THE DETERMINANTS OF FIXED CAPITAL FORMATION IN KENYA (1973-2007) $^{\prime\prime}$

BY PETER KIPKIRUI LANGAT X50/70810/2007

SUPERVISOR:

DR. NYANDEMO SAMUEL MISATI

IVERSITY OF NAIRORI LIBRARN EAST AFRICANA

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ACRONYMS

1.1

AGOA	African Growth Opportunity Act
AIDS	Acquired Immune Deficiency Syndrome
ANOVA	Analysis of Variance
COMESA	Common Market of Eastern and Southern Africa
EAC	East Africa Community
FDIs	Foreign Direct Investments
FTA	Free Trade Agreement
GDI	Gross Domestic Investment
GDP	Gross Domestic Product
GFCF	Gross Fixed Capital Formation
GoK	Government of Kenya
HIV	Human Immune Virus
ICDC	Industrial Credit Development Corporation
IMF	International Monetary Fund
KIE	Kenya Industrial Estates
LDC	Least Developed Country
MIGA	Multilateral Investment Guarantee Agreement
МТР	Medium Term Plan
NEPAD	New Partnership for African Development
SADC	South African Development Community
TRIMS	Trade Related Investment Agreement
UNCTAD	United Nations Conference on Trade and Development
WIPA	World Association of investment
ZIC	Zimbabwe Investment Center

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DECLARATION

This my original work and has never been presented for any degree in any other university.

NAME: PETER KIPKIRUI LANGAT

SIGNATURE:	ABrit	ttt-	
DATE:	27	08/09	

APPROVAL

This research paper has been submitted for examination with my approval as university supervisor.

NAME: <u>DR. SA</u>	MUEL MISATI NYANDEMO
SIGNATURE: _	Sumse
DATE:	27/08/09

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Finally, I would like to state that I'm wholly responsible for any errors in this paper.

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DEDICATION

To my dad David Ruto, the late mum Grace Ruto, my beloved wife Mary Chelangat, my brothers and sister. May the great Lord bless them all.

ABSTRACT

Capital formation is a term used in national accounts statistics and macroeconomics. It basically refers to the net additions to the (physical) capital stock in an accounting period, or, to the value of the increase of the capital stock; though it may occasionally also refer to the total stock of capital formed. Thus, capital formation equals fixed capital investment, the increase in the value of inventories held, plus (net) lending to foreign countries, during an accounting period. Capital is said to be "formed" when savings are used for investment purposes, often in production.

Gross Fixed Capital formation in Kenya, in real terms as well as a ratio to GDP has been falling over the years underpinned by both economic and non-economic factors. This paper seeks to identify the determinants of Fixed Capital formation in Kenya by undertaking an empirical analysis on the subject. The paper discusses the trends in investment and reviews the literature on the topic. Empirical investigations show that changes in real private investment in Kenya are best explained by changes in terms of trade and by a dummy variable representing political instability and its after effects.

1.1

CHAPTER ONE

1.0 INTRODUCTION

Investment is critical to economic growth as depicted by recent empirical studies (Hernandez-Cata 2000, Ndikumana 2000, Ben-David 1998, Chari, Kehoe and McGrattan 1997, Barro and Lee 1994, Collier and Gunning 1999, Barro 1995, Ghura and Hadjimichael 1996, Khan and Reinhart 1990, Kormendi and Mcguire 1985) conducted in Africa, Asia and Latin

America has established beyond any doubt, the critical linkage between investment and the rate of growth. Throughout the 1990s, the ratio of total Gross Domestic Investment (GDI) to Gross Domestic Product (GDP) in Asia, which experienced a high average rate of growth compared with the rest of the world, was about 27 percent, while in Latin America and sub-Saharan Africa the corresponding ratios were 20 percent and 17 percent, respectively. Econometric evidence (Beddies 1999, Ghura and Hadjimichael

1996, Ghura 1997) indicates that private investment has a stronger and more favorable effect on growth rather than government investment, probably because private investment is more efficient and less closely associated with corruption. It is estimated that the ratio of private investment to GDP in the sub-Saharan African countries which had experienced poor rates of growth in the 1990s was less than 10 percent, compared with 16 percent in Latin America, 18 percent in advanced countries and 16.5 percent in newly industrialized countries in Asia (Hernandez-Cata 2000).

Viewed against the background of growing evidence of a strong link between high investment and sustainable growth, a steady decline since the mid 1980s in Kenya's GDI as a ratio to GDP has been a matter of considerable concern to policy makers.

Capital formation is a critical input towards economic growth. But economic growth is a necessary precondition for capital accumulation. In fact most growth theories postulate that when investment is taken in its holistic sense to include expenditures on capital goods, expenditures on technology enhancement and human capital formation, investment portrays a case of increasing marginal returns (Nabende, 1997). This implies that a country that commits more of its outputs to investments expenditures is more likely

to realize rapid economic growth than the one that commits less. There are other causes, which singly or jointly influence the level of capital formation. These include Foreign Direct Investments (FDIs), Real exchange rates, cost of capital (interest rates), external debts and risk of investment among others. These factors act in varying combinations depending on policy variations and the prevailing macro-economic factors in different countries. Extensive research has been done in developing countries regarding the effects of each of these factors in the respective economies with diverse results. This is especially so for the economies in transition and the newly industrialized countries. How relevant are these factors to Kenyan economy and what are their effects? This is an empirical question that will form the thrust of this research paper.

The paper therefore, aims at investigating the factors that determine fixed capital formation in Kenya. It is also intended to explore the factors that are relevant as crowding-in factors for fixed capital formation with a view to recommending policy interventions that may help to strengthen them. It also identifies factors that act as crowding-out agents for capital formation with the intention of suggesting ways that may minimize or even eliminate that so as to maximize on wealth and employment creation in the country.

The paper is divided into five broad sections. Section I is an introductory section consisting of a brief background to the Kenyan economy, research problem, objectives of the study and justification. This chapter is aimed at reviewing Kenya's general investment climate; its relative geographical advantage compared to its regional neighbors. It particularly focuses on past and present efforts to stimulate private sector investment and gives a brief balance sheet of the investment scenario in the country. The section reveals that there are study gaps with regard to fixed capital formation, which constitute the research problem and justification for undertaking it.

Section II reviews the literature on fixed capital formation, giving the theoretical framework, integrating general experiences by like -minded researchers particularly those within the developing countries. It identifies all the relevant factors that singly or jointly determine fixed capital formation in a typical developing country economy with a view to subjecting them to empirical research in the Kenyan context.

Section III looks at the research methodology as well as setting the basis for modeling using Kenya specific time series data.

Section IV examines the results of the model after subjecting the data to all the relevant diagnostic tests.

Finally, section V summarize the empirical findings and makes relevant policy recommendations based on the findings, and make relevant and informed conclusions.

1.2 Background

Kenya's development objectives have remained consistent since independence. They include among others ensuring stable macro-economic environment, steady human capacity development and technological developments that are necessary for a steady growth in the economy. These issues formed the thrust of the first Sessional paper by the government after independence¹. The investment climate of Kenya offers a considerable range of opportunities for new private sector ventures. The country has steadily developed many of the factors that are attractive to investors in order to guide the development of investment policies and investment promotion.

In spite of these generally positive developments, the potential of Kenya as an investment destination is to-date unfulfilled not only due to policy induced constraints but also due to macro and micro-economic bottlenecks. It has been observed that investor confidence both local and foreign has been eroded implying that there is need to make concrete improvements in the policy framework to attract foreign direct investments and stimulate domestic savings and hence capital formation.

1.2.1 Kenya's Economic Endowments and Comparative advantages.

An objective assessment of Kenya's economic resources and comparative advantages would suggest that, potential for successful new business ventures is considerable. This

Sessional paper No. 10 1966, African Socialism and its application to planning in Kenya

potential is greatest over the medium to long term given existing constraints but numerous shorter -term opportunities are available.

Consisting of landmass covering some 583,000 Square Kms, the country borders Ethiopia, Sudan, Tanzania, Somalia and a very important coastal strip along the Indian Ocean. Uganda is its neighbor to the west. Approximately 20% of Kenya's land is considered arable, to a large degree a function of regional rainfall and water availability.

Based on known information, Kenya is not well endowed with natural resources other than land. Despite a fair amount of exploration, no commercial quantities of energy resources (oil, natural gas or coal) have been discovered despite the optimism and concerted efforts by multinational companies to discover economically viable deposits.

However, the country has known deposits of several minerals, the most important of which is soda ash. Recently, economical deposits of titanium were discovered in the coast province and extraction is set to start any time. Other smaller deposits include limestone, salt lead, silver and gemstones. However, these deposits are minimal and do not significantly contribute to domestic output and exports.

The country's geographical position makes it attractive for several forms of investment. Due to its location in the center of eastern Africa, it represents an attractive sight for regional management, marketing and production activities. It is well suited both for regionally oriented investment activities and or serving European and American markets.

The recent development initiatives in the African region as exemplified by New Partnership for African Development (NEPAD) and the African Growth Opportunity Act (AGOA) present a distinct opportunity for the country to attract new capital investments and hence capital accumulation. Opportunities in the European markets for domestic investors remain poor and limited to horticultural products. The country has the potential for obtaining European markets shares in labor-intensive manufacturers currently held by East Asian countries.

There are several factors that make Kenya an attractive destination for capital investments. Firstly, its labor resources can be characterized as being abundant, low cost 4

and non-militant (Investment climate for Kenya, 1986). Although concerns have been raised over labor productivity and availability with regard to highly skilled manpower, such a constraint has not been significant, as on the job training has proved quite adequate for most production line workers. Further, the recent expansion in university enrolment capacity has more than tripled the number of trained manpower into the country.

The private sector in Kenya is supported by a relatively advanced economic infrastructure including extensive transportation network, modern communication facilities and a large port in Mombasa. Investors also enjoy the services of well-trained pool of managers, accountants, administrators and other support staff.

The political climate in Kenya has been relatively stable since independence. Despite some underlying tribal rivalries, Kenya's multi-racial social fabric is characterized by a strong degree of stability particularly by regional standards.

Another source of strength of investment climate is the fact that Kenya does not suffer the same degree of economic problems faced by many other developing countries. However, the country was hit hard by the international economic shocks of the 1970s that produced government budget deficits. Balance of payment problems and inflation, the country's potential for growth remained relatively intact. A prudent set of macroeconomic measures was initiated in the 1980s and remains the guiding tools for economic governance in the country. Inflation has therefore been dampened and budget deficits have been improved.

However, despite of all these positive attributes, an investment in Kenya has remained relatively stagnant for years indicating the presence of certain inherent constraints. The lack of new foreign investments can be explained in large part by the stagnation of the world economy in general and the negative image of Africa as a destination for profitable and stable ventures. However, this is a general assessment that does not explain why there was a relatively vibrant capital formation in the rest of east Africa in the 1990s compared to Kenya.

1.2.2 Capital Resources in the country

Capital and credit conditions in Kenya are healthy in comparison with those prevailing in most developing countries especially those nations with high level of external indebtedness. However, from the perspective of current indigenous and foreign investors, problems associated with access to investment capital exert a negative influence on the Kenyan investment climate in general.

1.2.3 Exchange rate regimes

Like most developing countries, Kenya's financial market has remained biased towards short-term deposits and loans. This continuously works to the detriment of firms seeking financing for longer-term projects and therefore a barrier to fixed capital formation. Up to 1991, investment was adversely affected by lack of foreign currency due to the prevailing conditions then in which foreign currency access remained centrally controlled by the central bank. This practice forced Kenyan investors to bear the foreign exchange risk associated with long-term borrowing. However, such barriers were addressed after 1991 when the country resorted to a floating exchange rate regime resulting in a market inflow of foreign investment.

The level of foreign direct investment became significant due to the re-alignment of the Kenyan currency to the world currencies. Prior to liberalization, investors always felt that the country's currency was generally overvalued. This had an impact of making the country's exports dear and imports cheaper. This trend was economically untenable as it promoted imports at the expense of exports hence discouraging foreign direct investments. However, with liberalization it became more competitive for firms particularly from the industrialized countries to undertake direct investment in the country instead of serving the country through exports.

1.2.4 Savings and retained earnings

At the macro-economic level, saving rate in Kenya remained respectable at levels of between 16-17% of GDP from the 1970s up to 1986. However, this trend changed from the 1980s to the present period. For example, gross saving levels dropped to 15% of GDP 6

in 1996 and 10% in 1998. Currently, gross domestic savings stand at 9.1% though it is projected to rise to 13.4% by 2012 according to the Kenya Vision 2030 Medium Term Plan (MTP). Per capita income in constant 1982 prices declined from US\$ 239 in 2002. The result is that no funds are available for long-term investments at the household level.

The principal source of long-term investment capital is retained earnings of existing companies. The other are the investment funds provided by donor agencies and passed through Kenyan development banks such as the Kenyan Industrial Credit Development Corporation (ICDC) and Kenya Industrial Estates (KIE). The former has reduced significantly over time partly due to poor economic performance and also due to the heavy taxation that been common phenomenon in the country to finance the heavy external debt in the country and also the extravagance associated with the government regimes.

The later has also declined due to donor fatigue associated with the lack of transparency with regard to funds management. The result is that fixed capital formation has been reducing over time, as long term funding is not available while retained earnings have been declining.

1.2.5 Interest rates

Prior to 1991, the government set interest rates. In the 1970s, prevailing monetary policies led conditions of negative real interest rates because inflation rates exceeded administered interest rates. This implied that the cost of capital was very favorable to investors during this period. This situation however has been reversed in recent years resulting in favorable positive interest rates in the 1980s but deteriorating significantly in the 1990s. By 1993, the levels of interest rates were so high that it became literally impossible to borrow from commercial banks, and expect reasonable returns on investments and still service the loans. The result was that capital formation steadily dropped from high of 43% of GDP in 1992 to only 13% of GDP in 2002.

There is a consensus within the Kenyan business community that interest rates are currently high and are serious impediments to capital formation. Private financial institutions (as opposed to commercial banks) currently charge about 30% while commercial banks average 18%. But this is only on the face of it. A host of other permissible charges and ledger fees bring effective rates to levels of 22-25% in commercial banks, which is well beyond the returns obtainable in the various sectors.

One major phenomenon about the Kenyan money market is the relative high level of business of micro -finance institutions. This does not reflect so much a strong demand for credit as an acute shortage of capital by small and medium investors. As a result, those who obtain funds go into speculative ventures such as trading and real estate rather than productive investments (fixed capital formation)

1.2.6 Foreign Direct Investment

Foreign Direct Investments (FDIs) not only provides the African countries with much needed capital for domestic investment, but also creates employment opportunities, helps transfer of managerial skills and technology, all of which contribute to economic development. Recognizing that FDIs can contribute a lot to economic development, all governments of Africa including that of Kenya want to attract it. Indeed, the world market for such investment is highly competitive, and Kenya in particular, seeks such investment to accelerate her development efforts.

With liberal policy frameworks becoming common place and losing some of their traditional power to attract FDIs, Kenya is paying more attention to the measures that actively facilitate it. Hence, its determinants remain very important. What is likely to be more critical in the future is the distinctive combination of locational advantages, especially, created assets that Kenya can offer potential investors.

The level of FDIs has been low and stagnant over the past couple of years and well below Kenya's potential. There has also been a worrying trend of foreign investors moving out of Kenya and gravitating to other countries, this can be attributed to poor economic performance over several recent years, lack of confidence that Kenya is the desirable investment destination. This is made worse by the aid embargo arising from the perceived

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poor governance and the constant problems associated with deteriorating infrastructure particularly in transport and energy sector.

Further, a report by the Central Bank of Kenya indicated that Kenya's business environment is very hostile to attracting any reasonable foreign direct investment compared to other competing destinations. This is summarized in the following table.

Table1. Comparative business environment by 2007

	Kenya	Egypt	S. Africa	Thailand	Ghana	Malaysia	Canada
No. of startup procedures	11	13	9	8	10	7	2
Days used to start up a business	68	52	32	45	126	56	2
Costs to register a business as a proportion of GNP per capita	44	76	7	7	98	27	1
Days used to enforce a contract	255	202	202	210	90	270	421

Source: World Development indicators 2003, the World Bank

The table indicates that it takes a much longer period to start up a business in Kenya than it does in South Africa and Thailand for example. While it takes 68 days on average to start up a business in Kenya, it takes only 32 days to do the same in South Africa and 45 in Thailand. The time to resolve insolvencies takes much longer than any other country in the analysis. The cost to register a business, as proportion of GDP is up to 6 times in Kenya compared with either South Africa or Thailand and twice compared to Malaysia. The immediate effect of this is that while two decades ago Kenya held 87% foreign ownership of companies in East Africa region, by 2001 only 22% of foreign ownership in East Africa region was in Kenya compared to 36% and 42% in Uganda and Tanzania respectively. This implies that Kenya currently ranks third after Uganda and Tanzania in receipt of annual inflows of Foreign Direct Investments due to loss of competitiveness.

Despite these and other problems facing private sector investors in the area of accessing credit and capital, financing is available to entrepreneurs for productive new investments. There is evidence that a number of financing facilities are either misused or underutilized.

1.2.6.1 FDI and economic growth trends in Kenya

FDI grew steadily through the 1970s as Kenya was a prime choice for foreign investors seeking to establish a presence in Eastern and Southern Africa. The relatively high level of development in infrastructure, market size, growth and openness to FDI at a time when other countries in the region had relatively closed regimes all contributed to Multi-National Companies choosing Kenya as a regional hub. FDI started a low of around \$10 million a year in the early 1970s before peaking to \$80 million in the period 1979-1980. At the same time, the economy grew from a low of 2.1% in 1974 to 5.8 in 1980.



1.2.6.2 Policies for enhancing FDI inflows to Africa

In order to improve their attractiveness to FDI, countries have to embark on, or continue with, reforms in a wide range of policy areas. Attracting more FDI deserves a 10

comprehensive approach that transcends the narrow limits of investment promotion policies. It involves coherent policy measures on the macro and microeconomic level. Countries need to assess where they stand in the various areas and where further improvement is most needed. More generally, the following measures are necessary if Africa is to increase its share of FDI.

- **Reduce poverty, wars and disease:** The image of Africa as an investment destination is unfavorable because of the high risk arising from wars, disease and general economic instability. The continent needs to address the issue of economic and political instability. Political stability in tandem with macroeconomic stability is key to attracting FDI.
- Simplify administrative procedures and reduce corruption: Complex administrative procedures and rules on ownership are a significant barrier to FDI inflows to Africa. Countries should relax the procedural hurdles including the general investment approval, approval for incentives, as well ad more specialized approvals for sensitive sectors and requirements to gain access to land, site development and utility connections. In Africa, these administrative costs are associated with corruption levels, lower quality governance, lower degree of financial openness and lower public wages. Top leadership should try to fight corruption. Efforts to fight corruption in many African countries have not been successful because of lack of political-commitment
- Undertake promotional efforts: African countries need to address the information failures in the investment process. It is known that all lumpy investment suffers from uncertainty. Foreign investors are naturally at a disadvantage with regard to information on the host country and they prefer to wait until other investors have tested the ground. To speed up the investment process, countries need to provide sufficient inefficient information to foreign investor. Countries need to focus on promotional activities are actually expensive (costly). African countries therefore could consider joint promotional efforts to attract FDI, such joint activities to promote the entire region as an investment destination. For example, Common Market of Eastern and Southern Africa

(COMESA) countries have agreed to form a common investment area. COMESA is now working on the legal framework that will specify country obligations within the common investment area including agreements relating to investment protection and agreements enhancing cooperation, facilitation, promotion and liberalization. Therefore the existing and future regional integration arrangements on the African continent should consider undertaking joint measures to bring the region in line with global provisions in investment agreements, facilitate cross border investments and establish joint IPAs.

- Improve the quality and quantity of infrastructure: Appropriate physical infrastructure (transport and communication), as well as social (education and health) infrastructure, are important factors shaping the investment appeal of a country. An improvement in infrastructure in terms of better roads and ports significantly reduces the transaction costs of the exporting multinationals. Furthermore, availability of good in fracture (ports, roads, water pipes, electricity and telecommunications) helps local firms to capture knowledge spillovers through becoming local suppliers. Africa lags behind other regions in terms of infrastructure quality and quantity. Countries should therefore increase expenditure on transport and communication. Infrastructural development can also be undertaken as a regional project in order to enhance the gains from the Free Trade Agreement (FTA) for the smaller economies in those countries that have formed free trade areas such as COMESA. In addition to developing physical infrastructure, there is need to improve the quality of education and provide basic education in most of these countries. Focus should be placed on high-level specialized training in technical subjects to meet the needs of the industry.
- **Put in place a competition policy:** Competition policies and other policies geared at ensuring the proper functioning of markets are necessary to attract foreign investors. Foreign companies can be deterred from investing in a country when they feel that domestic competitors are able to resort to unfair business practices to defend their market power. It is therefore important that African countries put in place a competition policy that will enforce competition among firms. This

will induce multinationals to compete strategically, thereby providing an incentive for upgrading while at the same time reducing the abuse of market power. On a positive note, several African countries, through their regional integration arrangements, are putting competition policies in place (the East African Community – EAC-COMESA and SADC are all developing such policies).

- **Develop the financial markets:** Development of the local financial markets is important for affiliates to secure loans. It also improves an economy's ability to take advantage of the potential benefits of FDI. African countries should develop their capital and financial markets in order to ensure availability of venture capital and long-term finance. Developed financial markets will also enhance the capacity of host countries to take advantage of the spillover effects.
- **Reform the legal and judicial systems:** The legal and judicial systems in many African countries are inadequate to support the needs of investors. Few African countries have an independent judiciary system to protect property and contractual rights of foreign investors. Foreign investors need to be protected through provisions for compensation in the event of nationalization or expropriation, for dispute settlement and for guarantees on transfer of funds. Therefore need for countries to reform the judiciary system particularly in areas of corporate law, contract law, and bankruptcy, labour law and property rights.
- Increase the size of domestic markets: The small size of the domestic markets in many African countries is a deterrent for market seeking FDI. Countries should therefore undertake measures to increase economic growth. In the meantime, a functioning and sustainable FTA is more likely to offer the economies of scale required for investment to be profitable and functioning FTAs. The efforts by COMESA and EAC to become customs unions are commendable in this regard.

1.2.7 Debt Management

Kenya showed an increasing trend in external indebtedness from its independence to the present. Up to 1994 the country experienced increasing external debt. The aid embargo in the 1990s led to heavy internal borrowing that has led to deteriorating fiscal position in the country. The government revenues fell from 29% of GDP in 1999/2001 to 22% in 13

2006/2007 owing to a reduction in taxes (GOK, interim Investment Programme, 2003). A weak tax administration resulting mainly from corruption led to serious revenues decline in the 1990s. Domestic debt stands at 25.1% of GDP though government intended to reduce it to 17.7% by 2007.

The composition of Kenya's debt has changed dramatically since the 1980s. Multilateral debt has increased its share from 30% to almost 60% of the total. While private creditors exists in Kenya, their share of the total debt went down from almost 40% in 1980 to less than 10% in 2000 - the international institutions were pumping money into a regime whose corruption was well known worldwide.

The same considerations could be taken into account with reference to the bilateral credit that has raised its share of the total debt, particularly during the 1990s and 2000s. Kenya has already approached the Paris Club in order to obtain debt relief. Twice the Paris Club rescheduled Kenya's debt: in 1994 for \$535 million and in 2000 for \$300 million. The debt was rescheduled, not cancelled, i.e. debt repayments were only postponed.

Moreover, Kenya's problem lies not only in the external debt, but also in the internal debt. The amount of Kenyan internal debt reached \$3.1 billion in 2002, bringing the total level of public debt to \$7.97 billion, almost 70% of the country's GDP. Since internal-debt service accounts for 13% of government expenditure, we believe it should be taken into consideration.

1.2.7.1 Pressure on the Balance of Payments

Kenya has displayed a negative balance on its current account each year since 1990 primarily the result of large trade deficits. Capital account surpluses were generally not large enough to offset current account deficits, thus producing overall negative balance of payments. In the 1980s and 1990s, balance-of-payments shortfalls were financed increasingly through very large capital inflows in the form of concessional loans from multilateral and bilateral lending agencies. The IMF was the largest source of balance of payments support.

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1.2.7.2 Inflationary impact

The government borrowing serves to divert funds from the market into the hands of the government. As a result there is no net addition to aggregate demand and hence no increased pressure on prices as clearly depicted by the graph.

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1.2.7.3 Pressure on the external value of Kenya shilling

Debt is normally denominated in a particular monetary currency, and so changes in the valuation of that currency can change the effective size of the debt. This can happen due to inflation or deflation, so it can happen even though the borrower and the lender are using the same currency. Thus it is important to agree on standards of deferred payment in advance, so that a degree of fluctuation will also be agreed as acceptable. It is for instance common [citation needed] to agree to "US dollar denominated" debt.

1.2.7.4 Limitations to export led growth

Kenya's strategy for managing its indebtedness primarily involved rescheduling and export-led growth. Although the rescheduling goal was generally achieved by the late 1990s, the export-led growth strategy, as outlined in the structural adjustment policies, had not been successful. Exports showed little dynamism in the 1980s and 1990s, suffering from unfavorable terms of trade. Modest growth in nontraditional exports, at least in the 1990s, was unlikely to reduce significantly the huge national debt.

1.2.8 Fixed Capital Formation

An analysis of fixed capital formation by asset indicates that the economy invests heavily in machinery and other equipments. Other constructions, which include roads and bridges account for 27%. Investment in buildings both residential and non residential account for less than 15%.

Trends in fixed capital formation as a share of GDP indicate a decline. For example it declined from 22% in 1995 to 15% in 1999. Gross investments currently stand at 14.1% of GDP.

Investments and its determinants in Kenya was affected by all the external shocks namely the 1973 oil crisis, the realignment of the Kenya shilling to the dollar after shifting to a floating exchange rate in the late 1980s and the global recession of the 1990s. The 1990s also experienced a critical change in donor support arising from the loss of confidence of the country to manage external finances transparently and accountably. The result was an aid embargo and a perception of poor investment climate by potential sources of Foreign Direct Investment in the country.

Year	GFCF (Kshs millions)	GDP (Kshs million)	Capital formation as a% of GDP	GDP growth
1073	3645	25811	141	5.9
1074	4075	26195	15.6	2.1
1075	4837	27089	17.9	1.5
1976	5808	28993	20.0	4.6
1077	7800	45855	17.0	10.1
1078	10280	34024	30.2	8.0
1070	10809	51905	20.8	5.5
1980	12451	53965	23.1	5.8
1081	14508	57203	25.4	41
1087	13364	58213	23.0	19
1982	14349	60716	23.6	15
108/	16143	61286	26.3	1.7
1025	17631	75621	23.3	4.4
1985	23064	81023	28.5	7.1
1987	25735	85833	30.0	59
1088	30359	91157	33.3	60
1080	33156	95433	34.7	5.6
1990	40560	99431	40.8	4.6
1991	42671	100864	42.3	1.4
1992	43777	100057	43.8	-0.8
1993	56505	333616	169	0.4
1994	75616	400700	18.9	2.6
1995	99497	465654	21.4	4.4
1996	104470	528739	19.8	4.1
1997	109873	623235	17.6	2.1
1998	113879	690910	16.5	1.6
1999	112961	742136	15.2	1.3
2000	116369	795972	14.6	-0.2
2001	123079	895278	13.9	0.4
2002	178466	998379	17.8	1.4
2003	179254	1131783	15.8	5.1
2004	207196	1273975	16.3	5.8
2005	264728	1418071	18 7	6.4
2006	309592	1620732	19.0	7.0
2007	354173	1814243	19.5	4.1
	554115	1011210		

Source: Government of Kenya, Economic survey (various issues); World Bank, World tables 1973-2007.

The table above shows the relationship between fixed capital formation and GDP. It clearly indicates that while there has been a steady increase in the absolute value of GDP, fixed capital formation has not responded accordingly. It is clearly recognized that fixed

capital formation growth is the precondition for increased economic growth due to its crowding in effect of output and hence disposable income.

A glance at the trends in fixed capital formation as a percentage of GDP reveals that while the proportion of fixed capital formation increased during periods of good economic performance, periods of lean economic performance saw reduced fixed capital formation levels. The period between 1973 and 1981 had a very steady economic growth of more than 5%. The same period also realized a very high level of fixed capital formation. This is also collaborated by the period between 1986 and 1990 when economic growth averaged about 5% while fixed capital formation was above 30% of GDP.

However, the period after 1998 saw Kenya's worst economic performance with a consistent growth rate of less than 2%. The same period also saw of fixed capital formation at less than 20% of GDP.

1.2.9 Research problem

An analysis over the last three decades shows that Kenya has lost its competitiveness in attracting both domestic and foreign direct investment. Further, the country has lost in terms of retaining its stock of investments. Private investments were growing at a rate of 12% in the 1970's and 10% in the 1980's. This has declined to 0.4% between 1997 and 2002, Kenya received an annual average of US\$ 59 million in FDI which was only 25.7% of what Uganda received and 18.7% of what Tanzania received over the same period. In addition, Kenya's stock of FDI was 15% among the three East African countries. This has declined to 6% by 2002 compared to Uganda's increase from 8-50%.

The challenge for policy makers in Kenya is why the country is not attracting private capital formation fast enough. This means there is need to foster change that would raise private returns to address the main impediments to private capital flows.

According to green et al (1991), the stagnation in private investments rates reflect the presence of factors that have affected most developing countries during the1980s, and 1990s. These include among others worsening terms of trade, declining externally

sourced private funding, foreign debt crisis and implementation of adjustment programmes that were designed to restore balance of payments viability. The research hence attempts to address the problem of low fixed capital formation in Kenya, its determinants and relationship with economic growth. It presents an empirical assessment of the long run determinants of fixed capital formation in Kenya.

1.3. Objectives of the study

The objectives of this paper are:

- i. To identify and investigate factors that play instrumental role in stimulating or determining fixed capital formation in Kenya
- ii. The study also intends to explore the factors that are relevant as crowding-in factors for fixed capital formation.
- iii. Finally, the research intends to use empirical findings in recommending policies that may maximize the crowding-in effects and minimize the crowding-out effects of fixed capital formation in Kenya.

1.4 Significance of the Study

The research is to confirm the theoretical concepts regarding investment growth and its relevance to the Kenyan economy. Once determinants of fixed capital formation and growth have been empirically found, policy recommendations will be made whose purpose is to support the overall national objective of employment creation through broadening the productive base of the country. The findings will particularly be important, as they will be able to answer the following questions:

- a) Do depreciating exchange rates (devaluation) encourage private
 Investment because of the anticipated competitiveness of the products in
 the international markets, or do they make capital investment dearer?
- b) Has private investment benefited from public expenditure, especially in complimentary sectors such as the national parastatals and other state corporations, or has it been crowded out by unnecessary competition from these institutions?

- c) Does external debt exhibit a distinct crowding -out effect in capital formation in Kenya due to its apparent reduction of private savings and increased private taxation to service it as witnessed elsewhere in the world or is it necessary in supporting private sector in complementary investments such as energy and infrastructure development?
- d) How do interest rates and credit rationing impacts on private investment and hence fixed capital formation in the country?

The answers to these questions are relevant to policy makers as they may guide the country in identifying the areas where public policy needs to be directed in an attempt to revive the ailing Kenyan economy.

The study will equally complement the existing literature on this topical issue.

1.5. Scope

The research focuses on the period 1973-2007. The selection of this period is significant in several ways. *Firstly*, the period represents the various phases the country has gone through in its economic growth process. The period covers the 1970s when the country was hailed as a potential candidate for takeoff in economic development. The trend however changed in the mid 1980s and completely stalled in the mid 1990s and the new millennium. *Secondly*, the two periods of economic restructuring are covered. These are the pre-liberalization period in the 1970s and early 1980s and the liberalization era of the 1990s. The liberalization period saw various structural adjustments including financial liberalization, privatization, floating exchange rates among others, all of which are relevant in the process of capital formation.

CHAPTER TWO

2.0 LITERATURE REVIEW

While domestic investment can be subdivided either into private or public investment, there are fundamental differences, which are responsible for the disparities in approaches between the two. While public investment is largely on public goods or privately provided public goods, private investment is purely private and hence the motive is purely commercial or profit maximization. Public investment is however aimed at either welfare maximization or facilitation of private investment to spur development in a given desirable direction.

Investment can also be classified as either domestic investment or Foreign Direct Investment (FDI). FDI is particularly desirable due to its long run impacts on growth and its direct transfer of resources both skilled manpower and technological transfer over and above its direct capital component.

The presence of a significant cost factor disparity between a home country and a host country may considerably influence the choice of an investment location. Numerous studies have identified the cost of Labour as significantly important in location considerations, and in particular when investment is export oriented (Schneider and Frey, 1985; Dees, 1998). With FDI moving towards technologically intensive activities, however, low-cost, unskilled labour is becoming less important. There is greater demand for qualified human capital with diverse modern skills that can cope with emerging technologies (Pigato, 2001). Efficiency –seeking FDI will tend to locate in those destinations that are able to supply a skilled and disciplined labour force. Fung et al. (2000) have found labour quality to be an important determinant of FDI, while raw labour costs were found to be insignificant.

Although labour appears to be cheap in Africa, there is nonetheless an overall short age of skilled labour on the continent. This is because of poor education and lack of on-thejob training. The lack of middle or senior level entrepreneurial experience has increased the existing skills gap, and many foreign companies have resorted to employment of

expatriate managers (Bhinda et al., 1999). The skills gap has been worsened by the HIV/AIDS pandemic, which has affected the health of the labour force and reduced labour productivity. The skill gap varies from country to country, with countries such as South Africa and Mauritius having more skilled and experienced workers than, say, Tanzania or Zambia. While it may not be singled out as a sole factor, the success of Mauritius in attracting FDI is partly explained by the relatively cheap, adaptable and well trained workforce (Odenthal, 2001). Mauritius has had stable labour relations with no strike since 1980. However, the increasing production costs form of high freight costs and labour costs are pushing investors in Mauritius (mainly those in textiles companies) to move to lower cost locations such as Mozambique and Madagascar.

A good quantity and quality of infrastructure, by reducing transaction costs, facilitates business operations. Good infrastructure in terms of better roads and ports helps local firms to capture knowledge spillovers through becoming local supplies. Infrastructure quality has been found to dominate for developing countries while specialized support services are more important in developed countries that already have adequate infrastructure. A number of other studies have found that infrastructure has unambiguous positive effects on FDIs.

Unavailability of infrastructure, such as roads, in many African countries is acting as an impediment to FDIs. Africa lags behind other regions in terms of telephone mainlines and the percentage of paved roads. The indicators of infrastructure and educational attainment or enrolment rates in Africa compare unfavorably with those of other regions and the situation has become worse during the past decade. The indicators of the quality of physical infrastructure and the level of human development are lower for the African region compared with other regions such as Latin America and Asia. Gross primary school enrolments have fallen in Botswana, Kenya, Madagascar, Mauritius, Tanzania and Zambia. Africa also lags behind in the number of telephone mainlines and the percentage of roads that are paved (Pigato, 2001). The poor quality of infrastructure remains one of the main constraints to attracting efficiency-seeking FDI in landlocked African countries. Mauritius and South Africa have good infrastructure facilities compared in some

instances with those of the developed world and this has contributed to high FDI inflows to these countries.

In addition to physical infrastructure, financial infrastructure is important for FDI. If countries have a weak financial market, it is more difficult for investors to raise funds locally, although under certain circumstances, funds may be channeled from parents to affiliates. The situation may be more complicated if weak financial markets are coupled with a large external debt position, because parents companies will be hesitant to channel funds to their affiliates because of the fear of devaluation and the possibility of default.

In addition to meeting the financing requirements of foreign companies, a well-developed financial market enables a country to tap full benefits of FDI. Using cross-section data, Alfaro et al. (2003) find that poorly developed financial markets can adversely affect the economy's ability to take to take advantage of the potential benefits of FDI. Unfortunately, financial markets are weak in several African countries and mobilizing long-term finance is difficult. A survey of several African countries by Bhinda et al.(1999) found problems related to mobilizing local banking, leasing or equity finance were on the top of the list of factors discouraging investors in Tanzania, Uganda and Zambia.

Studies have indicated that fixed capital formation in developing countries is affected negatively by economic and political uncertainty (Elbadawi and Mwega, 1997; Schneider and Frey, 1985).

Unfortunately, the image of the African Continent as a location of FDI is unfavorable. Investors perceive the continent as a home for wars, poverty, disease and a generally unfriendly investment destination and these results in the diversion of these investments to other regions. The promotion of peace, macroeconomic stability and sustainable economic development remains a major challenge for Africa in its quest for increased share of FDI. There are many instances of war and civil'unrest across the continent, for example, Sierra Leone, Liberia, Somalia, Burundi, Algeria, DR Congo, Sudan, Guinea Bissau, etc. It is highly unlikely that the investment climate in such locations can attract substantial quantity and quality of FDI. The presence of wars in some countries also 22 negatively affects the prospects for FDI inflow into neighboring countries that are politically stable.

In a recent survey of investors, a high rating for political stability in some African countries such as Malawi and Zambia is being undermined by negative ratings for political instability in neighboring Zimbambwe (Martin and Rose-Innes, 2003). As argued by Jaspersen et al. (2000) and Asiedu (2002), being an African Country is indeed a significantly negative determinant of FDI because of investors' perceptions of Africa as inherently risky. This view is supported by the findings of Haque et al. (2002) and Collier and Pattillo (1997, 2000) that commercial risk rating agencies rate African countries as riskier than justified by their fundamental investment conditions. Because of riskiness of the continent, Africa's capacity to increase its global share of FDI had been limited. This is despite the fact that the continent offers the highest rates of return to investment. The reason may be that the risk adjusted return may be too low. Furthermore, the political risk of the continent limits accessibility to financing by firms. Banks cannot have high exposure in countries with such high risk ratings.

Administrative procedures and rules on ownership can form a significant barrier to FDI, especially in developing countries (Emery et al., 2000). Complex administrative procedures required to establish and operate a business discourage inflows of FDI. Time matters for investors. A country where it takes excessive time and costs to accomplish all the procedures necessary to establish and operate a business will see its potential investors lose money and decide to locate elsewhere or cancel their investment projects. Procedural hurdles include the general investment approval, approval for incentives, tax registration, company formation, expatriate work permits and business licenses, as well as more specialized approvals for sensitive sectors and requirements and requirements to gain access to land, site development and utility connections.

In spite of the improving investment climate, administrative procedures have remained complex in some of the African countries. Te Velde (2001) found that it takes one to two years to establish a business and become operational in Uganda and Ghana, 18 months to three years in Tanzania and Mozambique, six months to one year in Namibia, but only

six months in Malaysia. In many non-francophone African countries, for example, te Velde (Velde (2001) found that freehold ownership is prohibited or requires explicit approval, which may involve long delays varying considerably across countries: up to two years in Mozambique, no freehold ownership in Namibia, up to three et al., 2000).

There is sufficient empirical evidence today that corruption deters FDI. For a firm, paying bribes is like paying a tax, and yet leaves the firm faced with more uncertainty (te Velde, 2002). The level of corruption or lack of good governance influences administrative contractive costs, as bureaucrats and politicians are more likely to capture the extra rents. Corruption can be both the cause and consequence of high administrative barriers in many developing countries (Morisser and Neso, 2002).

On the basis of data released by Transparency International (Transparency International, 2002), African countries score generally low. Only Botswana (rank 24), Namibia (rank 28), South Africa (rank 36), Mauritius (rank 40) and Ghana (rank 50) are ranked among the top 50. Countries such as Nigeria, Madagascar, Angola, Kenya and Uganda are found at the bottom, implying that corruption is high. High levels of corruption present in many African countries complicate business operations and raise uncertainty on the part of investors. In such activities as manufacturing, a foreign investor is likely to choose a country with less corruption.

Governments can promote FDI through investment agencies by providing general information and advertising, undertaking matchmaking activities and sector promotion, organizing site visits, supporting feasibility studies and project proposals, and carrying out other activities. Wells and Wint (1990) and Morisset (2003) shows that grater investment promotion is associated with higher cross-country FDI inflows. FDI promotion addresses a market failure related to imperfect information on investors' as well as on the host government's side though it can be expensive.

African countries have become increasingly proactive in promoting their countries, emphasizing their attractiveness for foreign investors. They have established Investment Promotion Agencies (IPAs) that specifically concentrate on promotional activities. These agencies play an important role in the dialogue and negotiations between investors and 24 the relevant government authorities, seeking to ensure that investors are fully informed of the benefits to be derived from that country. African IPAs have joined the World Association of Investment Promotion Agencies (WIPA), which offers training and capacity building opportunities to more than 160 IPAs indeed, the Uganda Investment Agency received an award for being the best African investment promotion agency in 1997 and is comparable in some respects to top agencies in the world.

As argued by Morisswe (2003), however, investment promotion is more effective in a country with a good investment climate and a relatively high level of development. The example of Zimbabwe is an interesting one. The Zimbabwe Investment Centre (ZIC) has not been very successful in attracting FDI but this does not necessarily reflect the inefficiency of the centre. Rather, it highlights the limitations of investment promotion when the policy environment is de facto hostile. Zimbabwe, for example, has registered very low real GDP growth rate in recent years, inflation currently exceeds 400% and the budget deficit had been persistently above 6% over the past ten years. The country-which was among the top seven African countries that received largest amounts FDI inflows in 1998 – attracted only \$ 4 million in 2001.

A number of African countries offer various fiscal and financial concessions to attract FDI. Tax concessions have been provided to locate in certain regions (eg. Guinea and Kenya), to invest in certain sectors of the economy (Cote D'Ivoire and Senegal) and sometimes to promote labour intensive investment (Lesotho). Incentives have been one of key determinants of FDI in Mozambique and Mauritius.

Empirical evidence, however, shows that incentives are most effective for footloose, export-oriented investment, in countries or regions that are similar to neighbouring countries or regions and in places where other aspects of the business climate are already favorable (Bergsman 1999). Incentives play a role once fundamentals are sufficient (te Velde, 2001; Guisinger, 1985). Cost reducing incentives tend to be effective in attracting FDI when an investment decision is between similarly attractive locations for producing for export to other markers. Taxation incentives, for example, may simply result in tax competition for FDI amongst governments. Tax incentives may influence investment decisions only at the margin, when investors narrow their choice of investment location. Incentives are not considered a substitute for good economic policies. Investment incentives offered by African countries remain highly varied.

Steadily expanding privatization programmes in many countries have paved the way for foreign investment in Africa. A significant share of privatization-related FDI, in large part in the telecom and mining sectors, in the 1990s was channeled to selected countries, including Angola, Ghana, Kenya, Nigeria and South Africa. It is estimated that privatization – related FDI amounted to about 14% of FDI inflows to Africa form 1990 through 1998 (Pigato and Liberator, 2000). According to UNCTAD's World Investment Report (2000), in sub-Saharan Africa, South Africa, South Africa (\$769 million), were the most important recipients of privatization – related FDI over this period, with the bulk of the privatization taking place in the telecommunications and mining sectors.

While privatization still presents opportunities for attracting FDI to Africa, a recent survey of investors by Martin and Rose –Innes (2003) did not bring out privatization as one of the factors for the large capital inflows to Africa except for a few investors who had bough privatized companies. Instead, factors such as domestic and economic stability, access to domestic markers, regional economic and political stability, and access to regional markets came on top of the list.

In order to improve the investment climate, a number of African countries now have legislation in place offering a wide range of guarantees and opportunities for foreign investors. In many cases, new FDI regulations in Africa have greatly liberalized restrict investors. In many cases, new FDI regulations in Africa have greatly liberalized restrict restrictions. They provide for non-discrimination between foreign and domestic private investors, allow profit repatriation, protect against expropriation, grant incentives and strengthen standards of foreign investors. Such as Namibia, Uganda, Botswana, South Africa and Mozambique, have enjoyed significant amounts of FDI in recent years.

Countries have also designed policies to shift away from targeting specific sectors or foreign investors, and have sought to promote broad-based private sector participation in economic development, Ghana, for example, have expanded the scope for foreign 26 investment by reducing the sectors previously closed to foreign investment (Basu and Srinivasan, 2002). The Tanzania Mining Act, 1996. Relaxed government regulatory control over the mining sector and removed a number of barriers that previously limited foreign ownership of mineral exploitation enterprises (UNCTAD, 2001). Bearing in mind that the petroleum and minerals sectors of the economy are the main focus of foreign investors in Africa, and the fact that such investor focus could be translated into investor interest in other sectors of the economy, a number of countries including Ghana, Kenya, Nigeria, Tanzania, Uganda and Zambia have overhauled the laws governing foreign investment in these sectors of the (Basu and Srinivasan, 2002). Some restrictions related to the ownership of land and real estate still exist, however. In Ethiopia, for example, land is public property and cannot be purchased or sold. Land for investment purposes can be obtained through leaseholds, however, with their length varying from 15 to 99 years; a typical lease for a business venture is for 30-60 years (UNCTAD, 2000).

Many countries have also relaxed capital controls. In most countries, the foreign exchange market has been liberalized. According to a survey conducted by UNCTAD in 1997, 26 of the 32 least developed countries in Africa had a liberal or relatively liberal regime toward the repatriation of capital (Kyaw, 2003). Measures to allow the repatriation of profits, retention of export proceeds and the liberalization of currency markets have significantly contributed to the improvement of the environment for FDI.

In addition to liberalizing FDI policies, many African countries are now signatories to bilateral and multilateral investment and trade treaties to ensure the protection of investments and avoid double-taxation. Fifty African countries had by 1999 concluded 335 Bilateral Investment Treaties (BITs) with other countries with the aim of protecting and promoting FDI. This number had increased to 533 by end 2002, which represents an average of 10 per country (UNCTAD, 2003). As of April 2001, 18 less developed countries had acceded to the Convention on the Recognition and Enforcement of Foreign Arbitral Awards, while the International 'Convention on Settlement of investment Disputes between States and Nationals of Other States (ICSID) had been ratified by 33 of the 49 LDCs, of which the majority are in Africa. By signing the ICSID Convention, countries obtain access to ICSID's arbitration mechanism for the resolution of investment 27

disputes. Moreover, 41 African countries were full members of the Multilateral Investment Guarantee Agreement (MIGA). MIGA provides insurance guarantees for foreign investors against non-commercial risks in their host countries. Since 1991, MIGA has insurance guarantees for foreign investors against no-commercial risks in their host countries. Since 1991, MIGA has issued US\$400 million in coverage in Africa, which is around 8% of total exposure (te Velde, 2002). Forty African countries have adopted the Paris Convention for the Protection of Industrial Property, while 41 have signed one or more agreements in the WTO relating to FDI, such as the Trade Related Intellectual Property Rights (TRIPS) or Trade Related Investment Measures (TRIMs Agreements (World Development Report, 1998' UNCTAD, 2001; Basu and Srinivasan, 2002).

The avoidance of double taxation is one of the considerations in foreign investors' locational decisions. African countries have concluded a growing number of bilateral treaties for the avoidance of double taxation (DTTs). By end 2002, African countries had concluded 365 DTTs, which are aimed at avoiding the companies paying taxes twice. Most of these are concentrated in a few countries such as Egypt, Mauritius, South Africa and Tunisia. The international regulatory changes should make African countries more attractive for investors by offering contract stability

The availability of natural resources continues to be a critical factor in attracting FDI to Africa. A large share of FDI in Africa had been in countries that are abundant in natural resources. It is in the mining of high-value minerals and petroleum where Africa is particularly prominent as a host to FDI and where great potential for future FDI exists (Basu and Srinivasan, 2002). A number of countries, including Angola, Equatorial Guinea, Nigeria, Namibia and Sudan, have receive foreign investment targeted at the oil and minerals sectors of the economy, where, notwithstanding significant risk, profit rates have been high.

Fixed capital formation for purposes of this research is the process of investment creation in productive infrastructure. It was first given prominence by Keynes (1936). He argued that investment depends on prospective marginal efficiency of capital and its cost of

acquisition (interest rates). Later considerations include the Harold Domar Model, which gives the accelerator theory of investment. It postulates that there is a linear relationship between investment and output growth. The neoclassical approach to capital formation was given prominence by such scholars as Jorgenson (1967), Hal-Jorgenson (1971) and Hicks (1972) among others. It argues that the desired capital stock is depended on rental cost of capital and the level of output growth. This implies that as long as the rental cost of capital remains lower than the rate of growth of real output other things remaining constant, then investors are encouraged to continue with primitive fixed capital formation. However, this approach was criticized by Serven and Solimano(1989) due to its assumptions about perfect markets and exogenously determined output.

This led to other scholars pursuing a more acceptable theory on capital formation. Several models have been used to describe investments in this regard. The accelerator model is one of the simplest and most popular. The model is based on the idea that there is a stable relationship between the desired stock of capital and the level of output. Under this assumption, investment is proportional to the change in output and thus investment rises when output accelerates. In spite of its simplicity, and obvious limitations, the accelerator theory has performed reasonably well in explaining a actual investment patterns.

However other researchers have tried to improve on the accelerator model. Most of them utilize the flexible accelerator model. Mackinnon and Shaw (1973) found that a significant number of firms face credit rationing. His was characterized by administered interest rates and direct credit allocation by the government. While his theory confirms the earlier assertion that interest rates do have a significant effect on capital formation it introduces the concept of availability of loanable funds arguing that irrespective of the willingness to borrow by an investor, only when such loanable funds are availed at reasonable terms does such borrowing become effective.

A study on constraints to investment in Uganda by Reinnika et al (1999) found that investment is constrained by cost of capital (interest rates) among other factors

Wai and Wong (1982), in an investigation of 5 countries in Europe and Asia found that bank credit to private sector affected private sector very substantially. 29 Sandarathan and thakur (1980) who carried out a study on the effect of public expenditure on private investment in Korea and India stress the impact of public investment on private sector foundation and emphasize that the two are complimenting with public expenditure a net crowding in variable in private sector investment they found out that there was a substantial stimulation of demand which regard a movement of capital into the productive system.

It has been argued that internal and external debt accumulation affect capital formation in a negative sense due to its strain in private savings and retained earnings. This is collaborated by an analysis of the determinants of private capital flows of sample of 73 developing countries. The study showed that the net lending from multi-lateral sources and the completion of the Brady operations² have both played complementary roles in facilitating private capital flows, Corbo and Hanandez, (1997). It is hence evident from this report that for developing countries, debt servicing has had a crowding out effect of net capital formation.

Teal, (1999) found that capital formation has a direct impact on poverty. Reports on African development needs and in particular economic reports for Africa have found that in order for the continent to grow and have a significant impact on poverty levels, there is a definite need for additional fixed capital formation in the form of increased savings and investments. This implies that though output is a crowding in agent of capital formation, it can only be realized if there is enough capital to generate it. Economic growth is hence important as an input to capital formation though this issue presents the proverbial chicken and egg scenario. Robert Solow of Massachusetts Institute Technology (MIT) who developed the growth accounting framework also developed a growth model that remains the main theoretical framework for analyzing the relationship of savings, capital accumulation and growth. He postulates that output is an increasing function of investment.

² The Brady operations were brought into play by the worlds lending countries who were concerned about the growing debt crisis and the continuing prospect of highly indebted countries failing to pay debts at all.

Khan and Reinhert (1990) in their study of 24 developing countries utilizing a modified Solow's growth model found that private investment played a significant part in the economic growth process. Kelly (1997) found that private investment influenced economic growth by a factor of 0.23

Thomas and Simon (1967) suggest a number of hypotheses to explain the pattern of capital investments in the 19th century .they found a fairy high degree of mobility of labor and capital, well organized markets for transportable commodities and a widespread although not uniform adherence to a system of fixed exchange rates. According to them, it is generally agreed that the expectations of depreciation of a currency tends to discourage foreign direct investments in assets with given prices and yields denominated in that currency.

This leads to the view that inflation and exchange rates instability (repeated devaluations or continuously depreciating exchange rates in the investee country reduces earnings or foreign investments and thus discourage capital inflows and encourage capital outflows. However, it has been difficult to reconcile the various effects of inflation on exchange rates depreciation with the continued large inflows of private capital into some countries whose currencies show very rapid loss of internal and external purchasing power. This is evidenced by capital inflows to Argentina, Brazil, Chile and Colombia, which experienced rapid inflation and exchange rate depreciation in the 1980s. The conclusion is that the expectation of changes in foreign exchange rates and in domestic prices influences private capital movements, other things remaining equal.

This may also be supported by Caroline Jenkins (1999) on a study of African economies. In her study about investment in Zimbabwe, she concluded that foreign exchange shortages were the key constraint to private capital formation, and that uncertainty about political developments, price controls and government policy with respect to labor has also discouraged investment. A model of private investment structured for Zimbabwe, using a two- step Engle-Granger approach found that, in the long run, investment is constrained by the availability of finance, especially retained profits, and that it has been deterred by the external debt –to-GDP ratio. Controls including foreign exchange

allocations, have affected the timing of capital expenditures rather than the desired stock of capital.

Sachs and Larrain (2000) argue that in an economy with free capital mobility, investments and savings need not be the same because the country can borrow or lend in the world markets at the world interest rates and thus run current accounts deficits. All that should matter for domestic investments is that the investment projects generate enough returns to pay the world interest rates on loans. This implies that world interest rates determine domestic investment while domestic savings determine the growth of national income and hence economic growth.

They continue to argue that in a closed economy, the Government may be able to encourage capital formation by stimulating private savings.

Summers (1981) points out that an alternative policy to spur capital formation may be through direct Government Investments. Sachs and Larrain (2000) argue that an increase in investment tax credit acts as a subsidy on investment reemphasizes this. The Government may also increase its own investment spending especially on infrastructure. There is increasing evidence that Government Investment in infrastructure can have a marked effect on the aggregate growth rate. Lawrence Summers calculated that as of 1981, an increase of the investment tax credit from 5.6% to 11.2% would raise investment in the United States of America by 9.4% over a decade.

All these factors can be summarized by a study by Bende- Nabende and Slater (1999). It suggested that output growth is the most dominant determinant of private investment in developing countries followed by foreign direct Investments, Public investment expenditure and then external indebtedness. Real exchange rates and the cost of capital (interest rates) were also found to be significant in as far as foreign direct investment it's concerned.

CHAPTER THREE

3.0 CONCEPTUAL FRAMEWORK /METHODOLOGY

3.1 Introduction

The model borrows heavily from Bende – Nabende Slater (1999) who studies the long run determinants of private capital formation in developing countries. A co-integration analysis is undertaken to examine the relationship between capital formulation and the various independent variables.

A Kenyan specific time series sample data of variables will be collected for 34 years from 1973 to 2007. The data will be collected using secondary sources and specifically from the International Financial statistics of the IMF, the Statistical abstract of Kenya (various issues) the Economic surveys and African Development indicators – (various issues).

The time period is important in the Kenyan context due to its relevance in terms of the capital formulation circles in Kenya. It is recalled that Kenya realized steady growth in GDP between 1963 and 1973 when the oil crisis hit the country. During this period there was steady increase in investments arising from Government investment in basic infrastructure and from the favourable investment climate that came with the optimism of independence. However, things began to change soon after. The period 1975 to the mid 1980's saw the country facing reduced economic growth trends with the 1990's becoming the country's lowest point in economic performance.

In trying to understand the relationship between the identified variables a two stage multiple regression analysis using Ordinary Least Squares (OLS) analysis will be done.

Before doing this several diagnostic tests will be undertaken. This includes testing for efficiency of the parameters through testing for homogeneity and correcting where heteroskedasticity was evident. In doing this the White Heteroskedasticity test will be used.

The data will also be tested for auto-correlation using the Durbin Watson test statistics.

Finally, test for multi-co linearity and stationarity will be carried out to test for data stability and reliability. Stationarity will be tested using the Dickey Fuller Unit Root Test.

Finally, to avoid getting spurious results, a test for co-integration will be carried out using the Johansen test for co-integration.

3.2 The Model

From the literature review above it is evident that theoretically, fixed capital formation is determined by output growth which is a proxy for incomes both the household and firms level (which determine the level of savings and retained earnings) level of foreign direct investment, the level of nominal interests rates, nominal exchange rates³, government expenditure and the level of foreign debt. The investment climate prevailing in the country is also important as it determine the willingness of domestic investors to put their money into long –term capital investment as well as the flow of foreign investment.

Serven and Solimano (1993) assert that through there are wide ranges of factors that affect investment, the most critical ones are output growth, real exchange rates, public investment, foreign debt, real interest rates and uncertainties. This model therefore utilizes this entire variable by collecting time series data on each of the variable and subjecting them to a thorough analysis.

3.3 The determinants

3.3.1 Output growth

It is affirmed that investors are very attracted to an economy that portrays an increasing trend in growth. This optimism leads investors to want to capitalize on the potential profits to be reaped in such an economy. Further, output growth tends to increase the amount of resources available for consumption, which increases effective demand as well

³ The model utilizes the nominal exchange rates as inflation level do not affect capital movements as was seen in the literature review from capital movements in South America under inflationary times.

as for savings, which in turn increase the amount of investible funds. It is recalled that Keynes, in his theory of consumption, income and growth asserted that increasing income levels leads to an increasing consumption level but not by the amount of income increase. The difference can be assumed to go into savings, which can be translated into investment expenditure.

According to Larrain and Vergara (1993, there is a positive relationship between output growth and private investment

3.3.2 Foreign Direct Investment (FDI)

Theoretical literature suggests that FDI provides a package of external resources that can contribute to economic development. FDI is important in the sense that it contributes to capacity building as new firms train personnel to handle specific tasks regarding their operations. Further, new investment has an industrial effect on improving the general production standards through increased competition and introduction of new technologies in the market.

The substitution hypothesis between foreign direct capital inflows and domestic savings was originally put forward by Haavelmo (1963). He pointed out that foreign investors could take place of domestic investors and in this way, could reduce internal savings (and by extension investments). The possible existence of a negative relationship between foreign capital flows and domestic savings has been justifies with the argument that foreign capital could be used to increase consumption rather that investment. Jacques Morisset reaffirms this in a study for Argentina.

While it is recognized that new firms in the industry drive old ones out due to stiff competition leading to a crowding out of private investments, it is also true that standards are generally improved in the industry and in fact only efficient firms are left. The result is a general increase in competitiveness, efficiency and overall output.

Foreign Director Investment is desirable but only in as far as the stock of investment assets is concerned. It is recognized that these forms of investment are highly sensitive to changing economic patterns as well as the political climate. A change in these factors can easily lead to relocation of the firms leading to instability. It is for this reason that countries undertake deliberates efforts to protect vulnerable domestic industries as well as investing in technological transfer to the local ones.

Agosin and Mayer (2000) suggest that the relationship between FDI and domestic investment is likely to be positive and complementary when this is done in economies with low technological levels.

3.3.3 Real Exchange rates

The effects of real exchange rates on fixed formation are twofold:

Firstly, in the short run, private investment is negatively impacted on as the cost imported technology goes up when a currency is devalued. In countries like Kenya that heavily rely on imported equipment for production, devaluation leads to a crowding out effect on new technologies and hence private investment.

However, this is only temporary measures. A devalued currency also increase the competitiveness of a country's exports as they become cheaper, leading to increased demand. An increase in demand leads to increased desire for investment in exports oriented goods and import substitution leading to an improved current account position as well as increased output. Although literatures by people like Cardoso (1993) argue that terms of trade are more significant in determining real exchange rates and hence the cost of capital investment imports, it is also true that real exchange rates as very significant as a determinant of capital formation.

The expected relationship between exchange rates and fixed capital formation is negative with devaluation likely to increase capital formation and vice versa in developing countries with imported technologies.

3.3.4 External debt

The impact of increasing debt is that it crowds out capital in two ways Firstly; external debts exhibit a crowding out effect due to the fact that companies and individuals are compelled to pay higher taxes to service the debts. Secondary, the Government commits

more of its revenue to debt repayment, reducing its ability to participate in infrastructural development and so spur domestic consumption through the multiplier effect.

This is particularly evident in Kenya where most of the credit was used to fund either non prioritized projects or non productive consumption expenditure that only increased tax burdens on the productive sector without corresponding increase in real output or stock of capital assets. The expected effect of external debt on fixed capital formation is therefore negative.

3.3.5 Interest rates

Increased fiscal deficits lead to interest rates shooting up. An increase in interest rates crowd out private investment as the cost of capital becomes too high. Further, high interest rates indirectly curtail domestic consumption thus negating any potential benefits that may accrue to those who receive the high benefits of the increases. Constrained consumption itself reduces the level of aggregate demand and hence output growth and further investments.

Although credit rationing has been found to be an impediment to investment as confirmed in the literature review, this model assumes availability of it to those willing to borrow. Investment depends therefore on the rate of interest and profitability of investment.

The expected relationship between capital accumulation and cost of capital or interest rates is negative.

3.3.6 Public Expenditure/Government Investment

Public investment affects on capital formation it twofold.

Firstly, the government can only invest resources acquired from the people through taxes and thought domestic and foreign borrowing. Tax increase demotivates private investment and also reduces the amount of real incomes from households and firms. Borrowing domestically has the impact of crowding out private investment by increasing the cost of capital through high interest rates and through competing for the same credit

as the private sector. External borrowing equally increases the tax burden, as the loans must be serviced by individuals.

However, public investment has a positive effect on private capital formation due to the fact that it creates a favourable environment for investment. Investment in infrastructure, such as roads, railway, and development of energy source among other encourage private investors to increase their investment in the areas where such investment is desirable. Further, Government undertake critical human development in such areas as education and training that are direct input to private operations though the promotion of technology and skills development. This, in the long run encourages deepening of the value added content of production. This implies that curtailing of public investments inevitable leads to curtailing of private formation.

A study by Serven and Solimano (1993) revealed that private investment are strong complimentary. In a study of panel of South American, African and East Asian countries, the study suggests that the increase in external debt was the chief determinant of the decline in the private investment. This was also confirmed by Larrain and Vargara (1993) on a study on South Korea, Singapore, Thailand and Malaysia.

The relationship between Public expenditure and fixed capital formation in hence expected to be positive.

3.3.7 Political uncertainties

Several studies have found that investments in developing countries are affected negatively by economic and political uncertainty (Elbadawi and Mwega, 1997; Schneider and Frey, 1985). In a survey of foreign owned firms in Africa, Sachs and Sievers (1998) find that the greatest concern of firm owners is stability, both political and macroeconomic. In an empirical analysis of the social and political development of foreign investment in Africa, Kolstad and Tondel (2002) find that countries that are less risky attract more FDI per capita. The study also finds that countries that are rich in oil and other natural resources, such as Angola, are able to attract heavy FDI inflows.

In Kenya political trends have had significant impact with regard to investment decisions. It is recalled that the country has various economic downturns arising from the political situation in the county. Some of these political issues include the 1992 and 1997 politically instigated tribal clashes that had serious impact on the tourism industry in the Cost Province in Kenya as well as investor confidence, Political agitation for militarism in the early 1990s and the donor aid embargo in the 1990s due to poor governance. The model therefore seeks to reveal whether such issues affected fixed capital formation in the country. The expected effect of this variable on the model in negative.

3.4 Working Hypotheses

From the theoretical perspective the study intends to investigate whether economic trends in Kenya support the theoretical hypothesis that:

- Output growth, government expenditure and devaluation of domestic currency against the world currencies all exhibit significant crowding –in effect on capital formation in Kenya.
- Although Foreign Direct Investment(FDIs) is a component of private investment, it leads to the crowding-in of gross fixed capital formation
- High interest rates or cost of capital, political uncertainties and government external debt inhibit the growth of investments due to their potential to discourage investors to undertake credit driven capital formation initiatives as well as the reduction of retained earnings respectively.

3.5 Model specification

The model can hence be expressed as:

FC = f(gr, ra, re, ge, fd, ed, rk)

Where:

FC	=	Fixed Capital Formation
gr	=	Growth in output
ra	=	Real interest rates
re	=	Nominal exchange rates
ge	=	Government expenditure
fd	=	Foreign Direct Investment
ed	=	External debt
rk	=	Dummy political risk factor indicating political trends in the country.

(1)

Theoretically, the expected response of each of the variable is as follows;

FC	Ξ	Gross Fixed Capital Formation				
gr	=	Growth in output (+)				
fd	=	Foreign Direct Investment (+)				
ra	=	Nominal interest rates (-)				
re	=	Nominal exchange rates (-)				
ge	=	Government expenditure (+)				
ed	=	External debt (-)				
rk	=	Dummy Risk factor indicating political trends in Kenya (-)				

Combining the factors, then the model can be expressed as an equation

$$FC = \alpha_{1+}\alpha_{2}GR + \alpha_{3}RA + \alpha_{4}RE + \alpha_{5}FD + \alpha_{6}GE + \alpha_{7}RK - \alpha_{8}ed + \varepsilon$$
(2)

Where $\alpha_{1,} \alpha_{2,} \alpha_{3,} \alpha_{4,} \alpha_{5,} \alpha_{6,} \alpha_{7}$ and α_{8} are the parameters for the independent variables, while ϵ is the error term.

In order to remove the effects of short-term fluctuations on the long run trend of fixed capital formation it is necessary to introduce the concept of differencing. This is necessary in forecasting the underlying trend in the time series data. For purposes of this research, each of the variables was differenced once partly to stationarize each of them and partly to uncover the long run underlying trend. Further, an error correction term was introduced to avoid spurious results. In doing this, each of the variables was lagged once before the short run trend was identified

The variables were hence transformed into

DGR = diff (GR, 1) DLFD = diff (LFD, 1) DLED = diff (LED, 1) $DLFC_1 = lag (DLFC, 1)$ $DRA_1 = lag (DRA, 1)$ $DRE_1 = lag (DRA, 1)$ $DLGE_1 = lag (DLGE, 1)$ $DGR_1 = lag (DLGE, 1)$ $DLFD_1 = lag (DLFD, 1)$ $DLED_1 = lag (DLED, 1)$ ecm 1 = lag (ecm, 1)

Where (diff) represent the first difference of each of the variables, 'Lag' represents the lag of the first difference of the variables and ecm is the error correction model variable.

This therefore modified the equation to:

 $FC = \dot{\alpha}_{0} + \dot{\alpha}_{1}DLFD + \dot{\alpha}_{2}DLED + \dot{\alpha}_{3}DLFC + \dot{\alpha}_{4}DGR + \dot{\alpha}_{5}DRA_{1} + \dot{\alpha}_{6}DRE + \dot{\alpha}_{7}$ $DRE_{1} + \dot{\alpha}_{8}DLGE + \dot{\alpha}_{9}DLGE_{1} + \dot{\alpha}_{10}DGR_{1} + \dot{\alpha}_{11}DLFD_{1} + \dot{\alpha}_{12}DLED_{1} + \dot{\alpha}_{13}$ $DRA_{1} + \dot{\alpha}_{14}RK + \dot{\alpha}_{15}ecm_{1}$ (3)

CHAPTER FOUR

4.0 DATA ANALYSIS AND EMPIRICAL RESULTS

4.1 Testing for homoskedasticity

The data collected is assumed to be homogenous i.e. the error term in the data is random with a mean of have a constant variance and is not related to any of the variables ,their squares or cross terms. To test whether heteroskedasticity exists and whether the parameter estimates are efficient and unbiased a White heteroskedasticity test was carried out.

4.1.1 Hypothesis testing

 $H_0: \lambda_0 = 0$ implying homoskedasticity

 $H_A: \lambda_0 \neq 0$ implying the presence of heteroskedasticity

The results is that the computed NR² = 29.90452. The standard $\chi^2_{24, 0.05}$ = 37.652

Figure 1: The NR² distribution



Since the computed NR² is less than the stand Chi-square at 5% level of significance, then we accept the null hypothesis that there is no heteroskedasticity in the data. This implies that given the sample and data analysis available, there is no relationship between the independent variables, their squares or cross terms with the error term.

4.2 Testing for Autocorrelation

The research utilized the Durbin Watson statistic to test for autocorrelation. This is because the sample under consideration is small with only thirty observations and six variables.

4.2.1 Hypothesis testing

 $H_0: \rho = 0 \implies$ implying no auto correlation

 $H_A: \rho \neq 0 \Longrightarrow$ implying the presence of auto correlation

The calculated Durbin Watson statistic for the sample n=30 and k=6 at 1% level of significance is $\hat{d}=1.85586$

The standard du = 1.707

4-du = (4 - 1.931) = 2.069

dL = 0.812

4 - dL = 3.188

 $du, < \hat{d} < 4 - du$

The calculated Durbin Watson statistic falls within the acceptance region at 1% level of significance. We therefore accept the null hypothesis that there is no auto correlation in the sample data.





4.3 Testing for Multicollinearlity

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This was done by regressing each of the independent variables against the rest.

While variables should be expected to have some degree of collinearity as they work together to explain a dependent variable too much of it is unacceptable as it creates problems of model specification. On the other hand it would be illogical to have variables that are orthogonal in nature, that is they are unable to work together to explain the dependent variable. For purposes of this research, a variable regressed against the other independent variables needed to have an R^2 of less than 0.5 to prove acceptance level of multicollinearity.

With regard to the specific data set this was the case with regard to output growth, foreign direct investment, political risk and interest rates. However, there was high level of multicollinearity with regard to exchange rates and government expenditure. However any manipulation of these two variables led to loss of vital linkage in the model and the causality element was greatly affected. While it may have been possible to overcome the

problem by increasing the sample size, it was recognized that the research was greatly constrained by lack of precise data for periods before 1973.

In conclusion, the regression was undertaken with constraint in mind.

4.4 Testing for stationarity

To test for stationarity the Augmented Dickey Fuller unit root test was utilized. The results of the test were as follows:

4.4.1 Hypothesis testing

H₀: $\lambda_0 = 0 \Longrightarrow$ non stationarity

 $H_A: \lambda_0 \neq 0 \Longrightarrow$ stationarity

Table 3: Testing for stationarity

Variable series	λc	λs ADF test statistic	Prob.	Decision rule	Implication
Fc	0.013580	0.557524	0.01	Accept Ho	Non-Stationary
Gr	-0.452563	-3.473497	0.01	Reject Ho	Stationary
Ra	0.090838	-1.349657	0.01	Reject Ho	Stationary
Re	0.041218	0.665457	0.01	Accept Ho	Non-Stationary
Fd	-1.057913	-3.744326	0.01	Reject Ho	Stationer
Ge	2.490256	0.098031	0.01	Reject Ho	Stationary
Rk	-1.236364	-5.558480	0.01	Reject Ho	Stationary

The summary results in table 2 indicate that there was stationarity in the variables Output growth, interest rates, foreign direct investment; government expenditure and uncertainties at level I(0). However, the dependent variable Gross fixed capital formation and the independent variable nominal exchange rates were non stationary.

4.5 Testing for Co-integration

The research utilized the Johansen technique for testing the presence of co-integration. Using E-views, the table below summarizes the results of the test.

4.5.1 Hypothesis testing

 $H_0: \lambda_0 = 0 \Longrightarrow$ No Co-integration

 $H_A: \lambda_0 \neq 0 \Longrightarrow$ Co-integration

Test assumption – linear deterministic trend in the data Lag interval 1 to 1.

Eigen value	Likelihood Ratio	5% Critical value	1% Critical value	Hypothesized No. of CEs
0.936666	248.8336	124.24	133.57	None**
0.854272	171.5723	94.15	103.18	At most 1**
0.796559	117.6440	68.52	76.07	At most 2**
0.687898	73.05736	47.21	54.46	At most 3**
0.572922	40.45343	29.68	35.65	At most 4**
0.421939	16.63137	15.41	20.04	At most 5*
0.044864	1.285237	3.76	6.65	

 Table 4: Testing for Co-integration

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

L.R. test indicates 6 cointegrating equation(s) at 5% significance level.

The test results indicate that the sample data is co-integrated. The first row in the table above tests the hypothesis of no co-integration, the second row tests the hypothesis of one cointegrating relation, the third row tests the hypothesis of two cointegrating relations, and so on, all against the alternative hypothesis of null rank, i.e. all series in the VAR are stationary. It is evident that there are 5 cointegrating relations in the data and stationarity at I (1).

4.6 Empirical findings

Having done all the requisite tests, the data was then ready for analysis. Ordinary Least Squires technique was used for empirical analysis.

The results of the regression analysis are shown below:

4.6.1 Analysis of Variance

 Table 5: ANOVA

Sigma	0.0534043	RSS 0.0456323485	
R ²	0.834747	F(14,16) = 5.773	P>F [0.001]

The model significantly explains the dependent variable as is evident from the coefficient of determination (Adjusted $R^2 = 0.834$) at 95% level of confidence. The linear regression line hence indicates some very significant level of goodness of fit given the variables other things remain constant. The implication is that Gross fixed capital formation in Kenya is jointly determined by output growth, real interest rates, nominal exchange rates, foreign direct investments, government expenditure, external debt and political trends in Kenya. This is made valid by the method used as reflected by the P-value of F which is 0.001. On conducting the F-test, the calculated F was found to be greater than the standard F. We therefore reject the null hypothesis that the F-statistic is not significant indicating that the explanatory power of the model is high.

4.6.2 Parameter estimates Table 6: Parameter estimates

EQ (2) Modeling DLFC by OLS (using data in appendix 1)

	Coefficient	Std. Error	t-Value	t-Prob	Part. R^2
Constant	0.116479	0.02686	4.34	0.001	0.5404
DRA	0.00372497	0.004907	0.759	0.459	0.0348
DRA 1	0.0112050	0.004244	2.64	0.018	0.3034
DRE	0.00117872	0.001832	0.643	0.529	0.0252
DRE_1	0.000335635	0.002415	0.139	0.891	0.0012
DLGE	0.0182370	0.1225	0.149	0.884	0.0014
DLGE 1	-0.246090	0.1366	-1.80	0.091	0.1686
DGR	0.0198986	0.005818	3.42	0.004	0.4224
DGR_1	0.0140596	0.007624	1.84	0.084	0.1753
DLFD	0.0111662	0.01319	0.847	0.410	0.0429
DLFD 1	0.00714062	0.01133	0.630	0.537	0.0242
DLED	0.281476	0.1218	2.31	0.034	0.2503
DLED_1	0.285930	0.1128	2.53	0.022	0.2864
Rk	0.00473326	0.03143	0.151	0.882	0.0014
ecm 1	-0.476898	0.2386	-2.00	0.063	0.1997

The estimation sample is: 1973 to 2007

The model was run to capture both the short and long term dynamics of the variables. Due to the long period involved, it was necessary to capture the fluctuations in time series data and to correct it.

The hypotheses are also collaborated by the P values of t in the model. The parameters that are significant are those corresponding to government expenditure, interest rates and Foreign Direct Investment. Each of them has a P>t value of less than 0.05 implying statistical significance.

Taking c(1), c(2), c(3)......c(8) in equation to represent $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6, \dots, \alpha_8$ in equation (3) respectively we can make the following deductions.

From empirical results, it is evident that Kenya's gross fixed capital formation is determined by government expenditure, interest rates and foreign direct investment all of which exhibit a crowding in effect. This is in line with the theoretical expectations highlighted earlier except for interest rates. Growth in output was insignificant as a determinant of fixed capital formation in Kenya at 5% level of significance. Nevertheless, at 10% the variable was found significant. The other variables are insignificant in the model.

CHAPTER FIVE

5.0 CONCLUSIONS

In this chapter main conclusions of the study are summarized and their policy implications and recommendations presented in sections 5.1 and 5.2 respectively.

The overall objective of the paper was to investigate the factors that stimulated the formation of fixed capital in Kenya over from 1973 to 2007, and make appropriate policy recommendations based on the empirical findings which will aim at maximizing crowding-in effects and minimizing crowding-out effects of fixed capital formation respectively.

Secondary time series data was collected and unit root tests performed on the variables to establish whether the series were stationary or otherwise. This was done using E-views statistical package. The variables that were non-stationary were differenced to achieve stationarity before formulating and estimating the empirical model.

5.1 Policy implications

Government expenditure was the most significant determinant of gross fixed capital formation in Kenya. For a long time, the Kenyan economy depended on government expenditure as an engine of growth. The government participated in infrastructure development, owned the most vibrant industries particularly those that were agro-based including the textile industries (Raymond, Kicomi, Rivatex, Spin knit etc), meat processing (Kenya Meat Commission), banking (National Bank of Kenya), to mention a few. These constituted a very significant amount of investments in the country in the 1970s and 1980s.

There is a slight antithesis to interest rates as a variable in this model. Theoretically it would have been expected that high interest rates would be deterrent to fixed capital formation in Kenya and hence have a crowding out effect.

However, the results of the model show a crowding in effect. The results probably suggest the less significant role of monetary policy plays in poor countries. The possibility that increases in real interest rates do not deter private investment may be true particularly in Kenya where access to credit was constrained in the 1980s and 1990s.

Consequently, local borrowers have no choice but to go for credit irrespective of going rates. This is the explanation behind the robustness of micro finance institutions such as Faulu Kenya and K-REP among others whose interest rates would otherwise be prohibitive to rational borrower.

Secondly, for a very long time, the focus of government on wealth creation on its blueprint christened Economic Recovery Strategy for Investment and Wealth Creation 2003-2007 was on encouraging the private sector to be involved in capital investments. This involved establishing lending institutions that were sector focused including the National Housing Corporation (NHC), Kenya Industrial Estates (KIE) and Industrial Credit Corporation (ICDC). The common characteristic with each of these lending institutions is that they make investment credit very affordable. This has however changed with the advent of liberalization, which brought with it financial liberalization, and the escalating levels of interest rates from the conventional banking sector. The aftermath is that credit driven formation has been minimal but borrowing has been high probably an indicator of individuals running Ponzi schemes⁴. This has been exacerbated by the crowding out effect from the government arising from the budget deficit in the 1990s.

Foreign Direct Investment was a major source of investment in early years of Kenya independence. This was the period when the political climate was very conducive to investment due to euphoria of independence. Capital attraction was easy due to the increasing demand and the economic stability, bringing with it significant resources from foreign investors. This has since changed particularly in the 1980s and 1990s which were periods of low economic growth and high political uncertainties. The implication is that FDI is very significant as a determinant of fixed capital formation but must be backed by a sound economic growth policy and environment of certainty.

⁴ A Ponzi scheme is one where an individual borrows from one creditor to repay an earlier debt, making it a cyclical process of borrowing and lending without any real value.

5.2 Policy recommendations

The new millennium is one dominated by issues of globalization in trade and development. Liberalization and privatization are important aspects that most African governments do not seem to have been ready for. This model seems to be pointing to the fact that Kenya's low level of fixed capital formation may be attributed to its reliance on Government expenditure in a liberalized environment. This means that more efforts must be put in place to strengthen private sector participation in capital formation. This may include fiscal measures to attract investments such as tax rebates in the export processing sector.

Secondly, there will be no meaningful investment in an environment of prohibitive interest rates. The model has amply demonstrated that interest rates are a very significant determinant of capital formation. There hence ought to be a deliberate effort to streamline access to credit for the industrial sector and agro based industries in the country. This may entail reintroducing sectoral credit schemes or reinvigorating those established in the 1970s such as ICDC and Agricultural Finance Corporation.

Thirdly, the Government must of necessity strive to stop competing with the private sector with regard to credit access through the Treasury bills. In the 1990s, banks have made treasury bills trading as their core business at the expense of lending to real outputs sectors. This is due to the high returns from short term credit and has led to crowding out effect in the country. This may entail the Government reverting to international lending arrangements or debt restructuring to long term borrowing.

Fourth, the model has revealed a major deficiency of the Kenya economy. In that output growth does not significantly determine fixed capital formation in the country. This is against theoretical understanding of what drives savings and hence investments. It is therefore important for the policy makers to re-look into the factors leading to low growth levels that are not contributing to capital formation. Macroeconomic factors that can stimulate output growth and mobilize savings need t be promoted.

Lastly, foreign investments are of extreme importance to any developing country. There is need to invest in areas that can attract foreign investors such as ensuring that there is a 52

conducive investment climate. Security is particularly important and more effort needs to be put in place to promote and sustain it. Further, investment in basic infrastructure such as electricity, roads and the railway network is most likely going to have a crowding in effect on investments

Finally, I wish to state that this research paper does not in any way claim to be authoritative enough to unequivocally assert its findings. However, the results are a useful indicator as to what is ailing the Kenyan Economy. The liberalization process has exposed the Economy to the weakness of market systems where there is incomplete weak or even constrained mechanism for resource allocation. While private capital formation is surely going to be the driving force of investments in the future it is obvious that the economy may have to be visible in the immediate future in areas such as infrastructure development, trade promotion and agricultural development. The Government must of necessity continue to streamline the credit system to make it an engine of growth in the country.

5.3 Areas for further research

An elaborate model that captures all the variables that determines fixed capital formation is recommended. These variables include human capital whose role is to improve productivity hence contributing to formation of capital.

APPENDICES

Appendix 1. Data used in the study

Year	Public Expenditure (Kshs. Mns)	FDI (Kshs.Mns)	Output Growth (GDP)	Interest Rates	Exchange rate	External Debt (Kshs. Mns)
1973	1,629.74	121.45	5.9	3.0	6.9	2,105.70
1974	1,904.46	166.95	2.1	5.0	7.1	2,302.46
1975	2,384.62	126.30	1.5	5.0	8.3	2,926.00
1976	2,853.58	388.24	4.6	5.0	8.3	3,773.12
1977	3,799.54	467.63	10.1	5.0	8.0	4,185.92
1978	2,840.26	265.89	8	5.0	7.4	4,790.82
1979	3,099.36	627.93	5.5	5.0	7.3	9,758.58
1980	3,472.62	586.20	5.8	6.0	7.6	9,946.82
1981	4,012.58	127.57	4.1	10.0	10.3	12,884.64
1982	3,386.46	141.99	1.9	12.5	12.7	17,184.00
1983	3,569.39	315.48	1.5	12.5	13.76	23,354.00
1984	4,147.33	155.67	1.7	11.0	15.78	30,639.80
1985	4,642.33	473.24	4.4	11.0	16.3	30,851.60
1986	5,797.22	530.58	7.1	11.0	16.0	40,580.00
1987	6,564.69	648.31	5.9	11.0	16.5	46,854.60
1988	7,569.10	7.10	6	11.0	18.6	53,818.60
1989	11,959.75	1,279.61	5.6	11.0	21.6	53,525.20
1990	15,001.91	1,308.44	4.6	14.0	24.1	68,380.00
1991	14,078.46	517.15	1.4	15.0	27.5	89,179.00
1992	15,486.79	206.19	-0.8	14.8	32.2	122,259.60

Year	Public Expenditure /Investment (Kshs. Mns)	FDI (Kshs. Mns)	Output Growth (GDP)	Interest Rates	Exchange rate	External Debt (Kshs. Mns)
1993	15,989.82	92.80	0.4	22.5	58.0	272,094.20
1994	16,933.62	207.39	2.6	12.1	56.1	208,071.20
1995	20,771.41	1671.47	4.4	9.5	51.4	246,027.00
1996	21,852.38	725.36	4.1	11.2	57.1	234,708.40
1997	24,054.44	2,349.27	2.1	9.8	58.8	218,106.40
1998	27,545.93	2,535.40	1.6	8.0	60.4	254,388.80
1999	30,580.09	2,953.70	1.3	6.2	70.3	325,261.15
2000	32,485.61	9,704.76	-0.2	4.5	76.2	363,149.25
2001	36,806.78	3,959.59	0.4	4.5	78.6	366,127.40
2002	36,102.41	2,204.97	1.4	4.8	78.7	359,370.47
2003	37,879.86	6,226.72	5.1	1.4	75.9	353,264.13
2004	43,352.51	3,646.95	5.8	1.0	79.2	443,157.00
2005	52,499.13	1,586.64	6.4	1.4	75.5	434,453.00
2006	60,630.35	3,677.14	7	1.4	72.1	431,236.74
2007	69,438.50	49,008.16	4.1	1.7	67.4	397,138.75

Source of Data:

- 1. Economic survey (various issues)
- 2. Statistical Abstracts of Kenya
- 3. Central Bank of Kenya Economic data
- 4. UNCTAD FDI Database
- 5. International Financial Statistics of the IMF
- 6. African Economic Indicators and
- 7. World Bank African Development Indicators

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