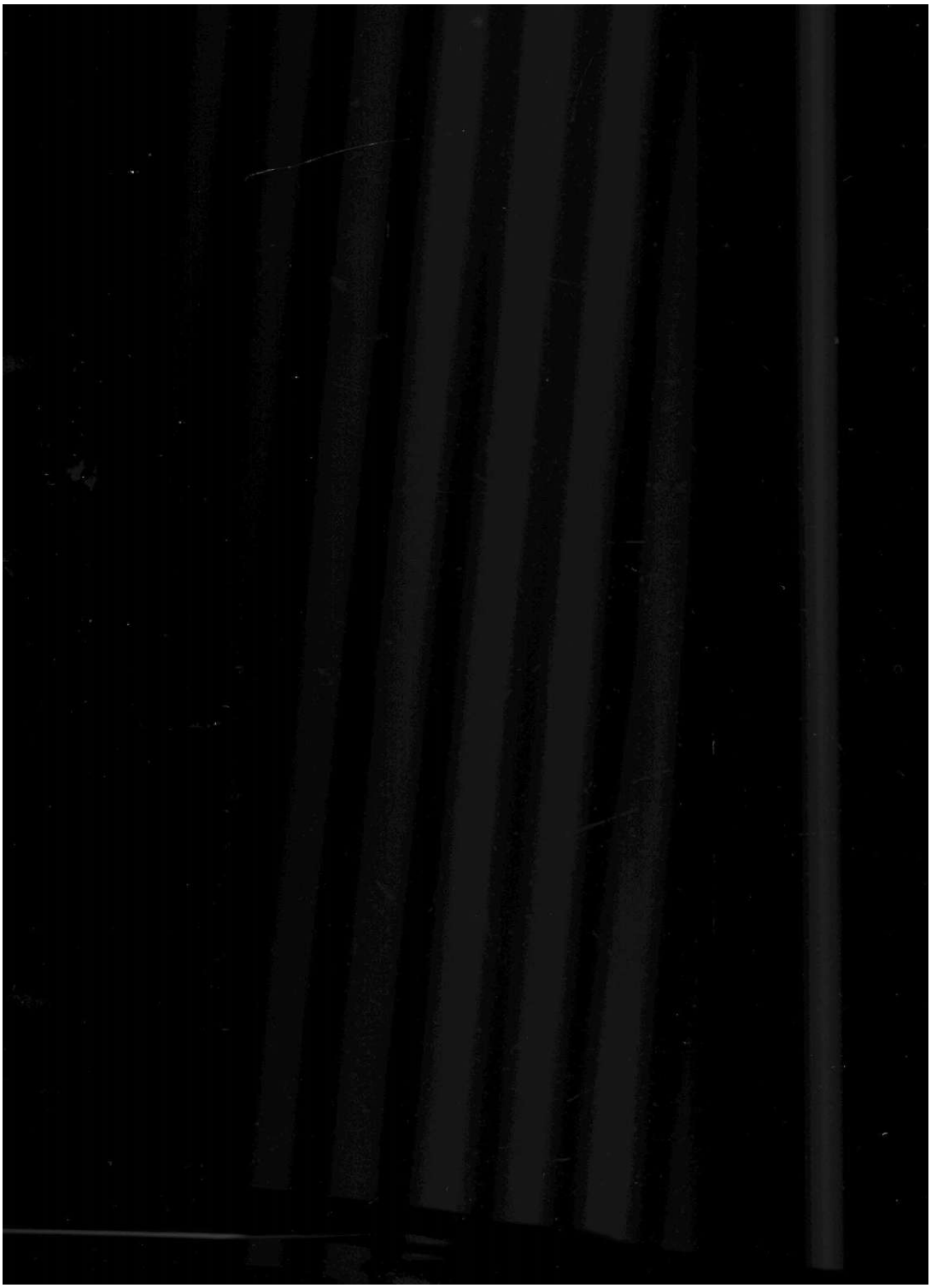

The role of Foreign Direct Investment in Economic Growth in Kenya: 1979-2008

By
Nicholas Njeru Muthengi
(RegistrationNo.: X50/70223/2007)

This dissertation is submitted to the University of Nairobi, School of Economics in partial fulfillment to the requirements of the award of Master of Arts degree in Economics.

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JST OF ABBREVIATIONS

AGOA-	African Growth Opportunities Act
AERC-	Africa Economic Research Consortium
EG-	Economic Growth rate
FDI-	Foreign Direct Investment
GoK-	Government of Kenya
EPZ-	Export Processing Zones
IMF-	International Monetary Fund
NSE-	Nairobi Stock Exchange
GDP-	Gross Domestic Product
PRGF-	Poverty Reduction and Growth Facility
UNCTAD -	United Nations Conference on Trade and
OP PI-	Other Private- Public Investment
MEI-	Marginal Efficiency of Investment

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DECLARATION

This dissertation is my original work and has not been presented for a degree award in any other university.

12.09.2011

Nicholas Njeru Muthengi Date

This research paper has been submitted for examination with our approval as University Supervisors.

Prof. L. P. Mureithi ^ Date

\1"I

Dr. P. Machyo Date

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Special gratitude to my family, wife Stella Muthoni and son Brendan Kanja for their moral support. I would not end without thanking my dear Mum Janet Mbogo who despite having much formal education worked hard to see me through my whole academic life, mum may God bless

Finally I thank all lecturers at the School of Economics. Thank you for invaluable knowledge you have instilled in me.

ABSTRACT

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The main purpose of this research paper was to investigate the contribution of foreign Direct ' Investment to Kenya's economic growths-Over a 30 year period (1979-2008). The reason for selection of this period is because data pertaining to FDI is available. There was a challenge in getting data for the early independence years (1963-75).

This dissertation has borrowed literature from earlier contributions from other economists and researchers. In particular the paper borrows from classical economists such as Irvin Fisher (1930), John Maynard Keynes (1936), James Tobin (1969) and concludes with more recent studies such as ones by Mwega et all (1994), Mwega and Ngugi(2006), Obwona M. and Egesa K.A (2006).The emphasis of all these studies is that FDI contributes to capital formation process which enhances economic growth. This chapter concludes by a review of theoretical and empirical literatures and an emphasis of the importance of FDI to the economy.

Under the methodology in chapter three, modern econometric analysis has been employed. The model has been specified with economic growth being the endogenous variable and being explained by FDI, domestic investment by the locals, tertiary education levels, corruption, drought and political violence. The analysis has used dummies to represent non-continuous variables; drought and political violence/unrest. Time series data has been used in this study. The sources of data used are mainly from UNCTAD investment reports, Government of Kenya statistical abstracts, economic surveys and economic outlook publications.

In chapter four the regression results have been carried out and a discussion of the various tests done to ensure our model was correctly specified. Based on the data available an estimation equation has been derived. We have also tried to draw a summary of the main tests, indicated their overall implication for the main dissertation hypothesis and further used the outcome of these tests to reach a conclusion. The purpose of this exercise was to give us reasonable assurance that our research findings met established research benchmarks and criteria.

The research paper ends with conclusions and policy recommendations with a clarion call to the government of the day to take corrective measures to favorably influence the inflow of FDI. This derives from the findings that the main driver of economic growth in Kenya are domestic

investment and tertiary education followed by Foreign Direct Investment .However FDI has not played a significant role in contributing to the economic growth for the period under review and this could have stemmed from its low levels relative to GDP growth and unpredictable pattern, increasing in one year and declining in the next. This affected the cumulative FDI stocks

CHAPTER 1: INTRODUCTION

1.1 Definitions

I. Foreign Direct Investment is net inflows of investment to acquire a lasting management interest (10% or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments.

II. Gross Domestic Product is the total value of goods and services produced in an economy within a year. The increase in this GDP value is what is referred to as economic growth. Economic growth is distinguished from economic development in that the latter involves widening consumer choice, welfare improvement, income distribution and freedom of expression among others.

1.2 Background

The Kenya macroeconomic environment has been changing over the years. After independence in 1963 and up 1973, Kenya's economic growth was doing rather well beyond that of its neighbours, Uganda and Tanzania, averaging 6.6% annually. Agricultural production grew by 4.7% annually during the same period, stimulated by redistributing estates, diffusing new crop strains, and opening new areas to cultivation. The boom in economic growth was due robust agricultural sector with coffee and tea fetching a huge chunk of foreign exchange in the world market. The population stood at 8.9 million which was moderate in growth, not putting pressure on existing natural resources (African economic outlook, African development bank, 2005/6 and other online resources)

After experiencing moderately high growth rates during the 1960s and 1970s, Kenya's economic performance during the 1980s and 1990s was far below its potential. The economy grew by an annual average of only 1.5% between 1997 and 2002, which was below the population growth estimated at 2.5% per annum, leading to a decline in per capita incomes. It is this economic under performance that called for World Bank led structural adjustment programmed. The decline in economic performance was largely due to inappropriate agricultural, land, and industrial policies compounded by poor international terms of trade. Increased government intrusion into the private sector and import substitution policies made manufacturing sector uncompetitive. The policy environment along with tight import controls, and foreign exchange

controls made the domestic environment for investment unattractive for both foreign and domestic investors (African economic outlook, African development bank, 2002/3, 2005/6, and other online resources)

From 1991 to 1993, Kenya had its worst economic performance since independence. Growth in GDP stagnated, and agricultural production shrank at an annual rate of 3.9%. Inflation reached a record 100% in August 1993, and the government's budget deficit was over 10% of GDP. As a result of these combined problems, bilateral and multilateral donors suspended program aid to Kenya in 1991. In the mid-1990s, the government implemented economic reform measures to stabilize the economy and restore sustainable growth. In 1994, nearly all administrative controls on producer and retail prices, imports, foreign exchange and grain marketing were removed. The Government of Kenya privatized a range of publicly owned companies, reduced the number of civil servants, and introduced conservative fiscal and monetary policies. By the mid-1990s, the government lifted price controls on petroleum products. In 1995, foreigners were allowed to invest in the Nairobi Stock Exchange (NSE). In July 1997, the Government of Kenya refused to meet commitments made earlier to the International Monetary Fund (IMF) on governance reforms. As a result, the IMF suspended lending for 3 years, and the World Bank also put a $90-million structural adjustment credit on hold (African economic outlook 2002/3, 2005/6,2008, African development bank)

The Government of Kenya took some positive steps on reform, including the establishment of the Kenyan Anti-Corruption Authority in 1999, and the adoption of measures to improve the transparency of government procurements and reduce the government payroll. In July 2000, the IMF signed a $150 million Poverty Reduction and Growth Facility (PRGF), and the World Bank followed suit shortly after with a $157 million Economic and Public Sector Reform credit. The Anti-Corruption Authority was declared unconstitutional in December 2000, and other parts of the reform effort faltered in 2001. The IMF and World Bank again suspended their programs but resumed in 2003(African economic outlook, 2002/3, 2005/6, 2008, African development bank,)

Accelerating growth to achieve Kenya's potential and reduce the poverty that afflicts about 46% of its population will require continued de-regulation of business, improved delivery of government services, addressing structural reforms, massive investment in new infrastructure (especially roads), reduction of chronic insecurity caused by crime, and improved economic governance generally. The government's Vision 2030 plan calls for these reforms, but implementation will be delayed by the reconstruction effort, coalition politics, and line ministries' limited capacity. In June 2008, the government introduced a revised but still ambitious Vision 2030 plan that seeks to address the economic challenges stemming from the political crisis while still striving to meet growth benchmarks (government of Kenya website, vision 2030 blue print).

Kenya faces profound environmental challenges brought on by high population growth, deforestation, shifting climate patterns, and the overgrazing of cattle in marginal areas in the north and west of the country. Significant portions of the population will continue to require emergency food assistance in the coming years (government of Kenya website).

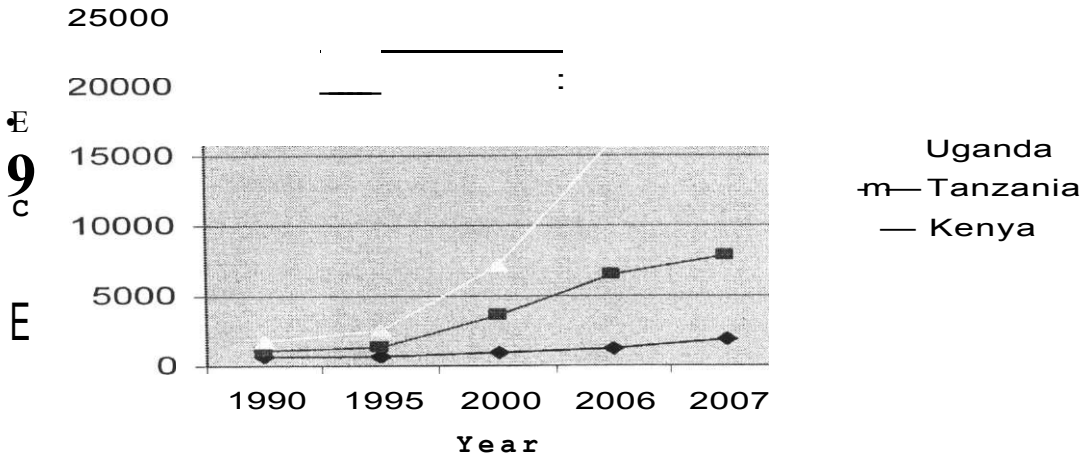
On the Foreign Direct Investment front, Kenya's FDI in the 1970's was about $10 million a year peaking to approximately US$80 million in 1979-80. However, the early 1980's saw a decline in FDI as a result of numerous factors such as the deterioration in economic performance, stop-go nature of economic reforms, political instability, rising costs of services and doing business, corruption, poor governance, deterioration of public services and infrastructure (*Excerpts from Susan Kikwai's speech during the official launch of Investment Guides to Kenya and the East African Community, and the World Investment Report on 29th September 2005, at Hotel Intercontinental, Nairobi)*

Kenya's FDI inflows in 1996-2003 averaged US$39 million a year, a drop in the ocean compared to inflows to Tanzania and Uganda that surged to $280 million and $220 million, respectively, from negligible levels in the 1980s. Around this time, the average inflow to African countries was six fold. Although developing countries as a whole attracted an annual average of $41 of FDI per capita in 1996-2003, Kenya only drew average inflows of $1.3 per capita. In fact, UNCTAD's FDI performance index ranked Kenya 125th (out of 140 countries) in 2003.

Notable recent trends in sectoral composition of FDI are in horticulture, floriculture, garments, and tourism. While interest in horticulture and floriculture has been in response to favorable local conditions linked to climate and transport infrastructure, Garment investment has been in response to the U.S. granting preferential access to its market under AGOA. Manufacturing FDI has concentrated on consumer goods sectors, such as the food and beverage industry. Most foreign investment in manufacturing since 2001 has been in the Export Processing Zone (EPZs), with the majority in AGOA-related textiles. There were 55 foreign or joint-venture enterprises operating in EPZs in 2003. EPZs have expanded from their initial textiles focus to also produce a number of other goods. The largest single investment is the De La Rue currency printing operation with a value of $48 million (*Excerpts from Susan Kikwai's speech during the official launch of Investment Guides to Kenya and the East African Community, and the World Investment Report on 29th September 2005, at Hotel Intercontinental, Nairobi)*

The figure below shows sample statistic of how Kenya is performing in FDI as compared to Tanzania and Uganda.

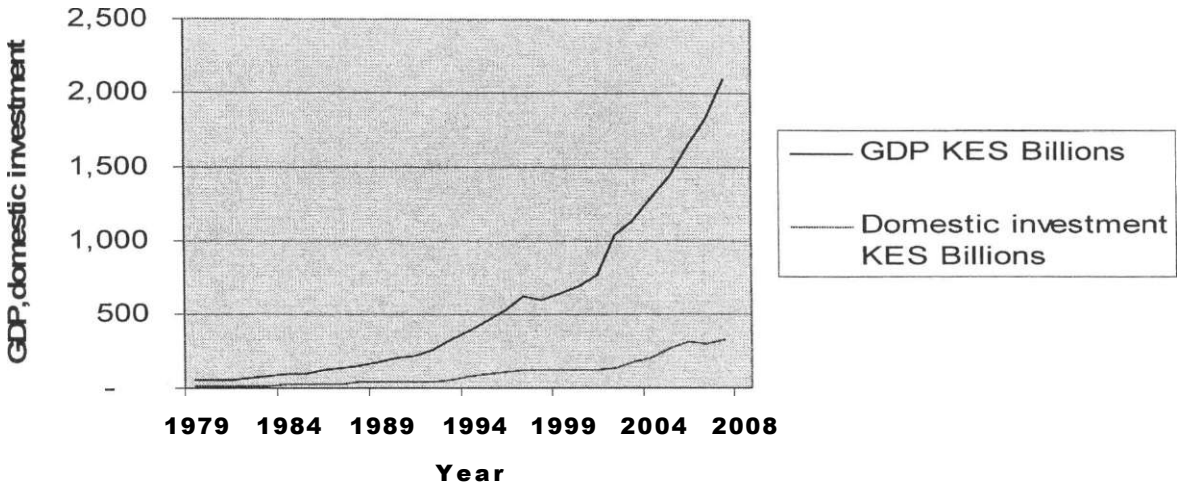
Figure 1: Net stock of FDI in Kenya, Tanzania and Uganda



Source: UNCTAD, World Investment Report 2008

The figure shows Uganda as at the end of 2007 had more FDI stocks, followed by Tanzania and Kenya respectively. Due to loss in competitiveness in attracting foreign direct investment, Kenya now ranks after Uganda and Tanzania in receipt of net annual inflows of FDI to EAC countries.

Figure 2: Trends in GDP and Domestic/local investment in Kenya for period 1979-2008



Source: GoK, Economic Survey, various issues, Government Printer, Nairobi

The graph shows that GDP and Investment has been increasing for the 30 year period, confirming the assertion that investment propels GDP growth. This is crucial in specifying the causality relationship of our model.

1.3 Assumption of the Study

The study seeks to examine the role of FDI in economic growth in Kenya for a period of thirty years, 1979-2008. Included in the analysis are other variables which affect economic growth. These include locally funded investment, tertiary education enrolment levels, corruption, political unrest/tribal clashes and drought.

It is worth noting there are other variables that affect economic growth in Kenya, for example governance but it's difficult to quantity it. Thus the variables included above are those that are quantifiable and a dummy will be used to represent the last two. It is also assumed that investment yields return within one year from investment. In other words time lags beyond one year are not allowed.

1.4 Objectives of the Study

The study aims to examine the role FDI has played in contributing to the economic growth in Kenya for the period 1979-2008 and having appreciated the role, we identify the factors affecting

the attraction of FDI in Kenya with a view to drawing policy measures to mitigate them. The reason for selection of this period is because data pertaining to FDI is available. There was a challenge in getting data for the early independence years (1963-75).

1.5 Justification of the study

The purpose of this study on the role of FDI in economic growth is crucial for re-positioning Kenya to be able to attract the much needed FDI. The contribution of the FDI in any growing economy cannot be over-emphasized.

It brings investable financial resources, provides new technologies and may enhance the efficiency of existing technologies. FDI may facilitate access to export markets, thereby playing an important role in strengthening the export capabilities of the domestic economy. It may also enhance skills and management techniques, and provide cleaner technologies and modern environment management systems (Mwega and Ngugi, 2006).These positive externalities may justify the favourable treatment of foreign investors versus domestic investors (Hoekman and Saggi, 1999).

FDI increases the rate of technological progress in the host country through a contagion effect from the more advanced technology and management practices used by the foreign firms (Findlay, 1978). This is through either copying the technology used by the foreign firms or accessing the latest technology. Such technology transfers may take place as a result of demonstration effects. Local firms may adopt technologies introduced by foreign firms through imitation or reverse engineering; as a result of labour turnover whereby workers trained by foreign firms transfer technological knowledge to local firms or they start their own firms; and through demand linkages whereby foreign firms provide services or inputs to local firms (Findlay, 1978).

FDI also has potential to enhance growth of domestic firms through complementarity in production and productivity spillovers (Borensztein et al., 1998). Phillips et al. (2001) found that FDI stimulates domestic investment, with a 1% increase in the FDI/GDP ratio followed by as much as a 0.80% increase in future domestic investment/GDP ratio in Africa. They conclude that FDI provides positive externalities and spillovers that make private domestic investment more profitable. In a survey, they found that nearly all interviewed business leaders in Kenya favoured foreign investment and recognized that it offered them economic opportunities.

On the other hand, FDI may induce a reduction in domestic savings and investment rates by stifling competition through exclusive production agreements with the host government. A dominance of FDI may adversely influence the development of indigenous entrepreneurship {Phillips et al. (2001)}

Owing to liberal tax concessions, excessive investment allowances, disguised public subsidies and tariff protections often provided to foreign companies by the host governments, FDI contribution to public revenue via corporate taxes may be less than optimal.

CHAPER 2: LITERATURE REVIEW .

2.1 Theoretical Literature Review

The importance of investment in an economy has been appreciated by earlier economists and even business people. Mercantilists for example who were spread across Europe strongly believed and emphasized on the role of trade and acquisition of precious metals as early as 15th century.

However, Irving Fisher (1930) came up with the first theory of investment. According to Fisher, he referred to all capital as *circulating* capital, which essentially measures a flow, the investment. He assumes output to be a function of labour and investment,

Y = / (N, I), and that there are lags in getting the output such that investment in year 1 yields output in year 2.He holds labour as constant and the therefore output purely becomes a function of investment, which he determines to be concave in nature.

Later Fisher introduces the concept of interest rate and notes that a firm's problem is to maximize profit (n) and the problem can be written as

Max $n = f$ (Ii) - (l+r)Ii

So that the optimal investment decision will be where:

/ ' = (1+r)

Fisher referred to above as *marginal rate of return over cost* (which Keynes later called *marginal efficiency of investment)*

Fisher's theory is a general investment theory and makes no distinction of constituents of investment, private and public investment.

John Maynard Keynes (1936) followed suit. In his publication, *the General Theory of Employment, Interest and Money,* Keynes expressed investment function as I = Io + I(r) where the relationship between investment and interest rate was of a rather naive form. Firms were presumed to "rank" various investment projects depending on their "internal rate of return" (or "marginal efficiency of investment") and thereafter, faced with a given rate of interest, chose those projects whose internal rate of return exceeded the rate of interest. With an infinite number of projects available, this amounted to arguing that firms would invest until their marginal efficiency of investment was equal to the rate of interest, i.e. MEI = r.

Keynes later renamed the internal rate of return as the "marginal efficiency of capital /investment and gave a definition of it: - the marginal efficiency of capital is equal to the rate of discount which would make the present value of the series of annuities given by the returns expected from the capital asset during its life just equal its supply price" (T.R Jain and O.P Khanna, Microeconomics page 140)

The supply price Keynes talked about is what is ordinarily called the replacement cost.

The concept of MEI proposed by Keynes, though very important may not be easy to apply especially in the context of developing countries due to shortcomings of data availability.

The ideas of Keynes were enhanced further by latter economists such as Friedrich A. von Hayek (1941), who juggled with the concepts of fixed and circulating capital by conceiving of an optimal stock of fixed capital and of investment as the optimal adjustment towards it (an idea that Knut Wicksell (1898, 1901) had also toyed with). This was the notion picked up in later years by Abba Lerner (1944, 1953), Friedrich Lutz and Vera Lutz (1951), Trygve Haavelmo (1960) and the marginal adjustment cost theorists (Eisner and Strotz, Lucas, Treadway, Gould, etc.). The modern neoclassical theory of investment stems largely from this tradition.

James Tobin (1969) came up with the Q theory of measuring the investment efficiency. According to Tobin, the decision of whether a firm increases or decreases their current level of capital stock depends on the relationship between the change in the value of the firm due to installation and replacement cost of additional capital. The marginal Q measure the discrepancy between market value of productive assets vis-a vis their replacement costs to explain new investment. At equilibrium the value of Q is unity and this is optimum level of investment. If Q > 1, investment will be increasing meaning there is incentive for investors. When Q is < 1 there is no incentive to invest. Marginal Q is not measurable and what is used instead is the ratio of the market value of the firm to the book value of the firm. The is limitation in establishing the average Q and unavailability of information further limits use of this theory.

McKinnon (1973) and Shaw (1973) claim that developing countries suffer from financial repression and that if they were liberated from the repressive conditions, this would induce savings, investment and growth.

Pindyck (1991) introduced uncertainty element to investment theory due to irreversible investment. The argument is that since capital goods are firm specific and have low resale value, divesture is more costly than positive investment. He argues that the present value rule that says invest when the value of a unit of capital is at least as large as it cost must be modified when there is an irreversible investment because when an investment has been made, its irreversible should market conditions adversely change. This lost value option is an opportunity cost that must be included in the total investment cost (Asante, 2000)

2.2 Empirical Literature Review

Serven (1990) in his studies on the effects of real exchange rate devaluation on capital formation showed the importance of accounting for the role of imported capital goods in explaining the investment behaviour. He concluded that when real depreciation is expected, an investment boom is likely to develop if the import content of capital goods is high relative to the capital mobility, because the expected depreciation induces a switch towards foreign goods. The boom is subsequently followed by a slump when depreciation is effectively implemented because the exchange rate change is equivalent to removal of subsidy on investment. An overvalued exchange rate discourages investment as it makes imported equipment machinery costly.

Countries that are highly indebted attract less private investment, and hence FDI. When IMF and World Bank withdraw funding to such countries other donors and development partners follow suit denying these countries the much needed aid. Kenya public debt by end 2007 stood at 750 billion Kenya shillings and much of government revenue goes to servicing this debt (Tenkins, 1998)

Over-borrowing by public sector crowds out private investment and raises the cost of borrowing. A change of policy by the public sector will have an impact on private investment. Nevertheless , public sector play a crucial role in providing a conducive environment for the private sector by providing infrastructure such as transport, communication, electric power, security etc. Public sector also creates demand for the goods and services of private sector. However, public expenditure resulting in large fiscal deficits will raise interest rates and credit rationing which is detrimental to private investment (Oshikoya, 1994)

Macroeconomic instability induced by political factors is a common phenomenon faced by developing countries. Kenya's example is the 1982 attempted coup (Mwega et al 1994) and 2007 post election violence. This has serious impediment to the private investment. The tendency to delay irreversible investment in the face of uncertainty has also been emphasized in recent analytical literature on capital formation and has been shown exist even when investors are risk neutral agents (Pindyck, 1991). Inflation rate as an indicator of macroeconomic instability can have adverse effects if high and unpredictable. This increases the risk of long term investments. Green and Villanueva (1991) found that high inflation rate has a negative impact on investment in many developing economies.

Although many African countries have adopted a comprehensive stabilization and structural economic reform programmes, there continue to be concern about the growth and investment performance for many African countries. Specifically the response of private sector investment, considered to be crucial for sustainable long term growth has been considerably less than anticipated (Cockcroft and Riddell, 1991). Indeed as a ratio to GDP, FDI in the recent years has been lower than in 1970's.

Sundarajan and Thakur (1980) studied relationship between public and private investment in developing countries by postulating a dynamic model of savings, investment and growth and then they simulated and tested it for two countries, India and Korea. They found out that an initial increase in fixed investment by public sector raises the public sector output, the private sector actual and expected output and aggregate domestic savings. If there is negative effect owing to a net reduction in the availability of savings to the private sector (crowding out) that more offsets the positive effects of increased private sector output expectations, private fixed investment falls, otherwise private investment rises. Therefore investment by the government stimulates and complements private investment.

Khan and Blejer (1984) showed that public investment in developing countries had an overwhelming impact on private investment. The government could influence private investment by changing public investment alone. This implied that tightening of the use of monetary policy tools used for stabilization could have adverse effects on private investment. Government deficit

financing through domestic borrowing tended to raise interest rate and crowd out private investment. This has effect on economic growth subsequently.

Khan and Reinhert (1990) investigated private investment and economic growth on 24 developing countries 1970-1979.They, unlike previously , took a different approach and distinguished private from public investment and the contribution of each to economic growth. Their objective was to find out which sector contributed more to than the other and the interdependence between the two sectors. They used exports and imports as additional variables to capital and labour. They found out that private investment had significant effects on growth. They however caution that these were just direct effects but indirect public effects could be even higher than reported. On removing public investment from the regression, they found both exports and imports had positive influence on growth.

Bwire (1992) examined the interactions among domestic savings, private investment, per capita growth in output, and their response to changes in key macroeconomic variables in Kenya during 1972-1992 periods and he found out that macroeconomic instability indicators (external debt, current and expected inflation rates) and factors "exogenous" to policy control, for example drought, to negatively affect investment .However, real interest rate , public sector investment and lagged ratio of external debt service payments to revenue from total exports were found to positively influence investment.

Collier and Gunning (1999) identified low investment as a major factor constraining economic performance on the Africa continent. Thus according to Todaro Africa economies continue to be the slum of world economies and unless something drastic is done the vicious cycle of poverty will live forever.

A specific study on FDI in Kenya is that done by Mwega and Ngugi (2006) in which they seek to get the determinants of FDI using panel data for 43 Countries for the period 1960-1997.In their model they included thirteen variables which they regressed on FDI/GDP ratio. Their finding are that the economic growth rate, average total years of schooling, real effective exchange rate and fiscal deficit ratio, trade ratio and government investment ratio have insignificant effect on FDI while trading partners' economic growth, terms of trade shocks ,

external debt income ratio, debt service ratio all have a significant effect on FDI ratio. Surprisingly though, they find political risk as insignificant contrary to the theory irreversible investment which they explain perhaps its due to correlation with the dependence on mineral resources. The variable of the quality of institutions was the most significant meaning removing restrictions and providing good business operating conditions encourages foreign direct investment. The Kenya dummy is insignificant implying that Kenya is on the regression line. Hence its FDI ratio is mainly determined by the global fundamentals- in this case, the trading partners' growth rate, terms of trade shocks, the external debt ratio and the quality of institutions. With the first two variables exogenous, the result suggests that FDI promotion in Kenya is more fundamental than incentives, or even macroeconomic management and political stability. Recovery will require actions such as reducing corruption (for example, changing government away from corrupt awards to insiders), rebuilding institutions, and enhancing the rule of law and order, with clear and transparent regulations uniformly enforced (Phillips et al., 2001). Enhancing foreign aid flows and reducing the external debt overhang through debt forgiveness would also have a positive effect on FDI.

Another study on the role of FDI is that carried by Xu and Wang in the Republic of China in 2007 in which they studied the effects of inward FDI on domestic capital formation, exports, imports, and GDP growth using time series data for the period 1980-1999. Their finding is that inward FDI has a positive impact on capital formation and GDP growth rate. This they explain by the fact the FDI creates new business opportunities and improves investment efficiency of the locally financed investments. This contributes to the growth in GDP. They also find that inward FDI contributed in increases in imports and exports. This is due to trade generated by FDI and also the comparative advantage and economies of scale experienced in China for the period under review. Xu and Wang conclude their study by noting that the inflow of FDI can create more business opportunities for domestic investors; raise the productivity of the host economy, promote host country exports, and facilitate the diffusion of new technologies through increased imports. The evidence from China shows that the size of inward FDI matters. Small-scale, standalone FDI projects are unlikely to generate sizable gains in the host economy. Therefore, it seems desirable for a host country to reach a certain critical mass in terms of the level of inward FDI. Last but not least, evidence from China also suggests that creating a market-confirming,

FDI friendly business environment is critical to a fuller realization of the growth enhancing effects of inward FDI

A study of FDI in Uganda done by Obwona and Egesa (2006) reveal that the incentives offered by the Uganda government are by far better than that of its neighbours, Kenya and Tanzania. After the collapse of Milton Obote government in 1985 and subsequent takeover by Museveni, there has been drastic change in policy environment. The latter government returned all Asian properties that were nationalized or repossessed by Idd Amin administration. The Uganda government has also tried to attract FDI through incentives such as:

- Provision of different capital allowances for different locations in the country, start-up costs, scientific research expenses, training expenditure, and mineral exploration expenditure and industrial buildings.
- Provision of a competitive uniform corporation tax of 30%, which compares favourably with tax rates in other countries within the region. This excludes mining, for which the corporation tax ranges between 25 and 45%.
- Tax exemptions, which include import duty exemptions on motor vehicles and personal effects of foreign investors and their expatriate workers, exemptions on plant and machinery, and VAT refunds to all investors registered as VAT traders on construction materials used for the manufacture of exports. Also included are duty drawback facilities for exporters.

Obwona and Egesa (2006) conclude by noting that not a single variable is responsible for such large inflows of FDI but rather a combination of them. These include stable macroeconomic environment, favorable economic reforms and policies including privatization, high rate of GDP growth rate, and regional integration and investment promotion efforts by the government.

2.3 Overview of the Literature Review

One may ask why FDI goes where it goes? There are general reasons viewed by many economists as responsible for explaining the levels of FDI in many African countries.
These determinants are many and diverse.

Scaperland and Balough (1983), for example, argued that host country market size plays an important role in attracting FDI, especially when the host-country market allows the exploitation

of economies of scale for import substituting investment. Other studies have identified the cost of labour as a significant factor in location consideration, most especially when investment is export oriented. Studies and surveys have also found that investors would also like to operate in countries where the government maintains liberal policies for the employment of expatriate staff.

The level of the country risk or a summary measure of the economic and political risk has also been found to have a strong impact on FDI flows. Sachs and Sievers (1998) argued that political stability is one of the most important determinants of foreign investment location in Africa. In terms of minimum economic risk, investors prefer locating affiliates in countries where market uncertainty is lower. A number of measures for country risk have been used. Besides the use of country risk indicators compiled by business institutions such as Business International and Institutional Investor, some studies have used measures of volatility in economic variables such as exchange rates, fiscal imbalance etc as measures of risk.

Linda and Vijaya (2001) cite lack of infrastructure, cumbersome government regulations and restrictions on equity holdings by foreigners as the major obstacles to FDI in the developing world for both small and large economies. Other factors determining FDI in particular to small countries include the effects of a successful large project in terms of making the country known to the world, raising interest among potential investors. Surveys of investors conducted by various business institutions together with those on perceptions conducted by investment promotion agencies have indicated that a supportive institutional environment, such as the existence of an effective and equitable legal system, and the presence of an efficient and well functioning banking and financial system are important for investment location decisions.

The level of openness of an economy has also been found to be important in attracting investment. This is evidenced by the success of the East Asian economies that experienced strong export-led growth over the past two decades (Lipsey, 1998; Barell and Pain, 1996).Some studies also indicate that the removal of exchange controls has an important bearing on investor location decisions. Foreign direct investment also tends to flow to countries where there is already a substantial volume of FDI. Ivar and Line (2002) argue that investors give priority to countries in their geographic vicinity and that they show a preference for countries with cultural

or linguistic linkages to their home country (for example, Mauritius with the Hong Kong textile gurus).

Lucas (1993) contends that the exchange rate may have a "residual role" with respect to exchange rate risk for example in determining the value of repatriated profits or threatening restrictions on such remittances. Anupam and Krishna (2002) are in agreement with the fact that African countries, which have sought to contain inflation and stabilize exchange rates through the adoption of sound fiscal and monetary policies, have fostered growth, stimulated wider participation by the private sector in economic growth and secured significant FDI. In addition, the proactive approach to removing regulatory and structural impediments to private sector participation in economic activities is another factor advanced for having a positive impact on investor sentiments. In an econometric study by Athanasios (1998), openness to international trade, freedom of capital transactions with foreigners and competition in the domestic market were found to have positive and statistically significant coefficients for the member states of the West African Economic and Monetary Union.

And finally other factors that affect FDI are:

- A high level of economic development, as reflected in the availability of adequate infrastructure, both physical and human, and a relatively high per capita income would be expected to be beneficial for foreign investors.
- Regional integration arrangements may trigger FDI inflows; for example Mexico attracted Japanese FDI, targeting the North American Free Trade Agreement (NAFTA) regional block market.
- Access to world market for the final product. This is the case with Kenya's textile EPZs target to benefit from the AGOA arrangement. Under the AGOA goods from poor African counties are to access American market free of taxes. This explains why there are many textiles EPZ at Athi River specializing mainly on export clothing.

From the foregoing literature we can therefore appreciate the role of investment in contributing to the economic growth. Thus the declining trend of FDI in Kenya is a cause to worry about considering that neighboring countries which are now leading in FDI are recording higher economic growth rates. This may result to migration of foreign firms to these countries which

will result to massive job loss, reduction in government revenue and under development of infrastructure. We need to identify where Kenya is failing to provide a conducive environment for foreign entities to invest in our country as this contributes to economic growth.

CHAPTER 3: METHODOLOGY

3.1 Theoretical Framework and Model Specification

This study will examine the effect of FDI, local investment, tertiary education, corruption, political unrest and drought on GDP growth in Kenya for the period 1979-2008.Example of foreign owned entities include the EPZs in Athi River, Safaricom, Telkom Kenya, Zain , De la rue etc.

The specification of the model will build on the method used to study private investment in Africa. More specifically the study will adopt the method used by Oshikoya (1994) who studied seven African countries for the period 1970-1988, Kenya included.

The model therefore takes the form:

EG = / (FDI, DI, CI, TE, PU, D)

Where:

EG - is the economic growth rate or the growth in GDP

FDI- Foreign Direct Investment

DI- Domestic Investment

CI - is the Corruption Index as measured by Transparency International

TE-is the Tertiary Education enrolment (in numbers)

PU- Is the Political Unrest dummy, Dj

DRT - Is the drought dummy, D2

The specific regression equation will therefore be:

$EG = p_0 + PiFDI + p_2DI + p_3CI + p_4TE + p_5Dj + p_6D_2 + 8_t$

Where:

Po- pi, P2, P3, P4, Ps, P6 are the coefficients to be estimated from the regression corresponding to each of the explanatory variable.

Di and D2 are dummies used to represent political unrest/violence and drought respectively.

S is the error term

3.2 Apriori Expectation

FDI is coefficient is expected to be positive because investment by foreigners in the country enhances the capital formation which is used to produce goods and services for either local consumption or export. This increases the value of GDP.

Locally funded investment contributes a high percentage of the increase in GDP through the returns on investment and jobs created. It is therefore expected to have a positive coefficient.
Corruption affects the efficiency of delivery of goods and services resulting to less than optimal performance of the economic activities. It also mis-allocates resources in the economy. It is expected to have a negative effect on economic growth.

Tertiary education enhances the skills and widens the knowledge of those who pass through the tertiary institutions like the universities, technical training colleges and polytechnics. This creates a pool of highly qualified labour which gets employed in various sectors of the economy. The marginal productivity of skilled labour is higher than the unskilled one. Thus it is expected that tertiary education will have a positive impact on economic growth.

Political unrest such as those experienced in the 1982 attempted coup, 1992-3 tribal clashes in Rift valley and Coast provinces and the 2008 post election violence disrupt economic activities as people run for safety. This has negative effect particularly to the agriculture sector resulting to food shortages. This in turn affects the economic growth negatively.

Drought affects the agricultural and energy sectors negatively. Slow or lack of growth in these sectors in turn affect economic growth. Kenya has had a history of rain failures which result to food insecurity and power rationing. Examples of serious droughts are ones experienced in 1984-5, 2000 and 2009.

3.3 Estimation Method

Ordinary Least Squares (OLS) which minimizes the sum of residuals (difference between an observed value and the value given by the model) will be used in this analysis. The data used in the study of time series and to check for the problems associated with time series data, general diagnostic tests have been carried out.

3.4 Model Diagnostic Tests

The general economic analysis of a series is built on the assumption that the variables are stationary. A series is said to be stationary if its movement (mean, variance) are time dependent. A stochastic process y_t is said to be covariance (weakly) stationary if the mean, variance and variance are time invariant. If one of these conditions is violated then the process will be non-stationary

Non stationarity of variables lead to the problem of spurious regression. A spurious regression "output looks good", that is, high R^2 and t statistic that appear to be significant but the results may lack economic meaning. Thus the first step is to test for level of integration through unit root tests before any meaningful regression is done. A non - stationary series is said to be integrated of order **d,** denoted as **I (d)** if it can be differentiated **d** times to become stationary. Augmented Dickey Fuller tests will be used to detect the existence of a unit root. Co- integration analysis will also be conducted to determine the level of interaction among the variables in the model.

3.5 Data Sources

The study uses secondary time series data on levels of GDP and Gross Investments as collected by Kenya National Bureau of Statistics. The levels of FDI will be as per the data collected by the United Nations Conference on Trade and Development (UNCTAD) in the World Investment Reports 1991-2008.

Reference is also made to other data sources such as World Bank data base 2002, Central Bank of Kenya publications, Economic surveys, Statistical abstracts and Government of Kenya website.

CHAPTER 4: DATA ANALYSIS AND EMPIRICAL RESULTS

In this chapter, we present the empirical results of the study, based on data used in the analysis and the model specified in chapter three. Before conducting the regression on the data a number of tests were conducted which included the unit root tests for stationarity, cointegration and causality tests between the variables.

After the regression we conducted diagnostic tests, which included Ramsey reset, heteroscedasticity and normality tests to check on the appropriateness of our specification and reliability of results.

4.1 Descriptive Analysis

	LOGGDP	LOGFDI	LOGDI	LOGTE	CORRUPTIO	DROUGHT	UNRES
Mean	12.68236	7.327770	11.08240	10.87828	2.121000	0.166667	0.16666
Median	12.77993	7.281458	11.11824	10.85805	2.100000	0.000000	O.OOOOC
Maximum	14.55735	10.97318	12.68754	12.24552	2.790000	1.000000	1.0000C
Minimum	10.82397	4.832385	9.241839	9.268609	1.750000	0.000000	O.OOOOC
Std. Dev.	1.168640	1.369985	1.017592	0.879475	0.239386	0.379049	0.3790'
Skewness	-0.049536	0.308500	-0.076419	-0.176329	1.055271	1.788854	1.7888J
Kurtosis	1.735230	3.082979	1.863540	2.097428	3.975718	4.200000	4.2000C
Jarque-Bera	2.011823	0.484469	1.643625	1.173755	6.758018	17.80000	17.800C
Probability	0.365711	0.784872	0.439634	0.556061	0.034081	0.000136	0.0001:
Observations	30	30	30	30	30	30	30

In the above table we have transformed GDP, FDI, DI (domestic investment) and TE (tertiary education enrolment) by taking their Logio.This we have done to get meaningful parameters (not exceeding unitary value) and also due to fact that log measures the elasticity of the variables. The purpose of descriptive analysis is to give an indication some basic parameter characteristics.

From the above table it can be seen that FDI to Kenya averaged 7.32770 in log format equivalent to KES 21,266,694.87 millions .The highest amount of FDI received was 10.97318 in log format or KES 94,011,287,400.89 millions and the lowest $10^{4\,832385}$ equivalent to KES 67,980.60 millions.

4.2 Unit Root Tests

This test is necessary because time series data requires transformation failure to which the problem of non-stationarity will arise. The problem of non-stationarity is that it lead to spurious regression. The result of this makes sure such a problem is taken care of. The problem of non

stationarity arises in two ways. The variable in question can contain a deterministic trend or stochastic trend. The difference between the two is that with a deterministic trend the growth of the variable can be predicted with certainty which can either be linear or polynomial but for stochastic trend the growth of the variable cannot be predicted with certainty.

A stochastic process can only be stationery if the mean and the variance do not vary through the time. This means the mean and the variance are constant through time and values are uncorrelated across time. In that is the case then we will have a white noise process. A series is said to be non -stationery because it has a trend, which is either deterministic or stochastic.

In the model $Y_t = a_0 + p_t + pyt\text{-}i + €_t$

Where a is the intercept

P captures deterministic trend

In the equation Y will be increasing for two possible reasons:

a) Because it has a positive deterministic trend, that is, (3>0 but would be stationery after de-trending or after removing $(3_t$ In this case it is assumed there is no stochastic trend in the variable i.e. p< 0,

b) The variable contains a stochastic trend or follow a random walk with drift meaning a>0, p=l and (3=0

Testing for unit root involves testing if (b) is true

Studies by Dickey and Fuller (1979) found that if the value of p is indeed 1, ordinary least squares (OLS) estimators will be biased downwards. This implies you may reject a there is a unit root when indeed it's there. To solve this problem we need to derive the distribution for the estimator p that holds when p=l and then use F -test of the random walk hypothesis, that is, (3=0, p=l

To conduct the F test to test for the presence of unit in variables involves testing the hypothesis that (3=0 and p=l

In the equation

$Y_t = ao + Pt + pyt\text{-}i + e_t$

Y_t - yt-l= ao + Pt+ pyt-i-yn + €t

$Y_t - y_t.i = a_0 + (3t+(p-l)yt\text{-}i + e_t$

Where $a = 1+p$ or $a-1= p$

To test for stationarity you test for the significance of p

Ho: $p=0$ which implies that $a-1= p = 0$ which means $a = 1$

H_A: $p < 0$ which implies that $a-1< p < 0$ meaning $a < 1$ which means the series is stationery and failure to reject the null hypothesis means there is at least one unit root in the series. However it may be possible that the series has 2 to 3 roots. In order to test whether the series is integrated of order 1, that is, $Y_t \sim I(1)$, the series is differenced once to remove the first unit root after the same test is applied and the equation becomes $Y_t - y_t\text{-}i = p\ Ay_t\_i + G_t$

If we reject the null hypothesis , that confirms Y is integrated of order 1 which implies Ay is integrated of order 0, that is $Ay_t \sim I(0)$

If we cannot reject the H_0 again it means that Y has a unit root and we have to difference the series once more. The process of differencing continues till we reject the null hypothesis. The number of differentials Y is required to go through before becoming stationary is what is referred to as order of integration.

Since Dickey Fuller test does not take account of having residuals that are auto correlated we use augmented Dickey Fuller test. This is identical to the standard Dickey fuller test but is constructed within the regression model of the form

$Y_t - y_t\text{-}i = py_t\text{-}i + Gyj\ Ay_4 + p,$

Where j is the lag length, which is set to ensure that the error term is distributed as white noise. Because of non stationarity, particular series are transformed to achieve stationarity.

Table 1: ADF Tests on Variables at Level

Variable	No. of lags	ADF	Order of integration
GDP	1	-2.557823	i(i)
FDI	1	-.3.945356	i(i)
Domestic Investment (DI)	1	-3.781452	i(i)
Tertiary education enrolment (TE)	1	-2.659453	i(i)
Corruption Index (CI)	1	-2.623169	i(i)
Political Unrest (PU)	1	-3.457962	i(i)
Drought (DRT)		-3.401507	K D

1% Critical Value* -4.3382

Source: Generated from test

5% Critical Value	-3.5867
10% Critical Value	-3.2279

ADF Test Critical values:

If the value of the ADF test statistic is greater than the critical value we conclude that there is a unit root. We can therefore conclude the presence of unit roots in FDI, domestic investment (at 5% confidence level) and political unrest and drought (at 10%).For the remainder variables we have to difference them to further test for presence of unit root.

The graphs below show movement of the continuous variables at their level. Note drought and political unrest are represented by the dummy which is not continuous.

Figure 3: Graphs Showing Movement of Regression Variables at Level

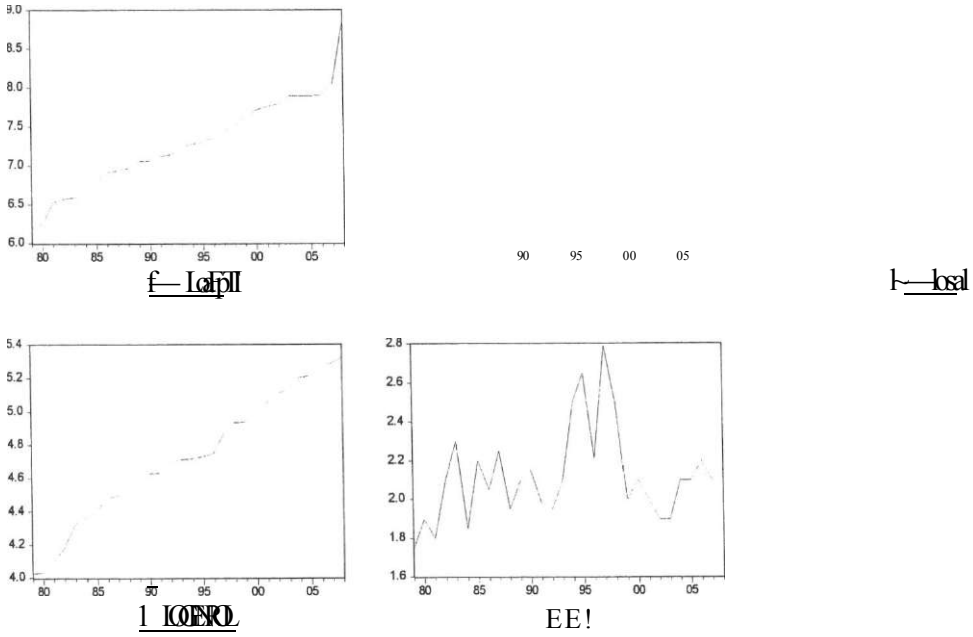


Table 2: ADF Tests on Variables at First Difference

Variable	No. of lags	ADF	Order of integration
GDP	2	-3.338860	**1**(0)
FDI	**1**	-.587937	**1**(0)
Domestic Investment (DI)	**1**	-3.468812	**1**(0)
Tertiary education enrolment (TE)	**1**	-3.953612	**1**(0)
Corruption Index (CI)	**1**	-5.284990	**1**(0)
Political Unrest/Violence (PU)	**1**	-4.944064	**1**(0)

Null Hypothesis:	Obs	F-Statistic	Probability
FDI does not Granger Cause GDP	25	0.39519	0.84403
GDP does not Granger Cause FDI		0.62893	0.68085
DI does not Granger Cause GDP	25	0.37429	0.85798
GDP does not Granger Cause DI		9.09613	0.00050
Tertiary education does not Granger Cause GDP	25	1.41565	0.27826
GDP does not Granger Cause Tertiary education		1.41919	0.27710
Drought does not Granger Cause GDP	25	0.61432	0.69098
GDP does not Granger Cause Drought		1.25597	0.33591
Corruption does not Granger Cause GDP	25	0.65185	0.66508
GDP does not Granger Cause Corruption		3.32316	0.03468
Political unrest does not Granger Cause GDP	25	0.95614	0.47640
GDP does not Granger Cause Political unrest		0.23306	0.94158
DI does not Granger Cause FDI	25	0.27913	0.91691
FDI does not Granger Cause DI		0.66346	0.65716
Tertiary education does not Granger Cause FDI	25	1.60834	0.22185
FDI does not Granger Cause Tertiary education		2.01584	0.13855
Drought does not Granger Cause FDI	25	0.57174	0.72076
FDI does not Granger Cause Drought		4.19524	0.01538
Corruption does not Granger Cause FDI	25	0.57958	0.71525
FDI does not Granger Cause Corruption		0.76569	0.58950
Political unrest does not Granger Cause FDI	25	0.62315	0.68485
FDI does not Granger Cause Political unrest		2.97141	0.04933
Tertiary education does not Granger Cause DI	25	1.24313	0.34103
DI does not Granger Cause Tertiary education		1.08303	0.41143
Drought does not Granger Cause DI	25	4.44017	0.01242
DI does not Granger Cause Drought		1.61362	0.22048
Corruption does not Granger Cause DI	25	0.90853	0.50295
Domestic Investment does not Granger Cause Corruption		0.73606	0.60867
Political unrest does not Granger Cause DI	25	0.29643	0.90690
DI does not Granger Cause Political unrest		1.49353	0.25387
Drought does not Granger Cause Tertiary education	25	0.40706	0.83600
Tertiary education does not Granger Cause Drought		0.92634	0.49288
Corruption does not Granger Cause Tertiary education	25	1.35546	0.29873
Tertiary education does not Granger Cause Corruption		1.07188	0.41681
Political unrest does not Granger Cause Tertiary education	25	0.99472	0.45576
Tertiary education does not Granger Cause Political unrest		3.06960	0.04464
Corruption does not Granger Cause Drought	25	2.08208	0.12854
Drought does not Granger Cause Corruption		1.05610	0.42452
Political unrest does not Granger Cause Drought	25	0.51295	0.76222
Drought does not Granger Cause Political unrest		1.27690	0.32773
Political unrest does not Granger Cause Political unrest	25	1.27700	0.32769
Drought does not Granger Cause Political unrest		_ 0.54352	_ 0.74064

F critical with a = 0.05, 6dfi/23df$_2$ is 2.5277

From the tests FDI, domestic investment, tertiary education, corruption, political unrest/violence and drought shows they influence economic growth rates. This is because the F* calculated are all less than F critical. Thus the model specification on causality is correct.

4.4 Co-integration Analysis

The purpose of co-integration analysis is to test whether the variables are integrated of same order and whether a linear combination of the variables is also integrated of the same order or lower. The main aim of this test is to ensure there is a stable long run relationship between the variables and help in specifying the regression model. This is because differencing of variables could lead to loss of long run equilibrium relationship between the variables. Thus the aim is to test if two trends are moving together in the long run in any systematic and consistent way. Co-integration of variables implies there must be some adjustment process to prevent deviations from long run equilibrium relationship from widening. An error correction model takes care of this by allowing both long run and short run factors to play a role.

The table below shows a summary of co-integration tests on all variables with GDP as the dependant variable.

Table 3: Johansen Bivariate Co-integration Results

Variable	LR statistic	Conclusion
Foreign Direct investment (FDI)	13.61609	Non- cointegrated
Domestic investment(DI)	13.08315	Non -cointegrated
Tertiary education enrolment(TE)	8.82358	Non- cointegrated
Corruption levels (measured by index)	8.665773	Non -cointegrated
Drought	14.86807	Non-cointegrated

Source: From tests conducted

Critical values: At 5% is 15.41

At 1% is 20.04

From the above tests we can conclude all the explanatory variables are not co-integrated with the dependant variable. Thus we shall not make use of an error correction model for the purposes of estimation. The model is well specified without inclusion of error correction term.

4.5 Regression Results and Discussion

We first estimate the equation with all the values at level. In their first level explanatory variables are not statistically significant, except for corruption and domestic investment.

Dependent Variable: LOGGDP
Method: Least Squares
Date: 06/21/11 Time: 15:30
Sample: 1979 2008
Included observations: 30

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.053844	0.460527	0.116919	0.9079
LOGFDI	0.004252	0.018791	0.226298	0.8230
LOGDI	0.979834	0.107228	10.07048	0.0000
LOGTE	0.095077	0.122270	0.777594	0.4447
CORRUPTION	-0.200212	0.112406	-1.781157	0.0881
DROUGHT	0.058319	0.063134	0.923732	0.3652
UNREST	0.065137	0.067662	0.962678	0.3457

R-squared	0.991352	Mean dependent var	12.68236
Adjusted R-squared	0.989097	S.D. dependent var	1.168640
S.E. of regression	0.122029	Akaike info criterion	-1.168160
Sum squared resid	0.342492	Schwarz criterion	-0.841213
Log likelihood	24.52239	F-statistic	439.4541
Durbin-Watson stat	1.296075	Prob(F-statistic)	0.000000

The coefficient of FDI at level is also positive which is as per our apriori expectation, implying FDI contributes positively to GDP increase/economic growth. The purpose of these runs is that they help us to derive the estimated equation which has the intercept and slope of the coefficient. The run has additional information too we can use to make inference. This includes:

- The adjusted R^2 that tells us the percentage of dependant variable explained by the endogenous variables, above run 98.9%
- The mean of the dependant variable
- The t-statistic and p-value columns testing whether any of the coefficients might be equal to zero.
- Standard errors of coefficients that gives us an indication of how much point estimate is likely to vary from corresponding population parameter
- F-statistic tries to test the hypothesis that all coefficients (except the intercept) are equal to zero. This statistic has *F(p-l,n-p*) distribution under the null hypothesis and normality assumption, and its *p-value* indicates probability that the hypothesis is indeed true.From above F-statistic is 439.4541 which we compare to F critical with a = 0.05, 6df/23df2 is

2.5277 and reject the null hypothesis that all coefficients are equal to zero, implying we accept the alternative that they are different from zero.

- Akaike information criterion and Schwarz criterion are both used for model selection. Generally when comparing two alternative models, smaller values of one of these criteria will indicate a better model.
- Durbin-Watson statistic

  If e_t is the residual associated with the observation at time t, then Durbin-Watson test statistic is given by

$$d = \frac{EL_2(^{e}t - {}^{e}<-1)^2}{\sum_{t=1}^{T} e_t^2}$$

  where T is the number of observations. Since d is approximately equal to $2(1 - r)$, where r is the sample autocorrelation of the residuals, $d = 2$ implying $r=l$ indicates no autocorrelation. The value of d always lies between 0 and 4. If the Durbin-Watson statistic is substantially less than 2, there is evidence of positive serial correlation. As a rough rule of thumb, if Durbin-Watson is less than 1.0, there may high presence of autocorrelation. Small values of d indicate successive error terms are, on average, close in value to one another, or positively correlated. If $d > 2$ successive error terms are, on average, much different in value to one another, that is, negatively correlated. In regressions, this implies an underestimation of the level of statistical significance. From our run this statistic is 1.29 implying no serious auto correlation in our model.

We run a second estimation with some variables lagged once. This is because in some cases a considerable length of time lapses between the movement of the explanatory variables and response of the dependent variable. Lagged variables leave the model with more realistic and dynamic properties.

Dependent Variable: LOGGDP
Method: Least Squares
Date: 06/22/11 Time: 15:55
Sample(adjusted): 1980 2008
Included observations: 29 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
c	-0.250468	0.703848	-0.355854	0.7253
LOGFDM	0.004840	0.026165	0.184967	0.8549
LOGDM	0.960298	0.127831	7.512226	0.0000
LOGTE 1	0.215663	0.147301	1.464100	0.1573
CORRUPTION	0.015729	0.155394	0.101217	0.9203
DROUGHT	0.024709	0.079933	0.309116	0.7601
UNREST	-0.007371	0.079898	-0.092251	0.9273
R-squared	0.985635	Mean dependent var		12.74644

Adjusted R-squared	0.981717	S.D. dependent var	1.134416
S.E. of regression	0.153390	Akaike info criterion	-0.705160
Sum squared resid	0.517627	Schwarz criterion	-0.375123
Log likelihood	17.22483	F-statistic	251.5782
Durbin-Watson stat	0.928305	Prob(F-statistic)	0.000000

From the t-statistic domestic investment and tertiary education have significance in explaining GDP growth. The coefficient for FDI, domestic investment and tertiary education are positive, much in line with earlier stated apriori expectation.

We can further improve on this result by leaving out corruption, drought and political violence which have low t statistic (insignificant)

Dependent Variable: LOGGDP
Method: Least Squares
Date: 06/22/11 Time: 16:16
Sample(adjusted): 1980 2008
Included observations: 29 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.190257	0.487775	-0.390050	0.6998
LOGFDI 1	0.003413	0.022244	0.153422	0.8793
LOGDI 1	0.959953	0.115526	8.309420	0.0000
LOGTE 1	0.214789	0.133006	1.614881	0.1189

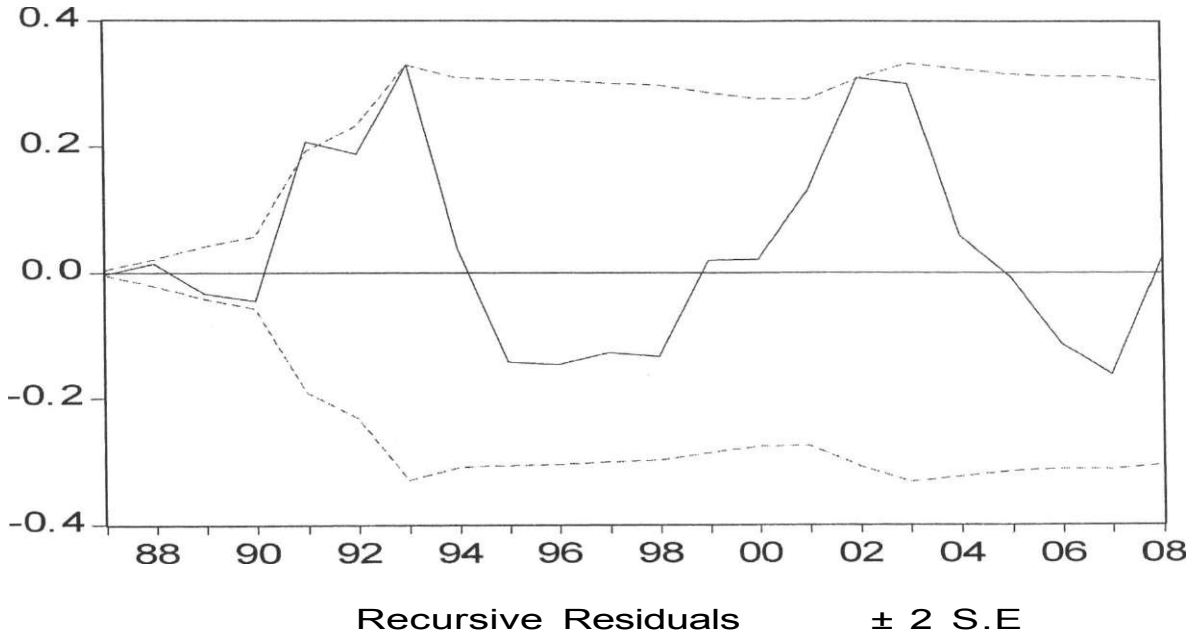
R-squared	0.985570	Mean dependent var	12.74644
Adjusted R-squared	0.983839	S.D.dependent var	1.134416
S.E. of regression	0.144214	Akaike info criterion	-0.907596
Sum squared resid	0.519941	Schwarz criterion	-0.719004
Log likelihood	17.16015	F-statistic	569.1869
Durbin-Watson stat	0.910831	Prob(F-statistic)	0.000000

4.6 Model Diagnostic Tests

Because our model may have suffered in appropriate specification, functional form and reliability of results, there was need to conduct some diagnostic tests to be sure.

We first perform a recursive test on the residuals of the estimated equation. This we plot showing the standard error bands of ±_2. The graph shows the models is generally correctly specified except for a few outliers.

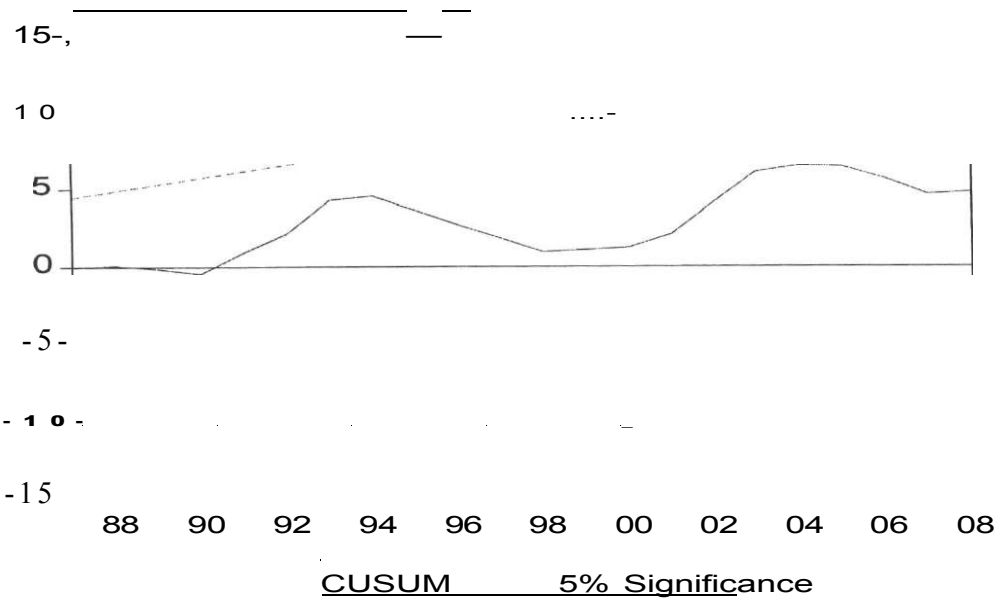
Figure 1: Graph of Residuals with + 2 Standard Errors



The CUSUM test further confirms the above observation of correctly specified model.

When plotted in such as in figures 1 above and 2 below it implies the model is correctly specified as it doesn't lie outside the two (2) standard errors. This assures us our model is robust.

Figure 2: CUSUM Test Graph



Ramsey RESET test give F=l.355614 (compared to F critical 2.5277) with a probability of 0.288279 which shows no specification error. The Ramsey Reset as proposed by Ramsey (1969) only applies to equations estimated by least squares and tests for incorrect functional form ad specification errors. The results are as shown below.

Ramsey RESET Test:

F-statistic	1.355614	Probability	0.288279
Log likelihood ratio	7.636382	Probability	0.105844

Test Equation:
Dependent Variable: LOGGDP
Method: Least Squares
Date: 06/17/11 Time: 17:19
Sample: 1980 2008
Included observations: 29

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3766.900	8017.945	0.469809	0.6441
LOGFDI 1	38.61728	83.49036	0.462536	0.6492
LOGDI 1	-1697.174	3667.707	-0.462734	0.6491
LOGTE 1	-322.0481	696.2273	-0.462562	0.6492
CORRUPTION	120.3661	260.1665	0.462650	0.6492
DROUGHT	9.401633	20.32261	0.462619	0.6492
UNREST	-20.28577	43.93092	-0.461765	0.6498
FITTED^A2	272.5600	594.7271	0.458294	0.6522
FITTED^A3	-21.64095	47.58549	-0.454780	0.6547
FITTED^A4	0.858786	1.898373	0.452380	0.6564
FITTED^A5	-0.013625	0.030208	-0.451023	0.6574

R-squared	0.989196	Mean dependent var	12.74644
Adjusted R-squared	0.983193	S.D.dependent var	1.134416
S.E. of regression	0.147066	Akaike info criterion	-0.714171
Sum squared resid	0.389312	Schwarz criterion	-0.195542
Log likelihood	21.35548	F-statistic	164.8007
Durbin-Watson stat	0.947688	Prob(F-statistic)	0.000000

We further conduct white heteroscedasticity test on residuals from least squares regression. Heteroscedasticity if present would imply the disturbance variance is not constant across the time periods. Ordinary Least Squares in such a case would be inconsistent but the estimated standard errors will no longer be valid because they will be biased. This test is crucial to ensure our estimated parameters are efficient and unbiased. The test shows N*R2=12.909 against Chi square, Ji^2 οο5 (24df) = 36.42, so the null hypothesis of no heteroscedasticity cannot be rejected.

White Heteroskedasticity Test:

F-statistic	1.444096	Probability	0.238820
Obs*R-squared	12.90923	Probability	0.228791

Test Equation:
Dependent Variable: RESID^A2

Method: Least Squares
Date: 06/17/11 Time: 14:58
Sample: 1980 2008
Included observations: 29

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.499965	1.015361	0.492401	0.6284
LOGFDI 1	0.035295	0.096012	0.367605	0.7175
LOGFDI 1^A2	-0.001194	0.002911	-0.410313	0.6864
LOGDI 1	0.017524	0.310298	0.056474	0.9556
LOGDI 1^A2	-0.002791	0.014159	-0.197145	0.8459
LOGTE 1	-0.069374	0.380432	-0.182356	0.8573
LOGTE 1^A2	0.005594	0.017772	0.314744	0.7566
CORRUPTION	-0.411496	0.294826	-1.395726	0.1798
CORRUPTIONS	0.082589	0.064270	1.285026	0.2151
DROUGHT	-0.026019	0.012379	-2.101889	0.0499
UNREST	0.010012	0.011023	0.908305	0.3757

R-squared	0.445146	Mean dependent var	0.014416
Adjusted R-squared	0.136894	S.D.dependent var	0.021988
S.E. of regression	0.020427	Akaike info criterion	-4.662195
Sum squared resid	0.007511	Schwarz criterion	-4.143566
Log likelihood	78.60183	F-statistic	1.444096
Durbin-Watson stat	2.148776	Prob(F-statistic)	0.238820

We further test for serial correlation using the Breusch-Godfrey serial correlation LM test.

The test reveal no serial correlation as F statistic of 1.7708 is not significant (F critical with a = 0.05, 6df,/23df$_2$ is 2.5277) and N*R^2= 4.36 is less than ^ $_{0.05}$ (24df) = 36.42. We can also infer there is no spurious correlation by comparing the R with Durbin-Watson statistic. If the former is less than the latter it shows there is no spurious correlation, which is our case. Thus we confirm no serial correlation with our model. This was necessary to ensure our final estimated parameters are best linear unbiased efficient estimates of the true parameters. In other words the sample parameters truly represent the population parameters and that the conclusion reached about sample parameters also holds about the entire population.

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.770829	Probability	0.195853
Obs*R-squared	4.362823	Probability	0.112882

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Date: 06/17/11 Time: 15:27
Presample missing value lagged residuals set to zero.

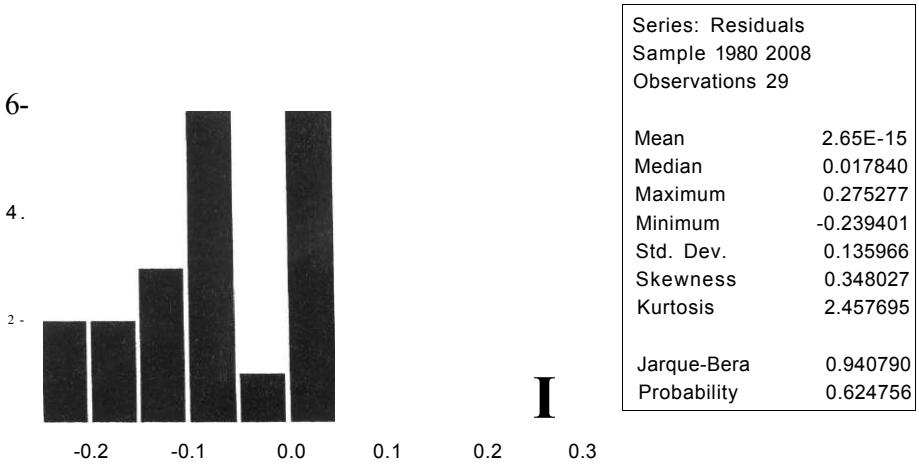
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.176620	0.729231	-0.242201	0.8111
LOGFDM	0.005947	0.027989	0.212476	0.8339

LOGDI 1	-0.061286	0.123750	-0.495239	0.6258
LOGTE 1	0.065289	0.137294	0.475544	0.6396
CORRUPTION	0.017610	0.155574	0.113195	0.9110
DROUGHT	0.004900	0.076490	0.064062	0.9496
UNREST	0.047171	0.084092	0.560946	0.5811
RESID(-1)	0.416651	0.231180	1.802283	0.0866
RESID(-2)	0.035577	0.273399	0.130130	0.8978

R-squared	0.150442	Mean dependent var	1.09E-15
Adjusted R-squared	-0.189381	S.D. dependentvar	0.122193
S.E. of regression	0.133262	Akaike info criterion	-0.943874
Sum squared resid	0.355175	Schwarz criterion	-0.519541
Log likelihood	22.68617	F-statistic	0.442707
Durbin-Watson stat	1.797415	Prob(F-statistic)	0.881007

We finally conduct histogram normal distribution test .If the error terms are normally distributed the histogram is bell-shaped. The main reason for this test is that it enables us build confidence intervals which help us to conduct hypothesis tests about the population parameters. If the error terms were not normally distributed it would imply we cannot use sample parameter characteristics to infer about the population it comes from.

Figure 3: Histogram of Residuals



The Jarque-Bera statistic for testing normality of the residuals has a probability of 0.624756, strongly pointing out that the error terms are normally distributed.

We therefore conclude that since the model passes all the tests conducted, our estimates are efficient and standard errors unbiased (by virtual of no serial correlation) and that the results are consistent with stable parameters.

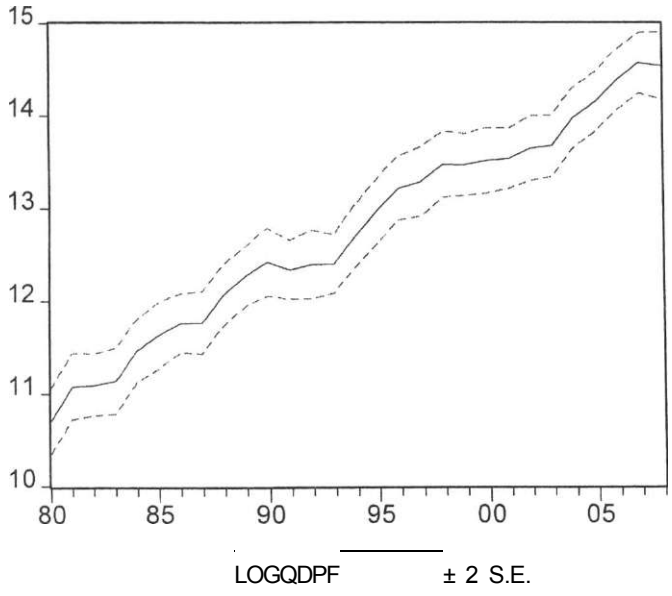
The following is the equation we estimated using ordinary least squares method. The figures in parenthesis are the t values.

$$Y = -0.250468 + 0.004840\ Xi + 0.960298X2 + 0.215663\ X_3 + 0.015729X4$$
$$\quad (0.35) \qquad (0.18) \qquad (7.51) \qquad (1.46) \qquad (0.10)$$

$$+0.0155394\ Di - 0.007371D_2$$
$$\quad (0.30) \qquad (0.09)$$

Where Y is the GDP growth, X\ is foreign Direct Investment, X_2 j_S Domestic Investment, and X3 is Tertiary Education enrollment, X4 corruption levels, Di Drought instances and D2 political violence/unrest. A graphical presentation of this estimation and forecast is as shown below:

Figure 4: A Graph of Model Forecast



Forecast: LOGGDPF
Actual: LOGGDP
Forecast sample: 1979 2008
Adjusted sample: 1980 2008
Included observations: 29

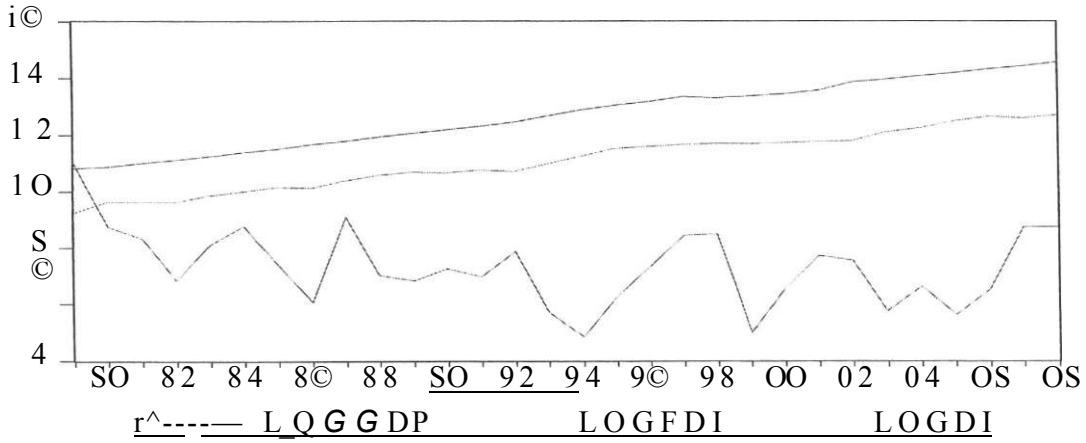
Root Mean Squared Erfbd 33601
Mean Absolute Error 0.110019
Mean Abs. Percent Errflr868778
Theil Inequality Coeffi0i§66221
Bias Proportion 0.000000
Variance ProportioQ.003617
Covariance Proporflcfr96383

In the above figure it shows our model forecast is robust and hence reliable as it lies within the two (2) bands of standard errors. Thus we can use this model to forecast future estimated economic growth within certain degrees of confidence intervals.

With the assumption that our estimates are unbiased with residuals being white noise process, the regression show that overall the explanatory variables included in the model explain about 98.49% of the changes in GDP captured by R^2 .Thus the model is good in explaining the economic growth over the thirty year period.

Foreign direct investment has a positive coefficient of 0.0048. That means for one unit change in GDP, FDI explains about 0.0048 of that change. This is insignificant as shown by low t value. This may be partly explained by the fact that although FDI inflows came to Kenya, most of it left to neighbouring countries like Uganda and Tanzania where the microeconomic environment was more favourable. Also FDI inflows may have taken long to have influence on economic growth (longer time lags).The other explanation is that foreign firms are subsidiaries of foreign parent companies and that they remit most of their earnings to home countries. Thus FDI may not necessarily have helped in GDP growth. A graphical presentation of the movement of FDI and GDP shows while GDP and domestic investment had consistent growth, FDI inflows had quite unpredictable pattern, increasing in one year and declining in the next.

Figure 5: A Graph Showing Movement of GDP, FDI and Domestic Investment from 1979-2008 in Logarithmic Formats



As an over view we have conducted the following tests and for each test the relevance is indicated:

- We conducted the test on causality and this was necessary to be able to tell if indeed changes in FDI caused changes in economic growth. The test did confirm changes in FDI cause changes in economic growth
- A unit root test was done to ensure all variables had unit roots. This ensures we didn't end up with spurious regression. Our test did prove that all variables had unit roots thus our regression was alright. Some variables had unit root at level while others at first difference.

- We then conducted co-integration test with a view to establishing long run relationship among variables used in the regression. This test proved that our model specification was alright without inclusion of an error correction term on long term
- We then tried other tests to prove wellness of our fit mainly graph of residual within 2 bands of error term and the CUSUM graph. These all pointed to a well fitted estimation equation.
- We also conducted a heteroscedasticity test on error term which proved there was no heteroscedasticity in our model. Thus is no chance of having varying disturbance term which would lead to inconsistent estimates and biased standard errors.
- We also did confirm there no spurious regression by conducting serial correlation test

All these tests imply that our model was well specified and this leads to acceptance of our research null hypothesis that FDI contributes to economic growth.

Domestic investment as shown by positive coefficient seems to have contributed the greatest in economic growth. This is in line with our apriori expectation. This conforms to the general belief and theory that domestic investment and more so public investment by the government towards public projects such as roads, water , power , health etc creates economic stimulus that cause domestic investors to put more effort to utilize those facilities by investing. This through the multiplier effect causes more economic growth.

Tertiary education also has positively contributed to economic growth. This is self explanatory in that the more skilled manpower the country has the higher is likely to be the productivity; other factors held constant. From the earlier literature man power was also highlighted as one attraction of FDI. Despite a common belief that technology replaces labour, the truth is that even very advanced technologies still depend on human labour for certain aspects, for example setting and monitoring parameters.

Corruption and drought contrary to our apriori expectation have positive coefficient though not statistically significant. It is a big contradiction as ordinarily corruption erodes the public confidence and increase cost of investment and drought mainly affects agriculture sector which is heavily dependent it for food production. Nevertheless these are our enquiry results.

Political unrest had negative coefficient in line with our expectation. Generally political unrest like ones experienced in 1992 and 2008 post election violence displace population meaning they are not involved in productive economic activities. However it's not statistically significant.

CHAPTER 5: CONCLUSION AND POLICY RECOMMENDATION

5.1 Conclusion

Our study aimed at empirically testing the contribution of FDI to Kenya's economic growth for thirty year period, 1979-2008. Included in the analysis were other variables namely local investment component, tertiary education levels, corruption, drought and political violence /unrest, which are thought to influence economic growth as well. This is because economic growth is caused by a number of factors acting simultaneously.

The recommendations here under are primarily derived from our findings under the foregoing chapter. We did conduct a number of tests to validate our findings .From our findings a major portion of the GDP growth is explained by local component of investment. This implies the government should encourage local entrepreneurship by offering conducive investment environment. This includes but not limited to creation of certainty on political scenes, putting in place the necessary infrastructure e.g. roads, easy business registration process, stable macro and micro economic environment, offering tax rebates on new investments (e.g. for EPZ) and many more.

We also saw FDI has positive causality effect to GDP increase, though not significant. The government should encourage more foreign direct investment through creation of a relevant authority to address the concerns of foreign investors. Foreign direct investment compliments the local investment and therefore has a role in capital formation process. Furthermore it enhances employment levels through which government gains by taxation.

The government must also create stable political environment. The coefficient for political unrest is negative implying that when the country experiences political instability/unrest the GDP growth slackens. The coefficient for political violence/unrest is negative implying that when there politically instigated violence on large scale such as those of 1990, 2008 and the failed attempted coop of 1982 that negatively affects the economic growth. This is because it displaces the human population such that they are not engaged in economically productive activities. Also property is destroyed during such commotion leading to loss of income.

5.2 Policy Recommendations

Below policy recommendations are intended for the audience of the Kenya government, it being in a better position to address on a larger scale the factors identified as affecting FDI inflows into the country and consequently economic growth. The government manages and regulates the macro and micro economic aspects of the economy through legislation process. It thus has a better reach.

The study reveals that political unrest/violence negatively affects economic growth. The objective here for the government is to ensure there is order and that laws are followed. Thus the government must be accountable and avoid occurrence of political violence/unrest such as the attempted 1982 coup which came to happen because of autocracy of the then KANU administration. This can be avoided through democratic politics and respect of rule of law.

Also political violence such as those of 1992 and 2008 can be avoided through transparency and respect of the peoples wish in elections. At the moment this is in place but we must strive to maintain the same. The recent passage of the new constitution is further expected to decentralize major government operations and enhance re-distribution of resources. This will help in even economic growth across the country and more importantly to the rural areas where majority of the population live.

The government should encourage local investment and foreign direct investment alike. These improve process of capital formation necessary for consistent growth in GDP. And finally the government must create conducive business environment to win the confidence of local and foreign investors. This involves enhancing security, improving on infrastructure such as roads, energy, macro-economic environment and regulation framework.

Tertiary education favored positive economic growth as shown by the positive coefficient which was statistically significant. The tertiary education enrolment has been increasing steadily over the period covered by this study. Thus the government must invest more in education which is already in place, for example through free and compulsory primary education programme. The government ought to expand middle and higher institutions of learning in line with population growth. That will offer a larger portion of population an opportunity to attain skills that contribute to economic growth. The government therefore needs to increase education funding and ensure correct use of the same resources. A high pool of skilled human capital will attract more FDI.

To mitigate the effects of draught the government needs to reduce dependence on rain fed agriculture and invest more in irrigation schemes, encourage planting of draught resistant crops, agro-forestry and provide agricultural education and extension services. There is also need to invest in ultra modern weather forecasting technologies and warn farmers ahead of looming draught. That will help them to plan ahead. The government needs to sponsor crop and livestock insurance awareness programmes. This compensates farmers for loss of incomes following occurrence of natural calamities.

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Appendix i

I i)l Stocks in Kenya, Uganda and Tanzania in US $ Millions

l Year	Kenya	Tanzania	Uganda
: 1990	668	388	645
1995	732	620	1,259
2000	931	2,778	3,423
2006	1,164	5,342	9,388
2007	1,892	5,942	11,655

Source: UNCTAD, World Investment Report, 2008

Appendix ii

Kenya Data used in Regression

Year	GDP KES M	Dl KESM	FDI KES M	TE	CI	PI	Drt
2008	2,099,798.00	323,688.00	58,289.86	208,047	2.15	1	1
2007	1,825,960.00	294,971.00	6,276.02	194,735	2.1	0	0
2006	1,642,405.00	309,402.00	4,108.00	183,396	2.2	0	0
2005	1,445,477.00	264,912.00	921.96	162,828	2.1	0	0
2004	1,286,462.00	207,196.00	3,331.83	159,663	2.1	0	0
2003	1,138,061.00	179,204.00	6,373.03	135,360	1.9	0	0
2002	1,035,374.00	131,683.49	1,616.21	127,723	1.9	0	0
2001	770,027.80	128,360.61	424.21	111,875	2	0	1
2000	685,436.20	122,510.21	8,872.37	95,399	2.1	0	0
1999	639,056.20	120,102.69	1,105.70	86,085	2	0	1
1998	596,539.30	120,088.74	913.09	73,552	2.5	0	0
1997	620,942.60	115,270.00	1,401.62	86,617	2.79	1	0
1996	523,331.24	107,469.60	1,058.92	52,249	2.21	0	0
1995	460,805.00	101,562.80	2,597.71	50,001	2.65	0	0
1994	393,690.00	77,299.80	298.30	53,721	2.5	0	0
1993	320,150.60	58,749.60	125.51	51,654	2.1	0	0
1992	256,142.00	44,674.60	509.05	42,542	1.95	1	0
1991	221,249.80	47,021.80	1,506.48	31,168	1.98	0	1
1990	195,536.40	42,887.00	4,566.49	39,192	2.15	1	0
1989	172,340.00	43,450.80	4,866.31	56,175	2.1	0	0
1988	152,680.00	39,041.00	144.25	42,616	1.95	0	0

1987	131,220.00	32,499.20	690.39	36,115	2.25	0	0
1986	116,860.00	25,024.20	2,223.63	30,200	2.05	0	0
1985	99,860.00	25,810.40	1,874.38	25,501	2.2	0	0
1984	88,820.00	22,205.00	310.81	23,402	1.85	0	1
1983	76,840.00	19,210.00	739.21	21,340	2.3	1	1
1982	67,540.00	15,200.00	271.00	15,360	2.1	0	0
1981	60,460.00	15,060.00	663.17	12,506	1.8	0	0
1980	52,640.00	15,340.00	6,231.65	10,804	1.9	0	0
1979	50,210.00	10,320.00	6,249.91	10,600	1.75	0	0

*FDI figures originally in US $ converted to KES at exchange rate of 80 for analysis purpose

Source: GoK, Economic Survey, various issues, Government Printer, Nairobi

GoK, Statistical Abstract, various issues, Government Printer, Nairobi

UNCTAD, World Investment Report, various issues.

Africa Development Bank, Africa Economic Outlook, various issues

Appendix iii

Johansen Cointegration tests

Date: 06/14/11 Time: 11:56
Sample: 1979 2008
Included observations: 25
Test assumption: Linear deterministic trend in the data
Series: LOGFDI LOGGDP
Lags interval: 1 to 1

Eigenvalue	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.417746	13.61609	15.41	20.04	None
0.003789	0.094896	3.76	6.65	At most 1

*(**) denotes rejection of the hypothesis at 5%(1%) significance level
L.R. rejects any cointegration at 5% significance level

Unnormalized Cointegrating Coefficients:

LOGFDI	LOGGDP
-0.215974	0.144444
0.131641	0.126837

Normalized Cointegrating Coefficients: 1 Cointegrating Equation(s)

LOGFDI	LOGGDP	C
1.000000	-0.668801	-8.096074
	(0.23492)	

Log likelihood	2.017780

Date: 06/14/11 Time: 12:12

Sample: 1979 2008

Included observations: 28

Test assumption: Linear deterministic trend in the data

Series: LOGGDP LOGDI

Lags interval: 1 to 1

Eigenvalue	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.367114	13.08315	15.41	20.04	None
0.009742	0.274110	3.76	6.65	At most 1

*(") denotes rejection of the hypothesis at 5%(1%) significance level

L.R. rejects any cointegration at 5% significance level

Unnormalized Cointegrating Coefficients:

LOGGDP	LOGDI
-2.055938	2.396674
0.202419	-0.030805

Normalized Cointegrating Coefficients: 1 Cointegrating Equation(s)

LOGGDP	LOGDI	C
1.000000	-1.165732	0.247147
	(0.02476)	

Log likelihood 75.71962

Date: 06/14/11 Time: 12:09
Sample: 1979 2008
Included observations: 28
Test assumption: Linear deterministic trend in the data
Series: LOGGDP LOGTE
Lags interval: 1 to 1

Eigenvalue	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.259616	8.823580	15.41	20.04	None

0.014437	0.407169	3.76	6.65	At most 1

•(") denotes rejection of the hypothesis at 5%(1%) significance level
L R rejects any cointegration at 5% significance level

Unnormalized Cointegrating Coefficients:

LOGGDP	LOGTE
-0.724652	1.048084
0.332053	-0.220382

Normalized Cointegrating Coefficients: 1 Cointegrating Equation(s)

LOGGDP	LOGTE	C
1.000000	-1.446327	3.064307
	(0.11445)	
Log likelihood	_58.17008_	

Date. 06/14/11 Time: 12:18
Sample: 1979 2008
Included observations: 28
Test assumption: Linear deterministic trend in the data
Series: LOGGDP CORRUPTION
Lags interval: 1 to 1

Eigenvalue	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value	Hypothesized No. of CE(s)
0.265996	8.665773	15.41	20.04	None
0.000252	0.007044	3.76	6.65	At most 1

*(") denotes rejection of the hypothesis at 5%(1%) significance level
L.R. rejects any cointegration at 5% significance level

Unnormalized Cointegrating Coefficients:

LOGGDP	CORRUPTION
0.001169	0.954355
0.184067	-0.301890

Normalized Cointegrating Coefficients: 1 Cointegrating Equation(s)

LOGGDP	CORRUPTION	C
1.000000	816.4473	-1754.339
	(40441.5)	
Log likelihood	50.40360	

Source: tests/runs conducted