within a domestic firm. He demonstrated that the ratio of productivity between foreign firms and local firms determines the difference of impact of FDI between industries.

Balasubramaya et al (1996) reported appositive relationship between FDI and human capital. In their research, they found out significantly that for an export-promoting country, FDI is more important for its economic growth than for an import – substituting countries. He concluded that the impact that FDI has, varies across countries. We also conclude that trade policy has an effect on how FDI will impact economic growth.

Carkovic and Levine (2002) used panel data to analyze the relationship between FDI and economic growth. The study was undertaken using ordinary least square (OLS) and

Generalized method of Moments (GMMS). There findings showed presence of no significant connection between FDI and economic growth.

Gorg and Strobl (2005) have examined empirically the contributions of worker mobility to productivity spillover in Ghana by using panel data of Ghanaian manufacturing firms. Their findings show that owners of local firms who had worked in foreign firms previously, made their firms to be more productive than those owned by locals with no similar work experience. This argument was also deduced through a study undertaken by Balsvik (2006) who analyzed productivity spillover through worker mobility. The results showed that workers who had previously worked in foreign enterprises contribute 20-25% more to productivity.

Feenstra and Hanson (1997) developed a model to enable them study the level of growth of FDI in relation to the skilled labour in Mexico. From the ensuing results of the model, the capital that flowed from the north to the south increased the relative wage of skilled labour in the two regions. This model was applied to Mexico for the period 1975-1988 and they found out presence of positive correlation between FDI and relative demand for skilled labour which accounted for a huge portion of the increment in the skilled labour share of total wages. The findings showed that for areas that experienced more than 50% increments in wages were those areas with high concentration of FDI.

Kalpinsky (1979) studied the effects that arise from MNE's employing in Kenya. He regressed employment against different foreign ownership groupings which gave a total R^2 of 0.18, average employment was found to be significantly higher than in wholly owned firms. We note that by focusing specifically on the employment effects of MNE's , the overall level

of foreign owned companies are more capital intensive and thus directly relates to high productivity and higher income thus affecting employment income.

Chowdhury and Maurotas (2006) analysed the relationship between foreign direct investment and economic growth by use of time series data. Employing Toda & Yamamoto test, they concluded that the cause of FDI is GDP in Chile case and not the other way round. They also found out that GDP and FDI had no bi-directional causality for Thailand and Malaysia.

2.4 Overview of Literature.

FDI impact on labour productivity varies across economies. Economic development stage greatly determines the extent and scope of the variations. An economy that is well advanced in terms of development gets much benefit from FDI.

Foreign investors engage in developing new technologies which leads to lowering production of production costs, high and improved productivity and high quality of goods. The domestic companies therefore face a huge task of matching to the performance of the foreign firms. By not being at par with the foreign firm's technology, the domestic firms are faced with the risk of running into losses due to high production costs.

Even though the local firms face stiff competition from presence of foreign firms, the government should encourage foreign investors by formulating policies that will ensure adequate balance is in place for the two entities to operate. Local companies are encouraged to acquaint themselves with the international levels of current technological trends so as to be more competitive. This therefore leads to more productivity in terms of labour.

In economics of growth and development, FDI is recognized as a major determinant for prosperity. A country that assimilates foreign technical know-how from the FDI increases its

labour productivity. Through increased labour productivity, there is sustainable economic growth within the country.

It is therefore of utmost importance that Kenya as a country formulates policies that will ensure the foreign investors are attracted into the economy. The local companies within the country should endeavor to seek technical know-how from the foreign companies. Partnering of local firms and foreign firms through joint venture agreements is encouraged. This is so as to advance the spillover of knowledge to the locals thus enhancing labour productivity and growth.

CHAPTER THREE

3.0 Methodology

3.1 Theoretical Model

Productivity studies refer explicitly to expansion of stock knowledge through spillovers generated by FDI. Theoretically FDI has a positive correlation with economic growth and this relationship is positive due to use of improved technology to enhance productivity so as to promote growth Lim, 2001; Ayanawale, 2007.

To study productivity, the model to be used assumes that labour, capital and technology are the primary sources of growth. I follow in the footsteps of Bende-Nabende et al, 2002, 2003, Li and Liu 2005, who used the Cobb-Douglas production function;

$$\mathrm{Q} = \mathrm{A}L^{\beta_1}K^{\beta_2} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(1)}$$

The impact that FDI has on labour productivity is what motivates this study. It is therefore paramount that capital (K) in the above production function is decomposed into two components; domestic capital (K_d) and Foreign direct investment (FDI).

$$K = K_d + FDI \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(2)}$$

Therefore the general production function is given as;

$$Q = A_t K_t^{\beta_1} FDI_t^{\beta_2} L_t^{\beta_3} G_t^{\beta_4} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(3)}$$

Where: Q is the real output.

K Denotes domestic private capital.

FDI - is the foreign direct investment also known as foreign owned capital.

L - Is the labour

β^i - Represent the shares of domestic labour, private capital, foreign capital and government public investment.

A - Represents technology/production efficiency.

G - Is the public investment.

We further assume that $\beta_1, \beta_2, \beta_3 \beta_4$are less than one so that there is diminishing returns to labour and capital inputs.

3.2 Model Specification.

The above equation is further manipulated using logarithms and differentiated to obtain a general dynamic production function:

$y_t = \propto_t + \beta_1 k_t + \beta_2 fdi_t + \beta_3 g_t + \beta_4 l_t + \varepsilon$ ..... (4)

Proxies are normally used because of poor quality of the existing data. Researchers therefore use proxies to overcome this shortfall. It is imperative that we note the effect of using proxies in a model is the imposition of unduly restrictive assumptions some of which are unrealistic. This results in both mi-specified relationship and significant errors.

Different measures are used in productivity measurement. Most economic research in this field use real GDP to measure productivity. Ramirez (2006) used real GDP as a measure of labour productivity in his research. This research follows in the same steps of Ramirez and thus uses GDP as a proxy for labour productivity.

Re-specifying equation (4) above so as to accommodate other factors that influence labour productivity yields the following estimable equation;

$$q_t = \propto_t + \beta_1 k_t + \beta_2 fdi_t + \beta_3 g_t + \beta_4 l_t + \beta_5 TOT + \varepsilon \quad \text{..... (5)}$$

Where;

Lower case letters denotes natural logarithms.

q_t - represents quantity of real GDP (a proxy of Labour productivity)

l_t - denotes the natural log of labour force.

k_t - denotes quantity of private capital stock in the economy

fdi_t - denotes amount of stock of FDI capital in the economy

g_t - denotes the quantity of stock of public capital

TOT - changes in the terms of trade. An increase in TOT is an improvement.

For the above model, the coefficient represents the change in GDP(percentage change) with respect to labour productivity.

How to obtain the variables:

l - Labour force participation rate the proportion of a country's working age population that engages actively in the labour market.

$$l = \frac{labour\ force}{working\ age\ population} = \frac{Employed + Unemployed}{working\ age\ population} \quad \text{.....(6)}$$

k_t Stock of private capital is a ratio obtained by dividing the total private investments in the economy by the GDP of economy.

$$k_t = \frac{private\ capital\ stock}{GDP} \quad \text{(7)}$$

g_t Stock of public capital is a ratio denoting public investment spending in the economy for the infrastructural projects as a proportion of GDP.

$$g_t = \frac{Public\ capital\ stock}{GDP} \quad \text{(8)}$$

fdi_t Stock of FDI capital is the ratio between FDI and GDP.

$$fdi_t = \frac{FDI}{Capita} \div \frac{GDP}{Capita} \quad \text{(9)}$$

TOT this is the terms of trade of a country. It is a ratio obtained by dividing the total exports of an economy by the total imports.

$$TOT = \frac{P_x}{P_m} \quad \text{(10)}$$

3.3 Data Types and Sources.

This study employs the use of secondary data in the analysis. The data will be the data for Kenya for the period 1980 to 2012 and it will be time series in nature. I will obtain the data from International Monetary Fund's (IMF) International Financial Statistics (IFS), world development indicators, world investment directory published by UN, official publications of economic surveys by Government of Kenya through Kenya National Bureau of Statistics (KNBS). Other data is also obtained from Kenya Institute for Public Policy Research and Analysis (KIPPRA) and International Labour Organisation (ILO).

3.4 Priori Expectations

The variables selected for this model have varying relationship with the real GDP. Real gross domestic product has been used as a measure of labour productivity in the same case as for the study undertaken in Mexico a developing country, Ramirez (2000). These relationships might either be positive and negative or both.

FDI and private capital stock affect real GDP in the same way while FDI and private capital stock oppose each other. This is due to FDI having a nature of suppressing domestic investment, Borensztein, et al, 1998.

Public capital stock is included in the model because the marginal productivity for both private domestic capital and foreign capital is enhanced due to investment in infrastructure by the government. The economy is thus stimulated leading to economic growth hence improving labour productivity.

β_1 is expected to be positive while β_2 and β_3 can be either positive or negative. This is because they are dependent on whether the changes in stock of foreign and public capital will complement or substitute for private capital formulation.

Labour productivity is herein defined as the difference of percentage change in GDP and rate of growth of the labour force. We expect the sign of β_4 to be negative.

β_5 expected sign is positive due to the effect of an improved terms of trade to an open economy is positive stimulation.

3.5 Estimation Method

Time series modeling will be used to model labour productivity and FDI in this study. Time series modeling involves several procedures to be done in order to determine the regression model to be estimated. We first determine the stationarity of the time series.

3.5.1Stationarity test

Variables in a model need to be tested on the order of integration. This is done using unit root test. The order of integration needs to be known so as to know the nature of the variables if they are cointegrated and non-stationary. The Augmented Dickey-Fuller test comes in handy ,for this case. The reason behind application of the unit root test is to avoid econometric problems of spurious regression as well as the inconsistency problem. Model estimates whose variables have the same order of integration are said to be BLUE estimates. A model with non-BLUE estimates leads to a spurious regression and inconsistency problems. The null hypothesis will be "presence of a unit root" while the alternative hypothesis "absence of a unit root". Non – stationary variables will therefore require to be differenced to make them stationary prior to carrying out the OLS regression.

3.5.2 Cointegration test

Granger, C.W (1983) showed that for two variables to be termed as cointegrated they should have an error correction representation (ECM). Two time series variables are cointegrated if:

- They are integrated of the same order, I(d)
- There exists a linear combination of the two variables that is stationary (I (0)).

Cointegration test has to be done so as to investigate whether there is a long run relationship between the variables. In this case we shall apply the Johansen cointegration test. Presence of

cointegration test will imply the existence of a long run relationship and thus there is need to run the error correction model so as to adjust correctly the short-run disequilibrium.

The error correction model (ECM) is obtained by lagging the residuals of the cointegration equation. For this study the EC model is obtained from equation (5) above.

The EC model is;

$$\Delta q_t = \propto_t + \beta_1 \Delta k_{t-1} + \beta_2 \Delta f di_{t-1} + \beta_3 \Delta g_{t-1} + \beta_4 \Delta l_{t-1} + \delta EC_{t-1} + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots (6)$$

Combining the short run properties that exists in an economic relationship in first difference yields an EC model. The coefficient of the changes for the variables represents short-run elasticity while the EC term coefficient is a representation of the speed with which it adjusts back to the long run relationship between variables.

CHAPTER FOUR

4.0 EMPIRICAL RESULTS AND DISCUSSION

4.1 Introduction

This chapter will present the results obtained from the empirical estimates and all tests conducted will be included as well as their interpretation.

4.2 Descriptive Statistics

In order to ensure that the data utilized in the study exhibits the right time series properties, a number of statistical tests were conducted before the data was subjected to regression namely; stationarity test, normality test as well as cointegration tests.

The first test conducted was the test to check normality so as to ensure that the series used is normally distributed with no outliers. This study adopted Jarque-Bera (Jarque, 1980) test statistic to test whether the series used in this analysis normally distributed. Through this statistic the difference of the skewness from the normal distribution and the difference of the kurtosis from the normal distribution are measured. Skewness is the tilt of distribution and for a normally distributed series it ranges between -2 and +2. Kurtosis measures the flatness of the series and it ranges between -3 and +3 for a normally distributed series.

Table 4.1: A Summary of Descriptive Statistics for all the Variables

	Gross Domestic Product	Foreign Direct Investment	Public capital stock	Private capital stock	Labour force participation rate	Terms of trade
Mean	1.336828	0.005712	0.053194	133.9936	71.68480	97.08835
Median	9.046320	0.004029	0.045579	104.0256	71.70000	103.7444
Maximum	3.3621	0.026767	0.097355	315.2814	79.07896	118.5952
Minimum	5.7518	0.00004723	0.024928	55.89150	64.90000	66.23565
Std. Dev.	8.510893	0.006144	0.017614	83.62329	4.978335	17.34044
Skewness	1.263043	2.267881	0.956608	1.352870	0.032053	-0.450341
Kurtosis	3.311981	8.009208	3.172012	3.128922	1.446036	1.624842
Jarque-Bera	8.907859	62.78977	5.073729	10.08927	3.326006	3.715643
Probability	0.011633	0.000000	0.079114	0.006444	0.189569	0.156012
Sum	4.4115	0.188482	1.755389	4421.789	2365.598	3203.915
Sum Sq. Dev.	2.321036	0.001208	0.009928	223771.4	793.0824	9622.113
Observations	33	33	33	33	33	33

Source: Author's computation from E-Views

The findings as presented in the table above show that the output has the mean value of KShs 1.336828 billion while Foreign Direct Investment has lowest mean value of 0.005712. In terms of the standard deviation from the mean, total output is the most volatile followed by capital with foreign direct investments displaying the lowest volatility. The table above shows all variables being positively skewed except the terms of trade hence right tailed implying that their distributions when plotted have the tail prolonged to the right from the mean value. In terms of distribution of the variables as measured by the kurtosis values, Gross Domestic Product, public capital stock and the private capital stock are normally distributed as indicated by their kurtosis values of 3.3119, 3.1720 and 3.1289 respectively. For a normal distribution the kurtosis statistic is 3.0. Therefore, only the foreign direct investment, terms of trade and the labour force participation rate are non – normally distributed. Distribution of the error term is measured by the Jarque-Bera statistic. An error term is normally distributed if the probability of the Jarque – Bera statistic is less than 5 percent significance level. We therefore accept the null hypothesis

otherwise it is rejected. From the descriptive statistics, we find that gross domestic product, private capital stock and foreign direct investment are normally distributed while the public capital stock, terms of trade and labour force participation rate are non – normally distributed.

4.3 Correlation

Correlation measures the strength of the relationship between two variables. If two variables move together, they are said to be correlated. Correlation matrix is based on the correlation coefficient ranging between -1 and +1. A correlation coefficient of -1implies a perfect negative linear relationship between variables, +1 shows presence of a perfect positive linear relationship, and 0 means absence of linear relationship between variables. Multicollinearity among the variables is said to occur if the correlation coefficient between two variables is above 0.8.

Table 4.2 reports the pair wise correlation coefficient of all variables of the model.

Table 4.2: Pair-wise Pearson coefficient of correlation

	GDP	FDI	Public capital stock	Private capital stock	Labour force participation rate	Terms of trade
GDP	1	0.1154	-0.2731	0.7418	-0.7884	0.6245
FDI	0.1154	1	0.0038	0.1319	-0.0229	0.1444
Public capital stock	-0.2731	0.0038	1	-0.2609	0.2423	-0.4195
Private capital stock	0.7418	0.1319	-0.2609	1	-0.6383	0.4609
Labour force participation rate	-0.7884	-0.2609	0.2423	-0.6383	1	-0.6982
Terms of trade	0.6245	0.1444	-0.4195	0.4609	-0.6982	1

Source: Author's computation from E-Views

From the results, non – of the variables is likely to be seriously correlated to another. With the correlation coefficients being below 0. 80 or 80 per cent then we rule out any possibilities of high correlation among the variables which could culminate into multicollinearity regression.

4.4 The Unit Root Test

Stationarity of a time series data is determined using the unit root test. It is conducted to prepare the time series variables for statistical analysis and to ensure that variables to be used in the analysis are integrated of the same order. A unit root test is a statistical test for the proposition that in the autoregressive statistical model of the time series data, the Null hypothesis of this test is that $\rho=0$, where $\rho=\alpha-1$ and $\alpha=1$ in the equation $\Delta y = \rho y_{t-1}+v_t$, where v_t is a random term the alternative hypothesis is that ρ is less than zero in the equation.

If $\rho=0$ or $\alpha=1$, then there is a unit root and the variable under consideration is non-stationary or integrated and if the null hypothesis is rejected then the time series variable is stationary. A stationary series depicts mean revision in that it fluctuates around a constant long run mean and has a finite variance that is time invariant. On the other hand non-stationary time series when used in estimation it produces unreliable t-statistic of the estimated coefficients that have infinite variances, mean or variance that are time dependent i.e. a non-stationary time series lead to spurious regression whose results could be misleading and questionable thus produce invalid conclusions.

This study adopted the Augmented Dickey-Fuller (ADF) tests to test for Stationarity. A variable is non-stationary if the estimated ADF test is found to be smaller than the critical value in absolute terms and vice versa. Some non-stationary variables have to be differenced to make them stationary. If a unit root is present in a time series, then the first difference of such time series has to transform it to stationary.

Table 4.3: ADF Unit root Test for the Sample period 1979 -2011

	At Level with Intercept		At First Difference with Trend and Intercept		At First Difference with Trend and Intercept		Order of Integration
Variables	t-statistic	Critical values at	t-statistic	Critical values	t-statistic	Critical values	
GDP	4.4528	-3.6537*** -2.9571**	-3.5616	-4.2846*** -3.5629**	-6.7778	-4.4407*** -3.6329**	I(2)
Public capital stock	-1.8547	-3.6537*** -2.9571**	-4.4745	-4.2846*** -3.5629**		-4.4407*** -3.6329**	I(1)
Private capital stock	-0.5216	-3.6537*** -2.9571**	-3.2740	-4.2846*** -3.5629**	-4.7176	-4.4407*** -3.6329**	I(2)
Labour force participation rate	-1.5462	-3.6537*** -2.9571**	-2.1707	-4.2846*** -3.5629**	-5.9453	-4.4407*** -3.6329**	I(2)
FDI	-6.6837	-3.6537*** -2.9571**		-4.2846*** -3.5629**		-4.4407*** -3.6329**	I(0)
Terms of trade	-1.3872	-3.6537*** -2.9571**	-4.7392	-4.2846*** -3.5629**		-4.4407*** -3.6329**	I(1)

Note * denotes 1 percent significance level, ** denotes 5 per cent significance level.**

Foreign direct investment is the only variable that is stationary at level. This is because ADF t-statistics is greater than the t-critical value at 1%, and 5% level of significance. The second step was to difference the variables there were not stationary at level and subject them to the same tests. The results of the second step is that only public capital stock and terms of trade have ADF t-statistics that is greater than the t-critical value at 1%, and 5% level of significance. Thus they are integrated of order one signifying presence of one unit root. Since labour force participation rate, total output and private capital stock had their critical values greater than t-statistic, we difference them again. The results for labour force participation rate, total output and private capital stock after differencing is that their ADF t-statistics are found to be greater than the t-

critical value at 1%, and 5% level of significance. The conclusion therefore is that labour force participation rate, total output and private capital stock are integrated of order two implying that we difference them twice to make them stationary.

4.5 Testing for Cointegration

In some cases we might encounter two or more variables which are non-stationary yet the linear combination of these variables form a long term relationship among themselves. This condition is exhibited when a regression of these variables is run and residuals from these regression are subjected to unit root test and found to be stationary at levels I (0). Under these condition, although the individual variables are I(1) i.e. they exhibit a stochastic trend their linear combination is I(0) and the regression from these variables is not spurious but give a meaningful interpretation and these variables are said to be co integrated. Variables, found to be co integrated have to be integrated of the same order. In short, cointegration tries to establish the presence of a long run relationship between the dependent variables and its independent variables. Cointegration is tested using two main methods or approaches, Johansen cointegration approach and the Engle-Granger two step approach. In our study we applied the Johansen co-integration test to test for presence of a long run relationship between the variables. Under the Johansen cointegration approach, for cointegration to be present among the variables in question, the trace statistic should be greater than the critical values.

Johansen Co-integration Test

Table 4.4 Unrestricted Co-integration Rank Test (Trace)

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
Number of Cointegrating equations	Eigen value	Statistic	Critical Value	Prob.**
None *	0.889929	141.8878	95.75366	0.0000
At most 1 *	0.596322	73.48229	69.81889	0.0248
At most 2	0.494682	45.36103	47.85613	0.0842
At most 3	0.328853	24.20142	29.79707	0.1921
At most 4	0.248957	11.83964	15.49471	0.1648
At most 5	0.091201	2.964579	3.841466	0.0851
Trace test indicates 2 cointegrating equations at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigen value)				
Hypothesized		Max-Eigen	0.05	
Number of Cointegrating equations	Eigen value	Statistic	Critical Value	Prob.**
None *	0.889929	68.40546	40.07757	0.0000
At most 1	0.596322	28.12126	33.87687	0.0280
At most 2	0.494682	21.15960	27.58434	0.2667
At most 3	0.328853	12.36178	21.13162	0.5124
At most 4	0.248957	8.875063	14.26460	0.2967
At most 5	0.091201	2.964579	3.841466	0.0851
Max-eigen value test indicates 2 cointegrating equations at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Source: Author's computation from E-Views

These results show existence of two cointegrating equations according to the trace statistic. Similarly using the maximum – Eigen statistic shows presence of two cointegrating equations. We can therefore conclude that foreign direct investment has a long run relationship with all other independent variables. The OLS model therefore yields into the long run relationship

between the variables thus making it the unrestricted model. From the table, the trace statistic for null hypothesis was rejected at 0.05 level leading to the above conclusion.

Table 4.5 Co-integrating equations

Standard errors ( ), t- statistics [ ] and (-1) one lag.

Cointegrating Eq:	**Coint Eq1**	**Coint Eq2**
Gross Domestic Product (-1)	1.000000	0.000000
Foreign Direct Investment (-1)	0.000000	1.000000
Public Capital Stock (-1)	1.38E+11 (3.2E+10) [4.32193]	-0.417650 (0.07676) [-5.44092]
Private Capital Stock (-1)	-1.58E+08 (1.1E+07) [-14.4979]	0.000205 (2.6E-05) [7.84014]
Labour Force Participation rate (-1)	1.04E+09 (1.8E+08) [5.93321]	-0.001596 (0.00042) [-3.78458]
Terms of Trade (-1)	3.30E+08 (4.7E+07) [7.04439]	-0.001083 (0.00011) [-9.62351]
Constant (C)	-1.06E+11	0.207899

Source: Author's computation from E-Views

4.6 Empirical results and discussion

The main aim of running the long run variable output function is to obtain the residuals of the model and subject them to the unit root test and see whether they are integrated at levels. If the computed Engle Granger value has excessive negativity than its critical value then we conclude that the variable foreign direct investment function is I (0); that is, they are stationary. This means that the parameters of output function can be interpreted as long run parameters. Below is the long run model capturing the relationship between the dependent variable foreign direct investment, and the explanatory variables namely, gross domestic product, public capital stock, private capital stock, labour force participation rate and terms of trade.

Table 4.6: Determinants of total output (long-run estimation)

Standard errors ( ) and t- statistics [ ]

Dependent variables

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant (C)	33.22609	2.942672	[11.29113]	0.0000
Foreign Direct Investments (LNFDI)	0.010167	0.018303	[0.555466]	0.5831
Public Capital Stock (LNGT)	0.089918	0.076880	[1.169594]	0.2524
Private Capital Stock (LNKT)	0.597257	0.057012	[10.47606]	0.0000
Labour Force Participation rate (LNL)	-3.449778	0.529480	[-6.515407]	0.0000
Terms of Trade (LNTOT)	0.470437	0.172316	[2.730078]	0.0110

R-squared	0.959022
Adjusted R-squared	0.951434
F-statistic	126.3785
Prob(F-statistic)	0.000000
Durbin-Watson stat	1.972586

Source: Author's computation from E-Views

From the OLS results in Table 4.6, only private capital stock, labour force participation rate and the terms of trade are significant 0.05 level in determining the total output. The estimated coefficient of foreign direct investment, public capital stock, private capital stock and terms of trade are positively signed. For the private capital stock (LnKT), one percent increase in private capital stock increases total national output by 0.597 per cent holding other factors constant. However, one per cent increase in labour force participation rate reduces the total output by 3.45 per cent holding other factors constant. Main causes for the reduction can be attributed to the economy of Kenya having a huge share of labour in the agriculture sector. Presence of high inflation rates, low education levels and low financial development are also responsible for the

negative that labour force participation has on productivity. We can therefore conclude that the marginal product of labour is low thus leading to disguised unemployment whereby the withdrawal of some labour would still leave the total output unchanged. For the terms of trade, favorable terms of trade positively impacts on the total national output. A one percent rise in the terms of trade increases total output by 0.47 percent ceteris paribus.

Looking at the coefficient of determination we find that 95.90 percent of total changes in labour productivity are explained within the model with only 4.10 percent being determined outside the model. For the F - statistics, the probability of the F – statistics is less than 5 per cent thus implying that all the independent variables of the model jointly determine labour productivity. Looking at the autocorrelation, the Durbin Watson statistic is close to 2.0 implying absence of autocorrelation among the model variables. Heteroscedasticity problem was solved by estimating the equation using robust standard errors when analyzing.

4.7 The error correction model

As noted above, there exists a long run relationship between the variables i.e. the variables are cointegrated. If there is short term disequilibrium, then the error term can be treated as the "equilibrating error" and the error term is used to tie the short run behaviour of the variable foreign direct investments in Kenya. The estimation results are reported in Table 4.7

Table 4.7: Determinants of total output (ECM)

Dependent variables				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	0.046358	0.016370	2.831833	0.0090
D(D(LNGT))	0.000448	0.075941	0.005905	0.9953
D(D(LNKT))	0.148356	0.082940	1.788709	0.0858
D(D(LNL))	-2.410749	4.055646	-0.594418	0.5576
D(LNTOT)	0.072182	0.175066	0.412314	0.6836
E(-1)	-0.818117	0.156216	-5.237103	0.0000
R-squared	0.536717			
Adjusted R-squared	0.444060			
F-statistic	5.792528			
Prob(F-statistic)	0.001102			

Source: Author's computation from E-Views

From the results, the error correcting term conforms to the statistical rule of non – positive and significant for the error correction model to be valid. We find that the coefficient of the error correction term E(-1) is – 0.8181 implying that the short term disequilibrium are being corrected at the rate of 81.81 percent per annum to arrive at the long run equilibrium. The coefficient is significant since the probability of the error correcting term is less than 5 percent. Therefore, our error correction model is valid.

The coefficient of public capital stock is positive this therefore means that an increment in public capital leads to an increment in labour productivity in the economy. This is in line with our expectation on the study. Private capital stock is also positive hence it also determines the productivity of labour in an economy. An increase in private capital stock leads to an increase in the labour productivity of an economy. This finding collaborates that of Kalpinsky (1979) on foreign owned firms and labour productivity in Kenya.

Labour force has a negative coefficient, an increase in the labour force while all other factors held constant leads to a decrease in labour productivity in the long run. From this result we can state that the marginal productivity of labour is low. Terms of trade on the hand has a positive coefficient. Favourable terms of trade for a country lead to an increase in the labour productivity of the country. It is therefore paramount that a country should have favourable terms of trade so as have an improved productivity.

4.8 Post estimation tests

Upon running the estimations, post estimation tests were carried out to confirm that the coefficients estimated were unbiased and reliable.

Table 4.8 Results of Post Estimation Diagnostics tests

Test	Probability
Breusch-Godfrey Test	0.9753
Breusch-Pagan/Cook-Weisberg Test	0.4051
Ramsey RESET test	0.4402

4.8.1 Breusch-Godfrey Test for Autocorrelation

This test was adopted to test for serial correlation because it is applicable in both situations where lagged dependent variable is included or when it is omitted unlike DW. The null hypothesis of absence of serial correlation is tested against the alternative hypothesis of autocorrelation presence and you reject null if P value is less than or equal to 0.05. From the table the P-value is 0.9753 (97.53%) which is greater than 0.05 and therefore we do not reject the null hypothesis of no serial correlation meaning the residuals of the model adopted for the study has no problem of autocorrelation.

4.8.2 Breusch —Pagan/Cook-Weisberg Test Results for Heteroscedasticity

Heteroscedasticity is a situation of unequal or non-constant variance. We test the null hypothesis of constant variance against the alternative hypothesis of no constant variance. We reject the null hypothesis if the P value is less than or equal to 0.05%. Our table above indicates a P value of 0.4051 (40.51%), this therefore implies that the null hypothesis is not rejected.

4.8.3 Ramsey RESET test

To test the regression for specification error, we adopt the Ramsey RESET test. The null hypothesis of no omitted variables is tested against the alternative hypothesis of omission of variables in the model. The null hypothesis is rejected if P value is less than or equal to 0.05. From the table above, the P value is 0.4402 (44.02%) which is greater than 0.05 and therefore we do not reject the null hypothesis meaning that the model that was adopted by the study had no omitted variables.

CHAPTER FIVE

5.0 CONCLUSIONS AND POLICY IMPLICATIONS

5.1 Conclusions and summary of findings

The focus of the study was to establish nature of impact that FDI inflow has on labour productivity in Kenya. More specifically: the study intended to first examine the FDI and labour productivity profile in Kenya and secondly, to investigate the type and nature of empirical relationship existing between the inflows of FDI and labour productivity growth in Kenya. In doing so, the study utilised annual data for the period 1979 – 2011 obtained fron Kenya Natioanal Bureau of Statistics. From the analysis, private capital stock, labour force participation rate and the terms of trade appear to be significant in determining the labour productivity in Kenya from the long run regression model. Of these significant variables, private capital stock and labour force participation rate are the most significant at 1 percent significant level.

The foreign direct investments in Kenya are therefore insignificant in influencing labor productivity in Kenya from the long run regression model. However from the co integration test we find that FDIs and labour productivity are co integrated implying that in the long rum they move in the similar direction. We however deduce from the OLS estimation that this long run moment is insignificant since the respective value of the coefficient of FDI is greater than 5 percent significant level.

5.2 Policy recommendations

As per the findings, the impact of FDI inflows on labour productivity is insignificant. The economy therefore has a low marginal productivity and it is important that the government formulate and adopt policies that will ensure that the marginal productivity of labour increases.

The labour force within the economy should be adequately skilled to match the FDI inflows and attract more foreign investors. The government should set up infrastructure to equip the youth with skills that will make them competitive in terms of employability. Revision of syllabuses at the tertiary and university level to be in line with the current trends and standards the world over should be the main focus of the government. This will build the human capital for the economy.

Looking at the terms of trade, the study found a positive significant relationship between labour productivity and the terms of trade. Therefore efforts to improve terms of trade by promoting exports should be up scaled. This is because this boost the earnings from the exportable sector hence improve reward to labour employed in these sectors and ultimately the increase in labour productivity.

From the study, we found out that the private capital stock was significant and positive determining labour productivity. The onus now is upon the government to provide good enabling environment for the entrepreneurs to enable them accumulate capital stock. The government should formulate policies that will ensure that there is no private capital flight from the economy. Adopting regulations that will seek to attract foreign owned capital to the economy should be prioritised.

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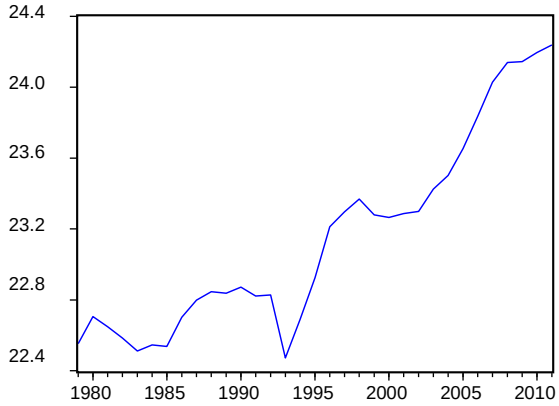
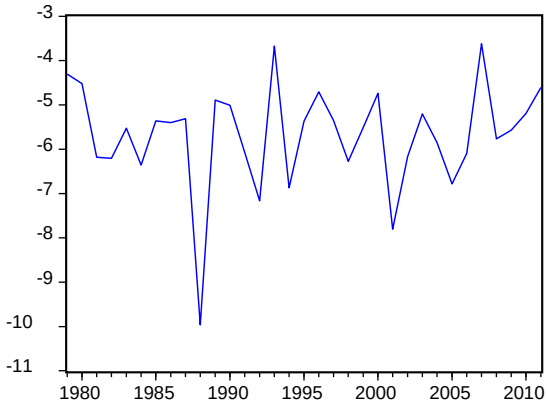
APPENDIX 1: STATIONARITY GRAPHS

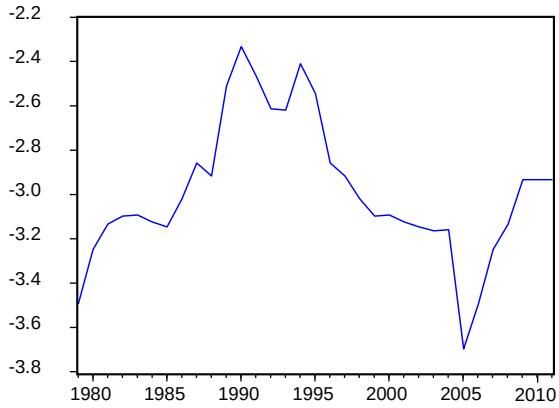
GROSS DOMESTIC PRODUCT



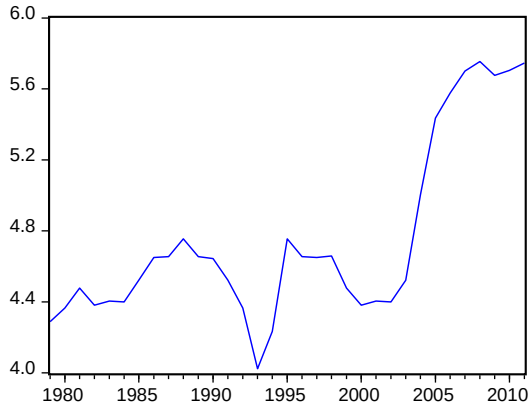
FOREIGN DIRECT INVESTMENT



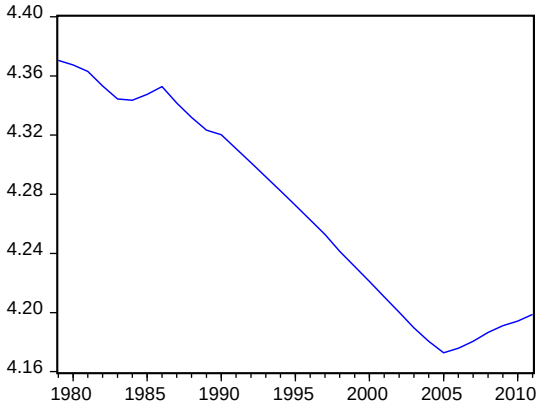
PUBLIC CAPITAL STOCK



PRIVATE CAPITAL STOCK



LABOUR FORCE PARTICIPATION RATE



TERMS OF TRADE