EXPORTS AND ECONOMIC GROWTH RELATIONSHIP IN KENYA: CAUSALITY AND COINTEGRATION ANALYSIS (1970 - 2004) fj

BY

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C/50/7743/2004

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RESFARCH PAPER SUBMITTED TO THE SCHOOL OF ECONOMICS, UNIVERSITY OF NAIROBI, IN PARTIAL FULFILMENT FOR THE AWARD OF THE DEGREE OF MASTER OF ARTS IN ECONOMICS

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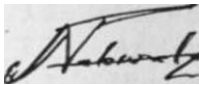**JULY 2006**

DECLARATION

This Research Paper is my original work and has not been presented for a degree course in any other University.

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This Research Paper has been submitted for examination with our approval as University supervisors

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ACKNOWLEDGEMENT

I am gratified to express deep, heartfelt and special gratitude to my university supervisors, namely. Dr. Hellen Ommeh and Mr. Daniel Abala for their professional guidance, sacrifice, encouragement, patience and cordial working relationship, which greatly contributed to successful completion of this research project. Precisely, their assistance was very beneficial. My fruitful discussions with the supervisors coupled with their constructive comments, positive suggestions, tireless efforts and unwavering support were indeed wonderful inspiration and fulfilling experience to me.

My sincere thanks equally go to my MA (Econ) lecturers, including Prof. G.M. Mwabu. Prof. F.M. Mwega. Dr. D.M. Kulundu. Dr. R.W. Ngugi and others for rigorously imparting economics discipline deep in my mind and their meticulous and valuable professional advice on research methodology, an experience that I will never forget. Indeed, my interactions and discussions with the lecturers gave me a lot of hope and determination in pursuing economics as a profession. I would also like to sincerely thank my 2004/2006 classmates, including Joseph Muraga. Winnie Karingithi, Joseph Gichimu, Joel Imitira, Yusuf Mbuno, Boniface Kariuki, Daniel Kamande, Patricia Mukere. Fredrick Wamalwa and others, who unknowingly partly contributed to the success of this paper, for their effective discussions and moral support. Special thanks go to Timothy Kariuki for also being a helpful discussant of my research proposal. In fact, I was also encouraged by my colleagues' enjoyable cooperation during the entire course, particularly the confidence they bestowed on me to chair several group discussions.

I take this opportunity to pass my warm gratitude to the Government of Kenya, particularly the Ministry of Cooperative Development and Marketing, for funding my MA (Econ) course. I am especially grateful to the Permanent Secretary. MOCDM. who recognized the relevance of the course and approved the sponsorship. I am also very thankful to African Economic Research Consortium (AERC) for sponsoring me in their 2005 Collaborative Masters Programme (CMAP) Joint Facility for Electives (JFE) in Karen. Nairobi and supporting this research project.

Deep in my heart I am greatly indebted to my wife Tabitha and our sons Timothy and Martin for their understanding, tolerance and moral support that went a long way to make me succeed in my MA course. They never accused me of domestic negligence and this is truly wonderful. I admire the way my wife stood by me. accepted the loneliness and her understanding why I was spending long and odd hours with books and computer.

I watched helplessly as Timothy wondered why Dad's "homework" was endless while Martin could not understand why Daddy was hiding with books. Precisely, they inspired me and encouraged me to soldier on and I am extremely happy that the young boys developed a culture of reading, especially Martin at a tender age of two years. They truly deserve dedication and my sincere apologies go to them for any missed attention.

Lastly and most important, I thank the Almighty God for His unfailing love, mercy and spiritual support to me, giving me an opportunity to take the MA course and the successes that I have achieved during my entire academic life. Actually, it is God's blessings, without which I could not have done anything, that enabled me to study with a lot of hope, confidence, determination and courage. I witnessed the miraculous hand of the Lord that saved and supported me at times when failure and desperation were almost imminent during my studies.

All in all, any mistakes in this paper solely remain mine.

DEDICATION

I dedicate the entire MA (Econ) course to Tabitha, Timothy and Martin and this research project to my parents. Joseph Kariuki and Catherine Wambura, who sensitized me on the essence of hard work and the benefits of academic excellence, with a lot of passion when I was young.

List of Abbreviations

ACP	African. Caribbean and Pacific
ADF	Augmented Dickey-Fuller
AIC	Akaike Information Criterion
AU	African Union
AGOA	African Growth and Opportunity Act
ASEAN	Association of South East Asian Nations
CBS	Central Bureau of Statistics
COMESA	Common Market for Eastern and Southern Africa
CRDW	Cointegrating Regression Durbin Watson
EAC	East African Cooperation
ECM	Error Correction Model
ECT	Error Correction Term
EG	Engle-Granger
ELG	Export-led Growth
ELGH	Export-led Growth Hypothesis
EPA	Economic Partnership Agreement
EPC	Export Promotion Council
EPPO	Export Promotion Programmes Office
EPS	Export Promotion Strategy
EPZ	Export Processing Zones
EU	European Union
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GLE	Growth-led Exports
GNP	Gross National Product
IFS	International Financial Statistics
IGAD	Inter-Governmental Authority on Development
IMF	International Monetary Fund
IRF	Impulse Response Function
ISS	Import-Substitution Strategy
KETA	Kenya Export Trade Authority
LDCs	Least Developed Countries
LM	Lagrangian Multiplier
MUB	Manufacturing Under Bond
NEPAD	New Partnership for African Development
NICs	Newly Industrialized Countries
OLS	Ordinary Least Squares
PP	Phillips and Perron
PTA	Preferential Trade Area
RESET	Regression Specification Error
SBC	Schwartz Bayesian Criterion
SEA	South East Asia
SSA	Sub-Saharan African
SUR	Seemingly Unrelated Regressions
UNCTAD	United Nations Conference on Trade and Development
USA	United States of America
VAR	Vector Autoregression
VECM	Vector Error Correction Model
WTO	World Trade Organization

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ABSTRACT

The relationship between exports and economic growth has been analysed for a long period. Whether exports expansion cause economic gains or losses, whether economic growth causes exports expansion or reduction, and whether a feedback relationship exists between exports growth and economic growth has been a recurring empirical problem. Empirical evidence linking exports to economic growth has been mixed and inconclusive due to fundamental differences in methodology, analytical techniques, sample period and study countries.

This study examines the exports-growth relationship in Kenya using secondary annual time series data for 1970 - 2004. Particularly, the study investigates export-led growth hypothesis for Kenya by testing for Granger causality between exports growth and economic growth. The study also investigates the long-run nature of the export-growth relationship by applying cointegration analysis and error correction mechanism to estimate an augmented simple production function using ordinary least squares method. Inclusion of exports and imports provides an alternative procedure to capture total factor productivity growth. By considering relevant variables omitted in previous studies for Kenya and by covering both imports-substitution and export-promotion eras, including trade liberalization period, help clarify and improve past empirical results and minimizes the existing knowledge gap.

The results of this study indicate that there is unidirectional causality from exports growth to economic growth and by disaggregating exports into primary and manufactured exports; the unidirectional causality is from primary exports to economic growth. There is a significant long-run relationship between economic growth, exports, imports and capital formation. The study further reveals significant long-run positive impact of exports, particularly primary exports on economic growth while manufactured exports" impact, though positive is insignificant. On the other hand, the short-run effects of both primary and manufactured exports are negative. Considering that Kenya has been experiencing low, slow and unstable economic growth, coupled with rising poverty and unemployment levels, this study concludes that primary exports-led growth is undesirable for economic development. Therefore, primary exports should not be relied upon further as "engine of growth", since this is unfavourable to Kenya's economic prosperity. Instead, more resources should be directed towards value-addition of primary exports and growth and competitiveness of manufactured exports.

CHAPTER ONE: INTRODUCTION AND BACKGROUND

1.1.   Introduction

Economic growth and development is a fundamental goal of any economy. While economic growth is viewed as a process involving the entire economy's output performance, it invariably depends on the productivity of a country. The sources of productivity growth and productivity differences among countries and regions have today emerged as a central unifying theme of growth and development. Particularly, the study of the role of exports on economic growth is a recurrent research theme in trade and development literature and the role of exports has been widely acknowledged. Although most research work have emphasized on trade-growth relationship, it has been stressed that exports is only one of the variables in output growth equation. Indeed, the idea that exports growth is a major determinant of output growth, the export-led growth hypothesis (ELGH), has considerable appeal to many developing countries due to positive externalities and other exports benefits.

Lately the export-led growth (ELG) paradigm has received a lot of attention following the highly successful East Asian export-led growth strategy during the 1970s and 1980s, and especially if compared to dramatic failures of import-substitution policies in most Latin America and African countries. Earlier empirical studies generally concluded that there is strong evidence in favour of ELGH. However, recent time series studies have generally concluded that the statistical evidence in favour of exports-promotion *per se* is not as unanimous as was previously thought. It is also possible that export promotion policies may only increase exports in the long-run. Consequently, internally generated growth-led exports hypothesis (GLEH) has been tested with supportive evidence. In fact renewed emphasis is now placed on the role of internal factors or basic characteristics of an economy, such as infrastructure, human capital, institutions and entrepreneurship. which reduce production costs of tradables thus improving their international competitiveness.

After independence Kenya experienced impressive economic performance. However, the 1970s was a period of external shocks, which adversely affected balance of payments and economic growth mainly due to the rigid, inward-looking and price-distorting imports-substitution strategy that was being implemented.

This prompted the introduction of exports-promotion strategies and structural reforms in early 1980s that culminated into a liberalized economy by early 1990s.

The available supportive evidence in favour of ELGH and global trend towards trade liberalization appears to have influenced Kenya to adopt the ELG strategy. However, unlike the fast growing Asian countries, which were at the same development level with Kenya in 1960s. Kenya has not been successful in gaining a competitive export sector and has been experiencing slow and low economic growth with increasing poverty and unemployment levels. So what went wrong for Kenya and when and how did this happen? What lessons can Kenya learn from the Asian experience? During 1960s and early 1970s, when Kenya promoted ISS and exports performed poorly, the country had impressive economic growth record. After the structural reforms, when export performance improved, economic growth has been slow and inadequate. This has led to the question whether export promotion can be relied upon for economic growth in Kenya or is it economic growth that should precede exports promotion. Consequently, there is need to understand the nature of exports-growth relationship in Kenya. This forms the basis of the research problem addressed by this study. The study therefore examines the causality direction and nature of the exports-growth relationship in a simple growth model.

This paper is organized into five chapters. Chapter One on introduction and background briefly discusses Kenya's economic growth and trade performances and also talks about the research problem, study objectives and justification. Chapter Two provides both theoretical and literature review and Chapter Three outlines the methodology used. Chapter Four discusses and interprets the empirical results while Chapter Five summarises the study findings, highlights policy implications and proposes areas of further research.

1.2.   Kenya's Economic Growth Performance

The pre-colonial Kenya economy was almost a wholly subsistence one, with very little trade with Arab and European traders. The advent of colonial administration and immigrant communities brought in development of markets, institutions and general monetization of the economy. Kenya experienced improved economic performance during the first decade of independence.

The economy recorded faster and higher economic growth in the country's economic history with an average growth rate of about 6%. This was followed by a period of poor performance between mid 1970s and early 1980s mainly due to the effects of 1973 and 1979 oil shocks, mismanagement of 1976/77 coffee boom, collapse of the East African Community in 1977, 1982 military coup attempt and a severe drought in 1983/84. This led to balance of payments problems, with the average growth rate declining to 5.2% in 1974-79 and 3.2% in the first half of 1980s (Mwega and Ndung'u, 2004).

Structural reforms were implemented from mid 1980s and the period 1985-1989 witnessed a bit of economic recovery, with annual growth averaging 5%. The reforms, implemented up to early 1990s, covered nearly all sectors of the economy, including liberalization of trade, payments system, the foreign exchange market, domestic financial and capital markets, privatization and commercialization of public enterprises. The first half of 1990s witnessed worsening economic environment, with an average growth rate of 2.5%. There was a drought in 1991/92. the oil price increase due to the Gulf war. compounded by the aid embargo of 1991-93 and "ethnic clashes" in 1992 (Mwega and Ndung'u. 2004). These exogenous shocks were accompanied by an increase in budget deficit and excessive money supply, due to unwarranted government spending on the 1992 elections. As a result, this rapidly increased inflation rate from 27.3% in 1992 to about 46% in 1993 alongside large exchange rate depreciations over the same period.

In the late 1990s, economic growth declined further to an average of 1.9%, coupled with aid embargo of 1997-2000, "ethnic clashes" in the run-up to and after the 1997 elections. This situation was exacerbated by unfavourable weather conditions, including the *El Nino* rains in 1997/98 followed by a major drought that occasioned power rationing, that culminated into very poor economic growth of -0.2% in 2000 (Mwega and Ndung'u. 2004). Due to improved weather and macroeconomic policies together with increasing economic integration. Kenya's economy started recovering and witnessed an average growth rate of 1.2% in 2001-02. Some sectors such as tourism, horticulture, transport and telecommunication registered remarkable growth rates and this steered the economic growth to 1.8% in 2003, 4.3% in 2004 and 5.8% in 2005. The GDP growth rate is projected to rise over 6% in 2006 and beyond but the 2005/06 drought is expected to have a negative impact.

1.3. Kenya's International Trade Performance

At independence, Kenya adopted an industrialization policy based on import-substitution strategy (ISS) which was characterised by protective and prohibitive trade barriers, such as high rates of protection, price controls, foreign exchange controls and import licensing. This involved development of domestic industries via protection at the expense of exports growth. Large proportion of the industrial output was meant for the domestic market, which was more profitable than the export market. This discouraged export promotion and partly accounted for the poor export performance of Kenya's manufacturing sector (Were et al., 2002).

By 1980s. Kenya had achieved a reasonable level of industrialization in the region but like in most African and Latin American countries, the ISS failed to achieve the intended objectives despite the considerable protection the industries enjoyed. With a series of external shocks in 1970s, e.g. the oil crises of 1973 and 1979 and the collapse of the East African Community in 1977. the inefficiency and inadequacy of the ISS became evident. The balance of payments deteriorated such that by the end of the period the Government recognized the need for an export-oriented strategy as articulated in the Development Plan of 1979-83, which aimed at efficient industries, increased competitiveness and diversification of exports (Kundhi (1996).

In the early 1980s, partly due to the increasing pressure, mainly from World Bank and IMF, for structural adjustment reforms. Kenya government embraced liberalization policy, a major component of which was a shift from ISS to export-promotion strategy (EPS). In mid-1980s, a key policy milestone was the publication of the *Sessional Paper No. 1 of 1986 on Economic Management for Renewed Growth*, in which liberalization and outward-looking development strategies were adopted. By this time. Kenyan exports had deteriorated tremendously. Merchandise export earnings as a percentage of GDP had for example declined from 19.6% in the 1970s to 16.97% over 1980-84 and 13.6% over 1985-89 (Were et al., 2002).

In addition to the export compensation scheme established in 1976, a number of export promotion programmes were initiated. These include the Green Channel in 1988, Export Guarantee and Credit Scheme, Preferential Trade Area (PTA). revival of the Kenya Export Trade Authority (KETA) in 1976, establishment of Export Promotion Council (EPC) and the Export Promotion Programmes Office (EPPO) for tax rebates on imported inputs for exports.

This also included establishment of Manufacturing Under Bond (MUB) in 1988 and Export Processing Zones (EPZ) in 1989/90. It was observed that although in the long-run the best incentive for exports expansion is flexible management of the exchange rate, the above incentives were necessary[1] to encourage potential exporters to make investments and break into the foreign markets (GoK, 1986).

However, export incentives notwithstanding, export orientation in the 1980s remained weak largely due to very high effective rates of protection accorded to domestic industries, exchange rate bias against exports, high cost of imported inputs, foreign exchange controls, administrative delays and high transaction costs among others (Were et al., 2002). The export incentives also remained unattractive and less successful due to weaknesses in implementation and poor coordination. There were initial attempts to liberalize imports during 1980-84 and 1988-91. but these were also less successful. These shortcomings called for further reforms so as to get any meaningful trade benefits. This ushered in trade liberalization era in the early 1990s.

Trade liberalization properly started in the 1990s with a conversion of quantitative restrictions to tariffs equivalents and the Government embarked on phased tariff reductions and rationalization of the tariff bands. The most significant shift in trade policy regime came in May 1993 with the abolition of trade licensing requirements and more importantly, liberalization of the foreign exchange market. During the period 1993-94. all current and capital accounts restrictions were lifted and there was immense response on both imports and exports.   Nevertheless, the response on the exports was combined with a price effect occasioned by the steep depreciation of the Kenya shilling from Kshs 36.22 in 1992 to Kshs 68.16 per US dollar in 1993. Exports earnings rose dramatically from 13% of GDP in 1992 to over 20% between 1993 and 1996 (Were et al., 2002). This recovery was also brought about by macroeconomic reforms and increasing regional integration under the East African Cooperation (EAC) and the wider Common Market for Eastern and Southern Africa (COMESA).

Figure 1: Kenya's Volume and Balance of Trade - Kshs Billions (1994 - 2004)
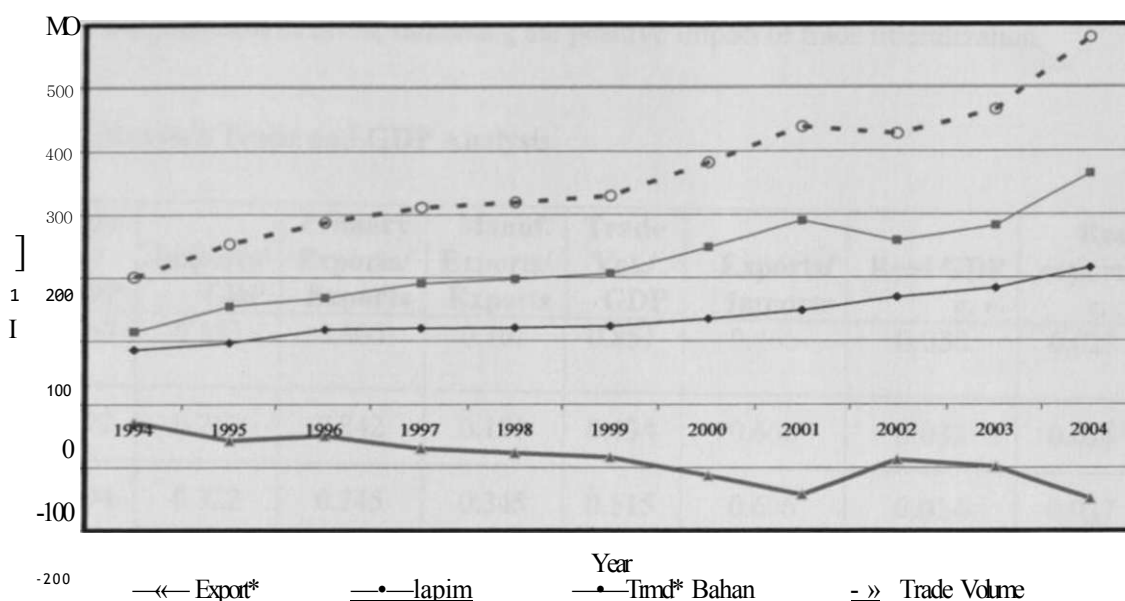
Source: CBS Statistical Abstracts

Figure 1 shows the general trends of Kenya's trade volume including exports, imports and trade balance for the period 1994-2004. Over the last decade, Kenya's trade volume has increased more than twofold from Ksh 201 billion in 1994 to Ksh 579 billion in 2004. Total exports have increased from Ksh 86 billion to Ksh 215 billion, an increase of 150%, while imports have increased from Ksh 115 billion to Ksh 364 billion, which is an increase of about 217%, over the same period. It is clear therefore, imports have increased more than exports and this put Kenya on a trade deficit that increased from Ksh 29 billion in 1994 to Ksh 149 billion in 2004 although the deficit had declined to Ksh 99 billion and 88 billion in 2003 and 2002 respectively.

Table 1.1 below shows shares of Kenya's exports, imports and trade volume in GDP, shares of primary and manufactured exports in domestic exports, exports/imports ratio and real GDP and exports growth rates for three periods. The periods 1970-80, 1981-93 and 1994-2004 represents imports-substitution, export promotion and trade liberalization periods respectively. For the past decade, the exports/GDP ratio has on average been 19.4%, imports/GDP ratio has been around 32.2%, trade openness on average has been 51.5% and imports cover has been 60.6%.

Real GDP growth has continued to decline from an average of 5.0% in 1970-80 to 3.3% in 1981-93 and 2.4% in 1994-2004. Real exports growth rate remained constant at about 2.65% in 1970-93 but increased to 3.7%, indicating the positive impact of trade liberalization.

Table 1.1: Kenya's Trade and GDP Analysis

	Expo rts/ GDP	Imports/ GDP	Primary Exports/ Exports	Manuf. Exports/ Exports	Trade Vol./ GDP	Exports/ Imports	Real GDP r.	Real exports S- r.
1970 - 1980	0.268	0.583	0.863	0.161	0.851	0.466	0.050	0.027
1981 - 1993	0.172	0.262	0.842	0.191	0.434	0.666	0.033	0.026
1994- 2004	0.194	0.322	0.745	0.345	0.515	0.606	0.024	0.037

Source: Author's computation from CBS *Statistical Abstracts:* g. r. - growth rate

1.3.1   Structure and Composition of Exports

Like most developing countries, Kenya's export trade is predominantly composed of primary commodities mainly tea, horticulture and coffee besides tourism. The three primary products together with petroleum products and cement account for over two thirds of total foreign earnings (GoK, 2004). As it is evident in Table 1.1 above, primary exports represents about 75% of domestic exports. The Kenyan exports are therefore more vulnerable to world prices fluctuations. Although horticultural exports have grown in the last few decades, manufactured exports make a small proportion of total exports. However, the share of manufactured exports in total exports has increased since 1994, mainly due to trade liberalization. All in all, export growth has been highly erratic, based on fluctuating earnings of the primary exports and the tourism sector.

Until the late 1980s, coffee exports contributed the largest share of about 32% to total commodity exports, with notable performance in 1977 and 1986. which was attributed to positive price shocks in the world market, especially the severe frost in Brazil in 1977 that resulted into the "coffee boom" for Kenya (Were et al., 2002). Of late the performance of the coffee sector has continued to worsen and has been overtaken by horticultural and tea exports.

Table 1.2: Domestic Exports of Principal Commodities as a percent of Total Value of Commodities Export

	Tea	Coffee (not roasted)	Horticulture	Petroleum products	Cement (building)
1994	20.2	15.6	10	6.1	2
1995	19.3	15.5	11.4	4.7	1.7
1996	19.9	14.4	12	6.2	2.2
1997	21.1	14.7	12	9	2
1998	28.8	11.2	8.2	8.5	1.3
1999	28.6	10.4	15.4	7.9	1.1
2000	29.3	9.8	17.7	7.9	1.1
2001	28.4	6.1	16.3	10.2	0.8
2002	26.2	5	21.6	3	1.1
2003	24.1	4.6	26.7	0.1	1.4
2004	22.7	4.4	24.9	0.7	1.2

Source: Central Bureau of Statistics, *Statistical Abstracts*

However, as indicated in Table 1.2 above, since the early 1990s tea exports took the lead up to 2002. However, starting from 2003. horticultural exports took the lead of 26.7% of total domestic commodity exports, followed by tea exports. In 2003. tea and horticulture exports together accounted for 50.8% of the total domestic exports earnings (GoK, 2004). As reflected in Table 1.2, in 2004 the combined share of horticulture, tea and coffee accounted for 52% of total value of commodity exports, reflecting the dominance of agricultural commodity exports.

From mid 1990s, Kenya's domestic exports have been rising with the largest share generally going to Africa. Out of the total domestic exports value of about Ksh 159 billion in 2004, approximately 39 % or Ksh 62 billion went to African countries. Regional integration measures under the EAC and the wider COMESA and economic recovery and trade liberalization initiatives in the region are some of the factors accounting for this dominance exports share. The main countries of destination in Africa include Uganda, Tanzania, Egypt, Sudan. DR Congo, Rwanda and Somali. Tanzania was a member of COMESA up to Sept 2000.

Beyond Africa. Europe has maintained the biggest share of Kenya's domestic exports. In particular, the European Union (EU) is the second destination of Kenya's exports after COMESA. For example in 2004, out of the total value of exports to Europe of about Ksh 59 billion. 95% or Ksh 56 billion went to the EU. which represented 35% of total exports. The main countries of destination in the EU include United Kingdom (UK), Netherlands, Germany, France and Belgium. Over the world, other key countries of destination include United States of America (USA), Pakistan, India and Yemen.

1.3.2 Structure and Composition of Imports

Over the years, Kenya's imports have been increasing. The imports mainly consist of intermediate inputs and machinery. These includes crude petroleum, gas and diesel oils, vegetable fats and oils, kerosene, jet fuel, synthetic plastic materials, medical and pharmaceutical products, telecommunication equipment, motor vehicles and their parts. For a long period Kenya's imports have mainly originated from Europe followed by Middle East and Far East. However, Kenya's search for new markets and trade relations have borne fruits since in 2004 the largest share of imports came from the Middle East followed by Europe and Far East. In Europe, as was the case of exports, EU is the main source of imports.

In Africa unlike the case of exports, Kenya's imports are mainly from South Africa, a non-COMESA member country. For instance in 2004. out of the total imports from Africa valued at Ksh 52 billion, imports from South Africa amounted to Ksh 35 billion or 67% while from COMESA countries imports amounted to 29% or about Ksh 15 billion. In Asia, the main countries of origin of Kenya's imports include Saudi Arabia. Bahrain, Japan, India and mainland China.

1.3.3 Kenya's Trade Policy

The import substitution strategy adopted in Kenya at independence created an anti-export bias that led to unfavourable export growth performance especially of manufactured exports. However, starting in the mid-1980s, Kenya shifted away from an ISS trade regime towards a more outward-oriented growth policy. With globalization, export-led growth strategy has become a major focus for many countries including Kenya, particularly in consideration of development constraints facing the country such as limited external financing.

As articulated in GoK (2003), it has been recognized that trade and export promotion are crucial components of a sustainable economic growth strategy. The principle objectives are to reduce the cost of doing business, eliminate impediments to supply chains, and introduce appropriate policy, regulatory and institutional reforms conducive for sustained economic growth in Kenya.

To promote exports growth a number of schemes to reduce and/or eliminate import taxes on inputs for exportable goods, as well as providing other incentives to exporters have been implemented. These include a duty suspension program, bonded warehousing and manufacturing facilities, and export processing zones. Kenya's general trade policy objectives include moving towards a more open trade regime, strengthening and increasing overseas market access for Kenyan products, and further integrating the country into the world economy. These policy objectives have been pursued through unilateral trade reforms, multilateral, regional and bilateral trade agreements.

Besides being a member of the World Trade Organization (WTO), Kenya is a participant in various regional, sub-regional and international trade initiatives, including the EAC, COMESA. 1GAD. the AU's NEPAD. ACP - EU agreement and USA's AGOA. With the launching of EAC's customs union, a similar arrangement to follow under COMESA. the evolving trade arrangement with the EU under the EPA and the scheduled completion of WTO's Doha Development Agenda, Kenya's integration with the rest of the world is about to change significantly during the coming years. In particular, there are potential export opportunities that include product and market diversification.

In light of the potential benefits of export promotion in economic growth, increased outward orientation of the Kenyan trade policy is expected to have beneficial growth effects in the economy. However, it is worth noting that even though Kenya has adopted a flexible exchange rate system, which is an appropriate policy, the response of manufactured exports to price incentives has not been very good. This could have been due to structural and institutional constraints such as inadequate and poor infrastructural facilities (Kasyoka, 1999). Hence in the long-run. the appropriate price policy must be supported by structural and institutional policy measures.

However, it must be observed that a major stumbling block to trade reforms that encounter developing countries like Kenya is the potential loss of customs revenues due to reduction in tariffs. In Kenya import duties have represented a declining, but still important, component of government revenues. Import duty as a proportion of total current revenue averaged 20% before 1984. This declined to about 15% between 1985 and 1999 and from 2000 this has gone down to an average of 10%. However, although import duties share of government revenues has declined, there is evidence that revenue collection has increased relative to the reduction of tariffs, due to improved tax administration.

1.4.   Conceptual Framework

The relationship between exports and economic growth has been analysed for a long period. The export-led growth hypothesis postulates that export growth is one of the key determinants of economic growth and hence exports growth acts as a catalyst for income growth. Exports are known to have both direct and indirect effects that positively affect economic growth. The main exports benefits, or the channels through which total factor productivity is increased, includes foreign exchange earnings, resource allocation according to comparative advantage, exploitation of economies of scale, improved production techniques, greater capacity utilization, positive externalities on non-exports, more efficient management styles and increased employment. Growth performance in most developing countries is constrained by shortage of foreign exchange and therefore these countries could grow faster with more exports.

The ELGH assumes causality direction from exports to economic growth but in some cases due to lack of competitiveness, manufactured exports particularly for developing countries, negatively affects economic growth. The opposite causality direction implies growth-led exports hypothesis (GLEH). This is grounded on the potential benefits of first developing the domestic economic environment. This works out when the growth of domestic economy boosts exports growth, but in some cases national income growth can result to increased domestic consumption of exportables thus reducing exports. Empirical evidence linking exports to economic growth has been mixed and inconclusive. The available supportive evidence in favour of ELGH and global trend towards trade liberalization appears to have influenced Kenya to adopt the ELG strategy.

The ELG strategy is envisaged in several Kenya's policy documents, including *Sessional Paper No. 1 of 1986 on Economic Management for Renewed Growth. Sessional Paper No. 2 of 1997 on Industrial Transformation to the Year 2020* and the Economic Recovery Strategy for Wealth and Employment Creation (2003-2007). Therefore, has Kenya really experienced exports-led growth, growth-led exports or feedback between exports and economic growth? Has there been any long-run relationship between exports and economic growth? Consequently, there is need to understand causality direction and the nature of exports-growth relationship in Kenya. This forms the basis of the research problem discussed in the next section.

1.5. Problem Statement

Whether exports expansion cause GDP gains or losses, whether GDP growth causes exports expansion or reduction, and whether a two-way causal relationship exist between exports growth and GDP growth can only be decided empirically, preferably for individual countries. However, in some cases these relations have been frequently invoked without detailed empirical proof. Although the theoretical links between trade and economic growth has been discussed for over two centuries, controversy still persists regarding their real effects. However, over the last four decades substantial amount of research concerning the association between exports and growth has been carried out in both developed and developing countries fundamentally differing on methodology, analytical techniques, sample period, study countries and hence their results.

Does rapid income growth lead to rapid trade expansion or is it the other way round? Subjective evidence suggests that countries with strong exports performance have strong growth performance and vice versa. Bhagwati (1988) as cited by Henriques and Sadorsky (1996) suggests that, as with most economic phenomena, there is a reciprocal relationship between the two economic indicators. Indeed many developing countries have been pursuing aggressive export promotion strategies and some countries have actually achieved rapid economic growth. While earlier empirical work indicates that there is positive correlation between exports growth and economic growth, questions about causality direction remains unanswered.

Therefore, the main research problem is to find out whether specific countries or group of countries have been experiencing export-led growth or growth-driven exports. Both positive and negative signs are expected in either causality direction i.e. in case of ELG, there can be growth-reducing exports and in case of GLE, there can be exports-reducing growth. This research thus solidly concurs with Jung and Marshall (1985) that tests of ELGH should focus on the causality direction as well as the sign of the relationship. Hence there is a problem of deciding causality direction and determining the sign, magnitude, significance and nature of the relationship between exports and economic growth. This is the research problem addressed in this study using the case of Kenya.

Kenya adopted imports-substitution strategy in 1960s and 1970s and export-promotion strategy from early 1980s. Economic growth was remarkable in 1960s but from mid-1970s, it was adversely affected by external shocks with resultant poor performance mainly due to rigidity of the ISS. This led to the adoption of exports-promotion strategy and structural reforms that culminated into liberalization in early 1990s. Since then, economic growth has been slow, low and wanting. This study investigates the causal relationship between exports growth and economic growth in Kenya for the period 1970 - 2004. It is an attempt to answer the questions: is export-led growth hypothesis or growth-led exports hypothesis valid for Kenya? Eleven years after trade liberalization, what is still going wrong that is adversely affecting Kenya's growth path? Could the poor growth performance be attributed to the nature of exports-growth relationship? The study therefore tests the ELGH for Kenya and attempts to address the extent to which exports growth drives GDP growth in a long-run relationship. This study therefore is an addition to the prevailing literature on the exports-growth relationship and it contributes towards minimising the existing knowledge gap.

1.6. Research Objectives

The overall objective of this study is to examine exports-growth relationship in Kenya. Specifically, this research aims at achieving the following objectives:-

(i)   To examine causality direction between exports growth and economic growth in Kenya;

(ii)   To investigate and estimate long-run relationship between exports and economic growth in Kenya; and,

(iii)   To draw policy implications from the results of (i) and (ii) above.

1.7.   Justification and Significance of the Study

This study is interested in investigating causality direction and estimating long-term relationship between exports and economic growth in Kenya during the period 1970 - 2004. This period is significant in Kenya's economic history since it covers the imports-substitution era of 1960s and 1970s, the shift to export-promotion strategy in early 1980s and liberalization era from early 1990s. Kenya is a developing country, whose economy participates in international trade, has been affected by external shocks and the country is a major economic player in the region. Hence, improvement of Kenya's economy is a boost in the region and the other regional countries can learn from Kenya's economic growth experience. The author is also well conversant with Kenya.

This study recognizes the weaknesses of cross-sectional studies and acknowledges the limitations, omissions and recommendations of time series studies. The study hence adopts time series analysis approach using a case study of Kenya. Non-existence of feedback between exports and economic growth justifies use of OLS as opposed to system methods. Although there has been past attempts to study exports-growth relationship in Kenya, individual case studies are few. Most of the previous studies are not comprehensive while others are not specific to Kenya. Those studies that have analyzed Kenya individually using time series analysis did so in a different economic environment and applying different methodologies. Kundhi (1996) recommended that a similar time series study should be carried out in the long-run when Kenya's trade regime is more outward-looking and long after trade liberalization.

This research therefore, recognizes the gaps left by past empirical studies and attempts to fill the existing information gap. Eleven years after trade liberalization in Kenya, this study attempts to analyse the exports- economic growth relationship, thus it is more up-to-date.

The study employs a multivariate time series analytical framework using neoclassical growth model. Granger causality tests, cointegration and error correction analysis. This study is also different from past empirical work because it analyses additional causality relationships that are closely related with exports-growth link such as exports-imports and imports-growth relationships, which strengthens the results of the study. The analysis is extended to consider whether trade liberalization affected trade and economic growth in Kenya. This kind of analysis has not been carried out by past studies.

This research not only examines the effectiveness of Kenya's export promotion strategies but also evaluates the success of the various economic policies adopted since 1970s and their reliability for sustainable economic growth and development. By finding out whether there exists a long-run relationship between exports and economic growth in Kenya and discovering the causality direction, this study serves as a policy guide by attempting to answer the questions: Has Kenya been successful in the pursuit of export-led growth? Should Kenya pursue exports promotion first or should it first develop the domestic economy?

The findings of this study are quite informative and point out several issues of policy concern. Particularly, the results will help policy makers to evaluate various trade policies, including their impact on trade performance, particularly the exports sector, and the overall economy. The study will guide in policy prioritization and resource allocation in trade and growth policies in Kenya. Time series analysis remains the most widely used approach for analysing exports-growth relationship, hence it can be argued that the results of this study gives better insight and measure of Kenya's long-run relationship between exports, imports and economic growth.

CHAPTER TWO: LITERATURE REVIEW

2.1. Theoretical Literature

The idea of trade originates from *mercantilism* doctrine of 16th century that underlined exports as a means of increasing a country's wealth. Favourable arguments for free trade started with the classical school of economic thought when Adam Smith's absolute advantage theory of 1776 highlighted the importance of trade as a vent for surplus production and the accruing benefits of specialization. This was later improved by David Ricardo's comparative advantage theory of 1817, which clearly documents the gains from international trade. Since then, the role of exports in economic growth has been widely acknowledged and the link between trade and economic growth has been extensively discussed worldwide. Theoretical literature mainly focuses on the relationship between trade and economic growth in contrast to empirical studies that have typically focused on the relationship between exports and economic growth.

Traditional classical economic theory argues that economic growth is a function of the factors of production, mainly labour and capital. But in the last two decades there has been an impressive activity on economic growth literature triggered by the endogenous growth theory, which has led to an extensive inventory of models that stress the importance of trade, among many other factors, in promoting sustainable economic growth. Recent models of economic growth emphasises the role of increasing returns to scale and extend the neoclassical growth model so that technological changes are endogenous and total factor productivity (TFP) growth is responsive to policy. Total factor productivity is determined by several factors including competition, uninterrupted growth, policy changes, institutions among others, all of which tend to point to a trade-related environment (Onjala, 2002). Therefore, trade policy affects productivity and growth with a general conclusion that countries that practice more open trade tend to grow faster.

Out of the exports-growth debate, there are three possible relationships between exports and economic growth, namely, export-led growth, growth-driven exports and feedback. Export-led growth hypothesis postulates that export growth leads to economic growth and hence exports act as an "engine of growth". On the other hand growth-led export suggests that rapid economic growth leads to rapid export expansion.

The advocates of ELGH have emphasized that trade has been the main engine of growth in South-East Asia, whereby the Four Tigers: Hong Kong, Taiwan, Singapore and South Korea, have achieved high economic growth because of their free-market outward-oriented strategies (Medina-Smith, 2001). Within trade theory there are several reasons put forward by exports-optimists to support exports-led growth strategy as opposed to imports-substitution strategy. Afxentiou and Serletis (2000), Balassa (1978) and Kunst and Marin (1989) have pointed out that exports benefits are derived from (a) exports concentrates investment in the most efficient sectors of the economy - those in which the country enjoys a comparative advantage. This improves allocation of resources from inefficient non-trade sectors to higher productive export sector and better ability to generate dynamic comparative advantage.

Stronger specialization in these sectors increases productivity; (b) high export growth allows the country to gain from economies of scale since the wider international market permits large scale operations than the smaller domestic market alone; (c) stronger exposure to international competition increases pressure on export industries to lower costs and provide incentives for introduction of technological change, which enhances product quality and competitiveness; (d) growth of exports have a stimulating influence on economic growth via positive externalities on other sectors, establishment of more efficient management practices, improved production techniques and this promotes industrialization that generates employment: and, (e) exports of good and services is a key source of foreign exchange earnings, thus removing the foreign exchange constraint and eases pressure on the balance of payments. The foreign exchange income makes it easier to import inputs, especially machinery and intermediate inputs such as oil in most developing countries, which enable output expansion. The outward-oriented trade policy also gives access to advanced technology and learning-by-doing benefits that result in further efficiency gains.

On the other hand, advocates of import-substitution strategy (ISS) stress the benefits of inward-looking development policies and protection. According to Todaro and Smith (2003), the benefits include greater self-reliance, growth and diversification of indigenous industries, employment and ultimate ability to export domestic manufactured goods as a result of economies of scale and positive externalities of learning-by-doing. Additionally, the balance of payments will be improved due to reduced imports of consumer goods.

Macroeconomic theory, particularly the Keynesian theory considers exports as an injection component of national income. Hence exports growth represents an increase in demand for a country's output, which promotes production specialization and raises the skills in the export sector. Export performance is determined by both internal and external factors. Exports demand is influenced by income of trading partners, relative price or the terms of trade and the exchange rate while export supply depends on domestic absorption and domestic price level. Other factors include better foreign market access, larger domestic output, foreign direct investment (FDI) contribution to capital formation, better institutions and infrastructure and a competitive macroeconomic framework (Fugazza M,, 2004). In contrast, macroeconomic theory considers imports as a withdrawal component of national income. Hence imports growth reduces a country's output, a scenario that should be avoided particularly if imports are growing faster than exports. Imports are known to be influenced by real income, real expenditure, real exchange rate, terms of trade, index of trade restriction and availability of foreign exchange (Egwaikhide. 1999).

By the early 1980s export-led orientation and export promotion had secured a wide consensus among researchers and policy makers, to an extent that they had become "conventional wisdom" among economists in the developing world and some international organizations such as the World Bank and IMF (Medina-Smith, 2001). Advocates of the export-led growth strategy and free trade pointed out that those countries that followed the imports-substitution strategy (ISS), mostly in Latin America and Africa experienced poor economic performance and were greatly affected by the debt crisis of the early 1980s. Export-led orientation was subsequently taken as one of the most suitable and trustworthy mechanisms to enable developing countries correct their external imbalances and at the same time ensure recovery of domestic economies. As a result, the outward strategy became a key component in developing countries' adjustment and stabilization programmes with numerous Governments vigorously embarking on EPS. The growth records of Asian NICs support the argument for trade openness as a mechanism for achieving rapid economic growth to an extent that the World Bank and IMF perceives the experiences of these countries as role models for development (Giles and Williams. 2000).

In this debate however, Sodersten and Reed (1994) cautions that care should be taken not to regard strategies of export-promotion (EP) and import-substitution (IS) as mutually exclusive. In fact countries which have at later periods gone for EP policies started by applying IS policies for considerable period of time e.g. Brazil and South Korea. As observed by Todaro and Smith (2003), the current consensus therefore leans toward a diverse view that attempts to fit the relevant arguments of both the free-trade and protectionist models to specific economic, institutional, and political realities of various countries at different stages of development. This study concurs with Thirlwall (2000) that historically no country has ever developed on the basis of free trade except United Kingdom and therefore, although trade liberalization should be an ultimate goal, its speed and manner needs careful consideration on a country by country basis. Countries must not be afraid to deviate from free trade if protection will raise income and output (Thirlwall, 2000).

In fact the potential benefits of ISS has led to renewed emphasis on the role of internal factors such as entrepreneurship, infrastructure, human capital and institutions in promoting economic growth that can boost exports, which is the internally-generated growth-led exports hypothesis (GLEH). This hypothesis is in accordance with the development of a small open economy, since a small economy developing efficiently in line with its comparative advantage will specialize and exports goods that use its most abundant factor of production intensively (Henriques and Sadorsky, 1996). In spite of the recent move towards trade reform in developing countries, there still remain some controversies regarding some aspects of trade policies, particularly on the role of trade liberalization (Edwards. 1993).

There are disagreements as to whether liberalization has really played an important role in the performance of the outward oriented economies, especially the successful East Asian countries. As Rodrik (1992) cautions, liberalization only provides an enabling environment for development, but it does not guarantee that entrepreneurs will take advantage of the new scenario, nor that private investment will be stimulated. Hence, trade liberalization does not ensure adequate levels of economic growth in the long-run. Nevertheless, although there is a popular policy view that more open and outward oriented economies have outperformed countries with restrictive trade regimes, a stronger view argues that "development strategies oriented internally may be a wise choice" (Edwards. 1993).

Furthermore, economic development being a complex process of radical institutional and structural transformations depends more on the domestic development dynamics than on trade alone (Afxentiou and Serletis, 2000). However, as Afxentiou and Serletis (2000) observed this does not imply that international trade plays a minor role in the growlh process, but rather the main development forces are derived from domestic sources. In conclusion therefore, trade has a significant role to play in economic growth, especially for developing countries, but what matters most is whether a country adopts the right growth strategy. According to Rodrik (2005), experience supports the view that domestic policies are what matters most and therefore, development should focus not on trade and aid. but mainly on improving domestic policy environment.

2.2.   Empirical Literature

The debate on the relationship between exports and economic growth has occupied the center stage in development and international trade policies for a long period. Since the late 1960s, substantial amount of empirical work on the association between exports and economic growth has been carried out in both developed and developing countries mainly based on the theoretical framework. Consequently, over the last two decades, considerable amount of empirical studies have been conducted on a number of divergent lines of research and different time periods and countries or group of countries, fundamentally differing on methodology and econometric techniques used.

Over time, empirical literature has developed in three phases: the first phase focused on correlation coefficient; this was followed by least squares regressions; and the third phase applies modern time series techniques such as causality and cointegration. Empirical studies conducted in the past can be separated into two categories namely, cross-section studies and country-specific time series studies. Time series evidence of country-specific studies fails to provide uniform support for ELGH whereas a lot of literature applying the cross-section type methodologies strongly supports the hypothesis. This study generally highlights the methodologies and main findings, considering few developed country cases but focusing more on developing countries cases, including some case studies of Kenya. Potential problems with both categories are well documented.

2.2.1   Cross-sectional Studies

Cross-section research looks at rank correlation coefficients, mainly the Spearman's rank correlation and use simple OLS regressions between exports growth and output growth. The first group of the earlier empirical studies explained growth in terms of export expansion alone, in a two-variable framework. They used the rank correlation test in a cross-country format to illustrate the alleged superior effects of the ELGH. Some notable examples of the studies in this group include Michaely (1977) and Balassa (1978). They further concluded that trade orientation has mainly contributed to inter-country differences in economic growth.

The second group of studies used a neoclassical production function framework, mainly applying the Cobb-Douglas production function and OLS estimation technique. This group estimated an augmented production function of the form $Q = f(L, K, X)$, including exports (X) as an input along with labour (L) and capital (K) whereby real GDP (Q) is used as the dependent variable. Some notable examples of the studies in this group include Balassa (1978, 1985), Tyler (1981) and Fosu (1990).

Most of the cross-section studies have found a significant positive relationship between exports performance and growth of national income. The ELGH is supported by the evidence of positive and statistically significant export coefficient in the growth equation, and hence concluding that high levels of economic growth are associated with high levels of export growth. Balassa (1980) as cited by Medina-Smith (2001) summarized the cross-section studies stating that "the evidence is quite conclusive: countries applying outward-oriented development strategies performed better in terms of exports, economic growth and employment than countries with continued inward orientation". Tyler (1981) cautions countries that neglect their export sectors through discriminatory policies that they will have to contend with lower rates of economic growth as a result.

Some of the earlier studies, e.g. Michaely (1977), claimed that these positive effects of exports on growth, flourish only after countries have achieved a certain minimum level of economic development. This implies that nations heavily dependent on agricultural commodities are less likely to benefit from exports in comparison with industrialized countries whose exports contain a higher domestic value-added (Medina-Smith, 2001).

However, Fosu (1990) found that even though the export impact was smaller for Africa, the difference was insignificant. This implies that African countries would also benefit from the impact of exports, despite their reliance on agricultural products.

2.2.2 Country-specific Studies

These are more recent studies that use modern time series, cointegration and causality techniques in both bivariate and multivariate analytical frameworks. The empirical results strongly differ between countries, study periods and methodology employed. The studies have cast doubts on the positive effects of exports on growth in the long-run since surprisingly, more than half of the empirical investigations published in the 1990s found no long-run relationship between exports and economic growth. They are against putting a lot of emphasis on ELGH and argued that GLE is plausible since other factors may be sufficient enough to foster exports growth without explicit export promotion policies. Some of the earlier outstanding time series studies that focused on causality direction include Jung and Marshall (1985) and Chow (1987). The main conclusion is that the statistical evidence in favour of exports-promotion is not as unanimous as was previously thought.

According to Medina-Smith (2001), the studies for industrialized nations have analysed the cases of France. Germany, the United Kingdom, the United States and Switzerland among others, and only a few cases did empirical results confirm the ELGH. The same case applied to Japan, whereby internal forces were the main drivers of great economic success and not trade. Similarly, empirical results from the analysis of developing countries are varied. The most recent time series investigations on developing countries that have used cointegration analysis have not been able to unanimously establish robust long-term relationship between exports and economic growth.

Henriques and Sadorsky (1996), using time series data investigated the ELGH for Canada by using vector autoregression (VAR) in order to test for Granger causality between real exports, real GDP and real terms of trade. Using ADF and PP unit roots tests and the Johansen's cointegration analysis, the study by Henriques and Sadorsky (1996) found out that Canadian real exports, terms of trade and GDP are cointegrated.

Their results also revealed evidence of one-way Granger causal relationship w hereby changes in GDP precede changes in exports, hence supporting the growth-led exports hypothesis. In contrast, Awokuse (2003) re-examined the ELGH for Canada by testing Granger causality between exports and national output growth using augmented VAR and vector ECM. The results found a long-run steady state and unidirectional causality from real exports to real GDP. hence supporting ELGH.

Medina-Smith (2001) examined the ELGH using the case of Costa Rica and estimated an augmented Cobb-Douglas production function. By using DF and ADF unit root tests and three cointegration tests: Engle-Granger (EG), Cointegrating Regression Durbin Watson (CRDW) and Johansen method, Medina-Smith (2001) found that all the variables were cointegrated. Cointegration was further confirmed by estimating an error correction model (ECM). Exports are significant in the growth process thus supporting ELGH. However, even though the long-term effects of exports on growth were significant, they were smaller compared with the effects of the traditional factors of production.

Ahmad and Harnhirun (1996) investigated the causal relationship between exports and economic growth for the five member countries of the Association of South East Asian Nations (ASEAN) namely, Indonesia, Malaysia, the Philippines, Singapore and Thailand. With an objective of testing ELGH, Ahmad and Harnhirun (1996) employed Granger causality test and least squares estimation procedure. They used annual time series data for exports and GNP. DF and ADF unit root tests, Engle and Yoo cointegration test and estimated an ECM. The study by Ahmad and Harnhirun (1996) found out that there does not exist a long-term relationship between exports and economic growth in four ASEAN countries.

Extensive testing on the pattern of causality between exports and economic growth in individual ASEAN countries revealed that exports do not Granger cause GDP growth in any of the countries but causality in the opposite direction, namely, from economic growth to exports, w3s statistically supported in all the countries. Therefore according to Ahmad and Harnhirun (1996), there is no statistical evidence of a long-term relationship from exports to economic growth in the ASEAN region. However, it is the domestic economic growth that causes exports to grow rather than growth being export-led.

They concluded that the impressive economic performance of the region is attributable to various domestic factors such as production for domestic economy, capital and technology inflows, rapid growth of the service sector and growth of labour productivity. This is a pointer to the important role of the "internally generated" mechanism rather than export promotion *per se* (Ahmad and Harnhirun, 1996). Other recent time series studies include Sharma and Panagiotidis (2005) that supports GLE hypothesis, and Siliverstov and Herzer (2005) and Abou-Stait (2005). which supports ELG hypothesis.

2.2.3   Case Studies of Kenya

Several studies, both cross-sectional and time series, have included Kenya in their sample of countries. The results are mixed and varied since they indicated non-causality, export-led growth, growth-led exports and bidirectional causality between exports and economic growth. Among the cross-section studies include Michaely (1977), Feder (1983) and Fosu (1990). all of which found a statistically significant and positive export-economic growth relationship. Michaely (1977) found a Spearman rank correlation equal to 0.380 that was significant at 1%.

Among the time series studies that studied groups of countries on country-by-country basis, with Kenya in their samples include Jung and Marshall (1985), which supported internally-generated exports or GLE. Afxentiou and Serletis (2000) did a time series analysis of fifty developing countries, Kenya included, and examined possible causality relations between GNP growth and exports and between GNP growth and imports. Afxentiou and Serletis (2000) found out that export growth has not been an engine of growth. Specific case studies of Kenya include Too (2005), Maina (2000) and Kundhi (1996).

Too (2005) tested the causal relationship between manufacturing exports and GDP growth. Using EG cointegration analysis and error correction model Too (2005), estimated a neoclassical type growth equation and found negative contribution of manufacturing exports to economic growth. This was attributed to inadequate private investment in the manufacturing sector and the adverse effects of ISS trade regime that suppressed growth of manufacturing sector.

Maina (2000). motivated by the observed difference in exports performance and development experience between Africa and South East Asia (SEA) countries, investigated the role of exports in economic growth. The study analysed the links between exports and growth in Kenya with a general objective of investigating empirically the contribution of exports to economic growth in comparison with the SEA countries. With panel data and using seemingly unrelated regressions (SUR). Maina (2000) estimated two simultaneous equations, namely export growth and economic growth. By use of Granger non-causality tests, the study found out that there exist feedback effects between exports growth and economic growth. The results showed that the main driving force for SEA's performance is economic growth, which affects exports growth. Hence Maina (2000) argues that if Kenya wants to have an export driven economy, the main thrust must come from increased economic growth, which will then boost export growth.

Kundhi (1996) using three equations: an augmented Cobb-Douglas production function and export demand and supply functions, investigated the growth contribution of exports in an annual time series analytical framework using aggregated exports, disaggregated exports and GDP. The study also assessed the indirect effects of exports on economic growth. There was no feedback between GDP and the three variables and hence OLS estimation technique was used. Empirical results of the study indicated a positive and significant contribution of exports to GDP growth in Kenya. However, Kundhi (1996) observed that with disaggregation of exports into primary and manufactured exports, the positive contribution is as a result of primary and not manufactured exports. Specifically, primary exports contributed positively to economic growth while manufactured exports contributed negatively.

Kundhi (1996) attributed the negative effects of manufactured exports to adverse effects of the ISS trade regime that caused Kenya's manufacturing sector to lag behind in competitiveness and hence the indirect effects, usually accompanying manufacturing exports, were insignificant. It was also caused by vulnerability of manufactured exports to changes in world prices and income. Kundhi (1996) therefore recommended adoption of an outward-oriented trade regime, which would enhance growth of manufactured exports, facilitate diversification of the exports and reduce dependence on primary exports, which are more vulnerable to price fluctuations and external shocks such as changing weather conditions.

2.3.   Overview of the Literature Review

The importance of exports in economic growth has been extensively discussed in development literature. Arising out of this debate, trade liberalization with minimal protection has gained popularity to date. From the literature reviewed, it is clear that there exist a correlation between export growth and economic growth. Theoretical literature focused more on the role of trade in economic growth based on the positive externalities of trade. However, the theoretical benchmark can be considered to be generally weak and based on bivariate and ad hoc production functions, while the empirical results derived from traditional econometrics have been highly criticized for being spurious (Medina-Smith. 2001). Additionally, as Ahmad and Harnhirun (1996) noted, the results based on a bivariate system could also be misleading since the effects of omitted variables on exports-growth relationship are not considered.

Empirical literature on exports-growth relationship is categorised into two groups: cross-sectional and country-specific time series studies. The cross-sectional studies are good in determining inter-country performances. Nevertheless, the studies are faced with the problems of spurious correlations and endogeneity since exports are part of national product. This has led to use of alternative exports variables such as growth in real exports, manufacturing or merchandise exports, exports share of GDP or GDP net exports and simultaneous equations estimation methods. These studies also fail to distinguish between statistical association and statistical causation and they provide little insight into the dynamic behaviour within countries.

The early cross-section studies were quick to make conclusions and therefore, could have been misleading in that they advocated export expansion in an indiscriminate way without comprehensive empirical analysis. The studies focused more on correlation and simple regression and did not examine causality direction. The cross-section studies do not provide any useful country-specific information for policy analysis in developing countries and due to heterogeneity of different countries, they cannot give valid and applicable country specific conclusions. This heterogeneity could emerge from industrial, organizational, managerial or cultural factors that differ across countries (Kundhi, 1996). The cross-section studies assume the same production function across different type of economies, ignoring the differing levels of technology.

However, few studies have considered specific country effects by estimating random effects using panel data models. The cross-section studies samples are limited to at most twelve countries and in cases where the sample is larger, the studies are limited to specific group of countries. Particularly, as observed by Medina-Smith (2001) for developing countries, most researchers choose *a priori* middle-income countries arbitrarily excluding low-income earners and major oil exporters. This is prejudicial and does not have solid support in economic theory. It is apparent that these studies cannot explain the effects of different trade strategies. Therefore, the studies might be unreliable sources of knowledge for scholars and policy makers especially in LDCs.

The shortcomings of cross-sectional research in examining ELGH. has led to the emergence of country-specific time series causality studies. This study concurs with the sentiments expressed by Todaro and Smith (2003), who notes that "what works for one nation may not work for another", and therefore countries should be studied separately or in a group of closely related countries in terms of economic, institutional, political realities and stage of development. Bhagwati (1988) as cited by Kundhi (1996) argued that "detailed country-specific studies are methodically superior and more persuasive". Time series studies are usually more detailed and give more valid and applicable results for policy purposes. Most of the recent time series empirical work is based on Granger (1969) causality approach together with the cointegration and error correction analyses of Engle and Granger (1987), Johansen (1991). It is also based on the work of Johansen (1988.) and Johansen and Juselius (1990).

Empirical evidence from the time series studies suggests that exports do not necessarily cause growth. In fact there have been varied results, which support ELGH, GLEH, and feedback between exports growth and economic growth. However, it is understandable that the reported results are sensitive to the variables used, the theoretical framework and econometric methodology employed. The time series studies raises questions regarding putting more emphasis on ELGH and recognizes plausibility of GLEH. The basic idea behind these studies as emphasized by Jung and Marshall (1985) is that tests of exports-growth relationship should focus on the causal direction as well the sign of the relationship.

Many of the case studies of Kenya focused more on the role of exports in economic growth without examining the causality direction and significance of the long-run relationship. Most of the studies investigated Kenya in a group of countries but did not study Kenya separately. The few studies that have analyzed Kenya individually using time series analysis did so in a different economic environment and applying different methodology. Therefore, there is need for further multivariate time series analytical framework, which should examine additional relationships, consider different modelling and cover trade liberalization era. This is the motivation behind this study.

A major limitation of the time series studies is the extensive use of neoclassical growth model. The model developed in 1956 is based on unrealistic assumptions of perfect competition and exogenous technological change. Additionally, since most of the time series studies do not aim at comprehensive estimation of growth or export models, their scope is limited and the results should be taken with appropriate caution considering each country case separately based on the economic problem under study. That notwithstanding, time series analysis remains the most widely used approach for analysing exports-growth relationship, hence it can be argued that their results give better insight into the long-run relationship between exports and economic growth.

CHAPTER THREE: METHODOLOGY

3.1. Theoretical Framework

Based on economic theory and the literature reviewed, this study is grounded on the basic national income, trade and growth theories. Macroeconomic theory, particularly the Keynesian theory considers exports as an injection component of national income. Specifically, the national income accounting identity is given as:

$$Y = C + I + G + X - M$$

whereby Y is national income (or output), C is consumption, I is investment. G is government expenditure. X is exports and M is imports. Hence exports growth represents an increase in demand for a country's output, which promotes production specialization and raises the skills in the export sector. The exports are known to have both direct and indirect effects that positively affect output growth. Direct effects include increased foreign exchange earnings and factor productivity. Indirect effects include efficient resource allocation, greater capacity utilization, exploitation of economies of scale, technological improvements and increased employment. Exports loosen the foreign exchange constraint and allow importation of capital goods and intermediate inputs, which raises capital formation and hence output growth. Growth of exports enhances efficiency due to foreign competition, technological change and exploitation of scale economies. This leads to increased output, development of indigenous entrepreneurship and better product quality (Jung and Marshall, 1985).

Export performance is determined by both internal and external factors. Exports demand is influenced by income of trading partners, relative price or the terms of trade and the exchange rate while export supply depends on domestic absorption and domestic price level. Particularly, exports are known to be a decreasing function of domestic price level but an increasing function of domestic output, exchange rate and terms of trade. Other factors that influence exports include better foreign market access, larger domestic output, foreign direct investment (FDI) contribution to capital formation, better institutions and infrastructure and a competitive macroeconomic framework (Fugazza M,, 2004).

Economic growth, defined as an increase in a country's productive capacity, is identified by a sustained rise in real national income over a period of time. Traditional classical economic theory argues that economic growth is a function of the factors of production, mainly labour and capital. However, the recent endogenous growth theory has led to an extensive inventory of models that stress the importance of several other factors such as trade in promoting sustainable economic growth. Empirical studies have attempted to identify the influences of these factors on economic growth by estimating output as a function of capital stock, labour force and technical progress. Most growth models trace their roots back to the neoclassical Solow (1956) framework.

In studying exports-growth relationship, the most popular approach has been fitting an augmented production function to historical data and Cobb-Douglas production function has been widely used. This involve including exports as an input together with capital and labour. While exports are not a proper factor of the production function in that it is not a production input, it is intended to reflect those international factors that influence productivity but are not captured in labour or capital (Fosu, 1990). Due to different institutional characteristics such as imperfections in labour and financial markets especially in developing countries, in most cases a variant of the neoclassical model is usually preferred. This study adopts similar framework and approach, which has also been used by Tyler (1981), Balassa (1985), Fosu (1990). Kundhi (1996) and Awokuse (2003) among others.

3.2. Analytical Framework - The Model

Given the theoretical considerations on the possible role of exports in growth promotion, for analytical purposes this study uses a simple neoclassical production function:

$$Y_t = A_t k_t^a L_t^\beta \qquad\qquad (i)$$

where Y_t denotes aggregate production of the economy at time t; A_t, K_t, L_t are total factor productivity (TFP), capital stock and labour stock respectively; a and β are elasticities of output with respect to K_t, L_t. The partial derivatives of Y with respect to K, L as well as A are assumed to be positive. Proponents of export-led growth hypothesis such as Balassa (1978) and Tyler (1981) argue that exports are a component of TFP since exports growth

leads to development of infrastructure, which in turn facilitate production of other goods and services. Since the objective of this study is to investigate if and how exports affect economic growth via increases in productivity, it is assumed that total factor productivity is a function of exports. However, exports are disaggregated into primary and manufactured exports while imports are considered key when studying exports-growth relationship. Therefore, like Onjala (2002) did, TFP or A, in this case, is expressed as a function of primary exports (PX), manufactured exports (MX), imports (IM) and other exogenous factors (C) as follows:

$$A, - f(px, . MX. IMX,) - C, (PX)''(MX): (IM): \qquad <2>$$

Substituting equation (2) into equation (1) gives

$$Y, - C, K:L:(PXi(MXi(IM): \qquad (3)$$

where 5, X, p are elasticities of output with respect to PX_t, MX, and IM,. Taking natural logarithms of both sides of equation (3) results in the following linear function:

$$WnY, {}^{=c+}aWnK, {}^{+}5WxW(PX)_t + X\ln(MY), + pWn(IM)_t + s, \qquad w$$

where a. p, 8, X, p are parameters to be estimated together with a constant, c. and e, is an error term, assumed to be white noise and reflects the influence of all other factors not captured in the equation. The log form of the variables reduces heteroscedasticity as it compresses the scale in which the variables are measured. However, since according to national income accounting identity exports are a component of output, simultaneity bias is inevitable. This problem is corrected by using output or GDP net exports (NY,) i.e. NY, = Y, - X,. where X, = PX,+ MX,, instead of Y,. This approach has been applied by Balassa (1978), Siliverstovs and Herzer (2005), Sharma and Panagiotidis (2005) and Abou-Stait (2005). The substitution gives an equation that represents the long-run relationship:

$$WnNY, {}^{=c+}aWnK, {}^{+}fiWnL + S_{In}(PXW + X_{In(MY)}, + p_{In}(/M), + ^,$$

$$(5)$$

On the basis of economic theory' and literature reviewed, it is hypothesized that a > 0, p > 0, 8 > 0, X > 0 and p < O.This study investigates and estimates equation (5) so as to determine the impact of exports on economic growth and understand the nature of exports-growth relationship in Kenya.

3.3.   Hypotheses to Be Tested

This study tests the following four main hypotheses:-

(i)   Exports does not Granger cause economic growth;

(ii)   Economic growth does not Granger cause exports;

(iii)   Exports and economic growth are not cointegrated; and,

(iv)   Exports does not contribute to economic growth in the long-run;

In addition the following three hypotheses are also tested:-

(a)   There is no causality between imports and economic growth;

(b)   There is no causality between imports and exports and,

(c)   Trade liberalization did not affect exports and economic growth in Kenya.

3.4.   The Variables

This study uses the following variables:-

(i)   Gross Domestic Product (Y);

(ii)   Gross Domestic Product less domestic exports (NY)

(iii)   Gross Fixed Capital Formation (GK) as a proxy for capital stock;

(iv)   Employment or labour force (EM) as a proxy for labour stock;

(v)   Exports (X): total domestic merchandise exports;

(vi)   Primary Exports (PX): total domestic exports of primary goods. These include agricultural commodities and raw materials;

(vii)   Manufactured Exports (MX): These include domestic exports of manufactured commodities;

(viii)   Imports (IM) - total merchandise imports;

(ix)   Liberalization dummy (D93):.   }= 0 for 1970 - 1993 and

                                         } = 1 for 1994 - 2004

The variables, except employment and the dummy are used in real terms so as to control for inflation or change in relative prices. GDP and gross capital formation are directly used in real terms at constant 1982 prices while the trade variables are converted into real terms using the appropriate price indices i.e. exports price index and import price index at constant 1982 prices. This also controls terms of trade effects hence taking care of exports and imports growth that result from price competitiveness mainly due to exchange rate fluctuations and possible trade policies in form of tariff and no-tariff barriers. The series, apart from the dummy, are then expressed in natural logarithm form implying that the estimated parameters are elasticities. When necessary, annual growth rates of the variables are approximated by first differences of the logarithms of the corresponding variable value of successive years.

These variables have been chosen for several reasons. First, capital and labour are the traditional classical economics factors of production, which have also been extensively used in past empirical studies. Secondly, disaggregated exports are expected to give better results than aggregated exports (Kundhi, 1996; Maina, 2000). Different components of Kenya's exports could have different relationship with (or impact on) economic growth. Furthermore, experience has shown that different export sectors are affected by different economic variables and they also adjusts differently to external shocks. Aggregation hides important differences between different exports categories and spurious conclusions may be drawn. Disaggregation of exports helps to determine the contribution of primary and manufactured exports to economic growth and it is expected to aid in better policy decisions in relation to relative resource allocation.

Thirdly, imports are an important variable while testing ELGH in order to control for imports effects on exports and growth. Omitting imports can result in spurious conclusions, because intermediate inputs and capital, which enhances domestic production and exports, are largely imported. In particular, in developing countries imports relieve the foreign exchange constraint. Finally, merchandise trade in Kenya constitute a bigger component of the current account, GDP is a good measure of national income and the policy shift dummy variable is appropriate to capture the impact of export promotion and trade liberalization on export-growth relationship and to check whether there was any significant structural break.

Free trade allows a country to grow faster than under autarky. In particular, foreign exchange liberalization reduces allocative inefficiencies. However, experience has cast doubts on the impact of trade liberalization especially in developing countries with differing views. Therefore, trade liberalization can increase or reduce economic growth.

3.5.   Econometric Approach

The objective of this study is to analyse causal relationship between exports and economic growth in Kenya using a simple growth model. The study employs a multivariate analytical framework and ordinary least squares (OLS) estimation technique. Since no feedback is noted between exports and economic growth OLS technique is preferred to systems methods such as simultaneous equation method and vector autoregression. Summary statistics are computed and normality tests are carried out before analysis and estimation.

The research first investigates the stationarity and integration properties of the data through graphical examination of the time series plots and by using Augmented Dickey-Fuller (ADF) tests on the individual time series. After ascertaining the stationarity properties of the series, cointegration analysis is carried out and based on the findings, an error correction model (ECM) is estimated. The study employs cointegration analysis and error correction mechanism of Engle and Granger (1987). After verifying existence of cointegrating or long-run (steady state) relationship, the ECM is formulated to analyse the linkage between short-run and long-run relationship of the series under consideration. This study, following the work of Jung and Marshall (1985). applies Granger (1969) causality tests to examine the direction of causal relationship(s) between different series.

This econometric approach has been selected for several reasons. Application of OLS, which is a simple and very popular econometric technique, produces consistent and more reliable results when the appropriate assumptions are met. The basic OLS assumptions include: the residuals are normally distributed, not serially correlated, has constant variance and not correlated with the explanatory variables and the regeressors are not correlated (Maddala, 2001; Gujarati, 2003; Greene. 2003). The approach avoids the problem of spurious relationships by undertaking cointegration analysis of the non-stationary series. Furthermore, the techniques of cointegration and causality have recently gained popularity in time series analysis of exports-growth relationship.

Therefore, to ensure proper statistical inference, several specification and diagnostic tests are carried out. These include tests for normality, serial correlation and heteroscedasticity on the residuals obtained from the estimated equation and model specification tests. This involves histograms and Jarque-Bera statistic for testing normality; LM test for serial correlation; White's heteroscedasticity test and stability tests. Ramsey's Regression Specification Error (RESET) test is carried out to test the functional form of the estimated model. In this study, computer application software PcGive Version 10 and Eviews Version 3.1 are used for estimation and analysis.

3.6.   Data Type and Sources

This research uses secondary annual time series data of GDP, gross capital formation, employment, domestic exports, domestic primary exports, domestic manufactured exports and imports, including 1993 trade liberalization dummy, for the period 1970 - 2004. The main sources of the data include various issues of Government of Kenya's Statistical Abstract and Economic Survey, IMF's International Financial Statistics (IFS) and UNCTAD's Handbook of Statistics.

3.7.   Unit Root Tests

Unit root tests are applied to check whether a series is stationary or nonstationary and determine its order of integration. A nonstationary series has long memory, time-dependent mean and variance, permanent innovations and strays away from its mean. Differencing is one way to remedy nonstationarity, though this would lead to loss of long-run information. A series that is differenced d times to achieve stationarity is said to be integrated of order d i.e. 1(d). A nonstationary series has a unit root or more, and is therefore differenced to make it stationary and hence it is integrated of order one, 1(1) or higher. By contrast, a stationary series is time-independent, has short memory, constant mean, finite variance, transitory innovations and reverts to its mean or equilibrium value. A stationary series has no unit root and does not require differencing, hence it is integrated of order zero i.e. 1(0) and it doesn't have estimation problems.

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If a series it is nonstationary use of classical estimation methods such as OLS and the traditional t-tests and F-tests could lead to mistaken acceptance of spurious relationships with meaningless results. Furthermore, parameter estimates of a regression using nonstationary series are inconsistent unless the variables are cointegrated (Rao, 1994). Unit root tests therefore precede cointegration and regression analyses.

In this study, existence of unit root(s) is examined by graphical analysis and carrying out ADF tests. The unit root test is based on the null hypothesis of non-stationarity or existence of a unit root against the alternative hypothesis of stationarity. The test model is defined as below:

$$\Delta y_t = \mu + \lambda T + \beta y_{t-1} + \sum_{i=1}^{k} \theta \Delta y_{t-i} + \varepsilon_t \qquad (6)$$

where Y, is the variable in question, n is the intercept. T is time trend, k is the lag length and £, is a random error term. The lag length that minimizes both the AIC and SBC is selected so as to overcome autocorrelation in the error term and at the same time address parameterisation problem ensuring the residuals are white noise. Essentially, the ADF approach involves testing Ho: $>9=0$ (nonstationarity) against Hi: $P < 0$ (stationarity). The /? is expected not to be positive since it would imply that the model is explosive. The joint hypothesis $P = A = 0$ is also tested using F-test. Acceptance of $P = 0$ and rejection of $P = X = 0$ imply the series is nonstationary with a significant trend. Significance of the trend variable may also be tested using individual t-statistic. If the trend variable is insignificant, model (6) is run without the trend variable and significance of the intercept is tested using both F and t statistics.

3.8. Causality' Analysis

Correlation does not necessarily imply causation. Without evidence of causation, the sign of the long-run effect has little meaning in terms of economic hypotheses (Jung and Marshall, 1985). The Granger (1969) approach to the question of whether x causes y considers how much of the current y can be explained by past values of y. It also helps to understand whether adding lagged values of x can improve the explanation. As defined by Granger (1969), we say that y is causing x, denoted by y —• x, if it is better able to predict x using all available information than if the information without y had been used.

Therefore, y is said to be Granger-caused by x if x helps in the prediction of y, or equivalently : the coefficients on the lagged x's are statistically significant in the y equation. Two-way causation, or feedback, denoted by y «> x, implies that x Granger causes y and y Granger causes x.

It is important to note that the statement "x Granger causes y" does not imply that y is the effect or the result of x. Granger causality measures precedence and information content but does not by itself indicate causality in the more common use of the term. More importantly, since the future cannot predict the past, if x causes y, then changes in x should precede changes in y. The Granger approach assumes that only stationary series are involved, therefore, if nonstationary variables are involved, the first differences are considered. This study uses Granger causality approach, which performs pair-wise causality tests between (all possible) pairs of the listed series. The simple Granger bivariate causal model, using two stationary series X_t and Y_t, is written as follows:

$$X . - B + i L a j X ^ t b J ^ + e , \qquad\qquad ™$$
$$ j\text{-}1 \qquad\qquad j\text{-}1$$

$$Y, = P + ic_J X_l\text{-}j + ld_J Y, \text{-}j + ri_i \qquad\qquad (8)$$
$$ 7\text{-}1 \qquad\qquad 7\text{-}1$$

where a and P are constants, e, and rj, are uncorrected white noise series and m, the lag length, is assumed finite and shorter than the given time series. General-to-specific approach is used to determine the lag length. The null hypothesis in each case is that the variable under consideration does not granger-cause the other variable, e.g. in the above model, the null h>potheses are H_0 : I bj = 0 and H_0: I Cj = 0 respectively and the F test, the Wald coefficient restrictions test is used. However, as observed by Ahmad and Harnhirun (1996), when the series are cointegrated, the causality tests are carried out in first differences with an ECT included, in contrast to non-cointegrated series, whereby causality tests are carried out in first differences without an ECT.

3.9. Cointegration Analysis

The finding that many macro time series have unit roots has spurred the development of the theory- of cointegration. A drawback of differencing a nonstationary time series in an attempt to achieve stationarity is that, it results in loss of valuable information regarding long-term relationship between variables (Rao, 1994). Cointegration overcomes this problem and allows definition of long-run relationships in terms of variables at levels and avoids spurious regression. Cointegration represents the tendency of macroeconomic variables to drift together over time or having a long-run relationship. Engle and Granger (1987) pointed out that a linear combination of two or more nonstationary series may be stationary. If such a stationary, or 1(0), linear combination exists, the nonstationary time series are said to be cointegrated. The stationary linear combination is called the cointegrating equation and may be interpreted as a long-run equilibrium relationship between the variables. Therefore, cointegration tests are only valid when working with nonstationary series. There are two common methods of testing for cointegration namely, the Engle-Granger two-step residual-based single-equation method and the Johansen system method.

If X_t - 1(1) and $Y_t \sim$ 1(1) and $p_t = Y_t - pX_t$ is 1(0), then X_t and Y_t are said to be cointegrated. The EG method first applies unit root tests to check whether both X_t and Y_t are 1(1) and then run the regression $Y_t = PX_t + p_t$. In the second step, ADF unit root test is applied on the estimated residual, $p_t = Y_t - PX_t$. to check whether it is stationary. The null hypothesis is H_0: H, a nonststionary implying that Y_t and X_t are not cointegrated, tested against the alternative that $|i_t$ is stationary and hence Y_t and X_t are cointegrated. The vector [1, - p] is the cointegrating vector.

The other method is the Johansen procedure, which is a multiple equation (system) method that enables determination of the number of cointegrating relationships known as cointegration rank (r). The Johansen method starts with an unrestricted VAR model expressed in matrix notation as follows:

$$Z_t = \sum_{j=1} A_j Z_{t-j} + K + \varepsilon_t \qquad (9)$$

where Y.- $^{'s}$ column vector of observations on the current values of the variables in the model, k is the maximum lag length, $^\wedge$ is a matrix of coefficients, K denote the constant terras and £ is column vector of the random errors assumed to be non-autocorrelated but contemporaneously correlated. Taking first differences equation (9) is transformed into an error-correction form as follows:

$$AZ, =^n Z,-, +Zr,AZ,-_y^{+K+} £,$$

00)

where II = - (I - A| - A_2 - ... - A_k) and Tj = - ($A_{j+)}$ + A_{j+2} + ...+ A_k), j =1,..., k-1 (I is an identity matrix). The matrix II is known as the impact matrix and it contains information about the long-run relationships. The impact matrix is of much interest in cointegration analysis. The Johansen procedure uses equation (10) above, which allows for three model specifications:

(i)   If the matrix n has a full rank, i.e. equal to the number of variables in the model, then Z, is stationary in levels (all variables in Z, are 1(0));

(ii)   If the matrix n has zero rank, then it contains no long-run information, implying the variables are not cointegrated and are all;

(iii)   If the rank of n is a positive number, r < n, there exists matrices a and (3. with dimensions (n x r), such that U = a p\ The matrix p is called the cointegrating matrix and has the property that p'Z, is 1(0) while Z, is 1(1). The matrix a is called the adjustment matrix. Hence, in a model explaining n variables there can be at most r = n-1 cointegrating vectors.

The Johansen procedure uses two test statistics namely, *maximum eigenvalue* test and the *trace* test The former tests the null hypothesis that there is r cointegrating vectors versus the alternative hypothesis that there is r+1 cointegrating vectors, while the later test the hypothesis that there is at most r cointegrating vectors against the alternative of rank greater than r+1. If r = 1, the cointegrating regression is uniquely determined. But in a multivariate model there can be more than one cointegrating regression that need not be uniquely determined.

As underlined by Charemza and Deadman (1997), the EG and Johansen procedures are j anded within different econometric methodologies. In EG method, endo-exogenous division of variables is assumed and therefore, there might be only one cointegrating relation, while in Johansen method, which is based on VAR modelling, there are no exogenous variables. However, the Johansen method can be used as an auxiliary tool to check the validity of the endo-exogenous variable division by EG method (Charemza and Deadman, 1997, p 178). Since this study is estimating a simple growth equation and unidirectional causality from exports to economic growth is confirmed, the Engle-Granger method is thus applied in cointegration analysis.

3.10. Error Correction Mechanism

The Granger Representation Theorem states that if a linear combination of variables is stationary, then the variables are cointegrated and can be considered to be generated by an error correction model (ECM). Hence, an ECM is designed for use with nonstationary series that are known to be cointegrated. It can be stated that ECM generate cointegrated series and conversely cointegrated series have an ECM representation, which implies there is a long-run relationship among the series. The ECM integrates both short-run and long-run dynamics in a model and ideally, it restricts the long-run behaviour of the endogenous variables to converge to their cointegrating relationships while allowing a wide range of short-run dynamics. The cointegrating error term is known as the error correction term (ECT) since the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustments.

Based on the cointegration theory, there are two common methods of estimating an ECM: the EG two-step procedure and by the unrestricted ECM one-step approach. The EG procedure provides information about short-term dynamics responses of the variables. It involves running regressions using the stationary series 1(0). mainly the first differences of the non-stationary series and including the one-step-lagged residual from level regression as an explanatory variable. Using the simple model $Y_t = pX_t + p_u$ the ECM is of the form:

$$W \wedge a \, A \, X \, . \, + \, y \, j \, u \, , \, \wedge \, , \qquad\qquad \textbf{(ii)}$$

The lagged residual, also known as the error correction term, captures the error correction process or the long-run responses. The coefficient y measures the speed of adjustment and it is expected to be negative for a stable convergent model. If it is positive the model is explosive. The rest of the variables, the first differences, in the model are the short-run responses. In the absence of cointegration. only the short-run responses are considered hence missing the valuable long-run information. The unrestricted ECM approach uses the 1(1) variables lagged once, which is the form given by equation (10) above. The term P'Z,.i is the ECT, which contains information about long-run relationships. In both methods however. OLS is applied. This study applies the EG method to estimate the ECM.

CHAPTER FOUR: EMPIRICAL RESULTS AND DISCUSSIONS

4.1.   Summary Statistics and Graphical Analysis

  s section highlights the descriptive statistics and the graphical analysis of the variables used. Table 4.1 below shows the mean, median, maximum, minimum, standard deviation and the Jarque-Bera normality test. There are 35 observations in each series. It is clear that the n-!l hypothesis of normality cannot be rejected by the JB test, implying that all the variables are normally distributed. Correlation analysis revealed that employment variable is highly correlated with the other explanatory variables, with correlation coefficient greater than 0.80, and therefore employment is dropped in model estimation in order to minimize multicollinearity problem.

Table 4.1: Summary Statistics

	LNY	LX	LPX	LMX	LIM	LEM	LGK
Mean	10.903	9.549	9.345	7.782	10.107	0.700	9.620
Median	11.025	9.459	9.275	7.683	10.082	0.479	9.632
Maximum	11.379	10.124	9.845	8.729	10.696	2.054	9.875
Minimum	10.151	9.101	9.010	6.657	9.557	-0.547	9.352
Std. Dev.	0.417	0.268	0.205	0.609	0.262	0.764	0.166
Skewness	-0.582	0.485	0.665	0.076	0.033	0.378	-0.133
Kurtosis	1.944	2.092	2.451	1.782	2.493	1.851	1.776
Jarque-Bera	3.601	2.571	3.021	2.197	0.381	2.760	2.288
Probability	0.165	0.276	0.221	0.333	0.827	0.252	0.319

Appendix I covers the graphical analysis including plots of the variables at levels and at first difference and stability tests. Generally, the variables exhibit upward trends and breaks are observed in 1973/74. 1983/84 and 1993. For exports and imports, 1983/84 break is explained by the shift from imports-substitution strategy to exports promotion strategy while the 1993 break is expected due to trade liberalization. Some variables such as domestic exports and primary exports tend to move together over the study period, an indication of primary exports dominance. Other variables such as exports and imports also tend to move together, which is an indication of cointegration. Since the first difference represents growth rates, their plots indicate that the variables have not considerably changed their growth paths. This may be possibly explained by failure to radically change the composition of the variables.

For example, although the share of primary exports in domestic exports decreased over the study period (see Table 1.1), they still constitute about 75% of domestic exports.

4.2. Stationarity Properties

From the graphical analysis, the variables at levels appear to be nonstationary but their first differences seem to be stationary. The stationarity properties are confirmed by more detailed ADF unit root tests. Univariate analysis is carried out applying equation (6) specification. The lag length, k that minimizes both the Akaike and Schwarz information criterion is selected. The ADF tests results are as follows:-

Table 4.2: **ADF Unit Roots Tests**

Variable	Levels				First Difference			
	k	ADF statistic	1% c.v.	5% c.v.	k	ADF statistic	1% c.v.	5% c.v.
LNY	1	-2.094323	-3.6422	-2.9527	0	-4.692353***	-3.6422	-2.9527
LGK	1	-3.475322	-4.2605	-3.5514	0	-4.625067***	-3.6422	-2.9527
LEM	2	1.664505	-2.6369	-1.9517	-	-	-	-
LX	4	-2.306400	-4.2949	-3.5670	2	-3.403408***	-2.6395	-1.9521
LPX	0	-3.155087	-4.2505	-3.5468	1	-6.578537***	-3.6496	-2.9558
LMX	3	-2.873704	-4.2826	-3.5614	2	-4.450322***	-2.6395	-1.9521
LIM	0	-0.871597	-3.6353	-2.9499	0	-6.166811***	-2.6344	-1.9514

c.v. - critical value
*** Stationary at 1% significance level

At levels, since the absolute values of the **ADF** statistics are less than the absolute critical values, the null hypothesis of existence of unit root or nonstationarity cannot be rejected even at 5% significance level. This implies that all the variables are nonstationary at levels. In contrast, the null hypothesis is rejected at first difference implying the variables are stationary at first difference even at 1% significance level. Since differencing once makes the variables stationary, the variables are integrated of order one, 1(1). Therefore, the series are appropriate for causality and cointegration analyses. It is worth noting that employment has a positive ADF statistic at levels. This implies that employment variable is explosive and hence it is dropped in causality and cointegration analyses including model estimation. The **ADF** tests also revealed that trend is significant in capital formation, domestic exports, primary exports, and manufactured exports while in cases of **GDP**, imports and employment trend is insignificant. This confirms the findings of the graphical analysis on the trending variables.

4J.   Causality' Results and Interpretation

Since the variables are nonstationary at levels but stationary at first difference, following Granger (1969) causality approach, causality tests are carried out with the stationary variables, in this case the first differences of the variables. Using both AIC and SBC information criterion as a guide for the lag length, the causality tests are carried out considering any presence of cointegration in a bivariate framework. By using Engle-Granger method, it is found out that only in cases of primary exports and manufactured exports whereby an error correction term (ECT) is significant with correct negative sign; hence causality tests are carried out with an ECT in both cases. The rest of the causality tests are carried out without an ECT. By applying F test, the Wald coefficient restrictions test, the results of pair-wise causality tests based on models (7) and (8) above are presented in Table 4.3 below:

Table **4.3: Granger Causality Tests**

Null Hypothesis:	F-Statistic	Probability'
DLX does not Granger Cause DLNY	14.88987***	0.00056
DLNY does not Granger Cause DLX	1.068997	0.30944
DLIM does not Granger Cause DLNY	3.79482*	0.06082
DLNY does not Granger Cause DLIM	3.52912*	0.07005
DLIM does not Granger Cause DLX	0.46798	0.79507
DLX does not Granger Cause DLIM	3.26173**	0.02857
DLPX does not Granger Cause DLNY	8.84800***	0.00575
DLNY does not Granger Cause DLPX	0.02023	0.88784
DLMX does not Granger Cause DLNY	1.11572	0.29927
DLNY does not Granger Cause DLMX	0.24749	0.62247
DLMX does not Granger Cause DLPX •	0.75009	0.39356
DLPX does not Granger Cause DLMX ••	2.04092	0.16380
DLIM does not Granger Cause DLPX	0.61678	0.68866
DLPX does not Granger Cause DLIM	2.45508*	0.07294
DLMX does not Granger Cause DLIM	2.61263*	0.06041
DLIM does not Granger Cause DLMX	0.33260	0.88660

*** significant at 1%, ** significant at 5%, * significant at 10%
• causality test with an ECT, -0.4638 with probability 0.0598
•• causality test wit an ECT, -0.3656 with probability 0.0495

Several conclusions are made from the above results. First, domestic exports growth Granger cause economic growth but economic growth does not cause domestic exports growth.

This causality mainly emanates from the primary exports since primary exports Granger causes economic growth while no causality exists between manufactured exports and GDP growth. On the other hand, there is no causality from economic growth to either domestic exports, primary exports or manufactured exports. These two results indicate unidirectional causality from exports to economic growth and hence support the export-led-growth hypothesis for Kenya. This implies that export changes, particularly primary exports changes, precede GDP changes. Similar results were also found by Kundhi (1996). This could be explained by the fact that exports earn the country foreign exchange, which increases national income and is used for productive purposes and this influences output growth. Whether this influence is positive or negative is determined under cointegration analysis discussed in the next section. On the other hand changes in GDP are not influencing exports growth.

As expected, there is feedback or bidirectional causality between imports and GDP growth, implying imports Granger causes GDP growth and GDP growth Granger causes imports growth. This clearly supports economic theory whereby imports are an increasing function of national income since economic growth tends to expand demand for intermediate inputs and capital goods imports especially in the absence of foreign exchange constraints. On the other hand importation, especially of capital and intermediate inputs influences domestic production and hence promotes economic growth.

There is unidirectional causality from exports to imports indicating that domestic exports Granger causes imports but imports do not cause domestic exports. Similarly, primary exports Granger causes imports but imports do not cause primary exports and equally, manufactured exports causes imports but imports do not Granger cause manufactured exports. Causality from exports to imports is as expected since the foreign exchange earned through exports is used for importation bearing in mind Kenya is a developing country that is a net importer of capital and intermediate inputs. However non-causality from imports to exports is against expectations since it was expected that importation of capital and inputs would positively affect exports growth. Surprisingly, from the above results, imports are causing economic growth. Therefore, it appears that Kenya's imports are not causing exports probably because they are dominated by consumer goods or more likely that they are used to produce goods for domestic consumption. It is also possible that imports are causing economic growth, not through investment for exports but through both private and public consumption.

4.4.   Cointegration Results and Discussions

Model estimation using the first difference leads to loss of long-run information. This problem is overcome by cointegration analysis. The concept of cointegration implies that if there is a long-run steady-state relationship between two or more nonstationary variables, deviations from this long-run path are stationary. From the causality results, since there is no feedback between exports and economic growth, application of OLS single-equation estimation technique is justified as opposed to simultaneous equations method or vector autoregression. Therefore, following the Engle-Granger two-step residual based single-equation cointegration method, four alternative regressions of model (5) are estimated as follows: using domestic exports (1a), using primary exports (2a). using manufactured exports (3a) and using both primary and manufactured exports (4a), in addition to imports and capital. The residuals in each equation, ECT, are subjected to ADF unit root tests and the results are also included in Table 4.4.

The estimated equations indicate good explanatory power of over 80%, F statistic shows that the coefficients are jointly significant and model specification is good. It is clear that domestic exports, primary exports in particular, increase output growth in Kenya while imports decrease economic growth. The estimated equations, 1(a), 2(a) and 4(a) indicate positive and significant domestic exports and primary exports coefficients, while manufactured exports, although with positive coefficient, are not significant. However, although regression 3(a) indicate positive and significant manufactured exports coefficient, it fails specification test and its residuals are serially correlated. The resultant residuals (ECT) of all equations are stationary at levels at 1% significance level, implying the null of no cointegration is rejected. This is evidence of significant long-run relationships between economic growth and exports, imports and capital, i.e. the variables are cointegrated and the above four long-run relationships are economically significant. The 1993 trade liberalization has a long-term positive effect on economic growth but it is insignificant in equation 3(a). Therefore, removal of trade restrictions and foreign exchange liberalization coupled with steep depreciation of Kenya shilling in 1993 improved the performance of exports and hence economic growth.

Table 4.4: Long-run Relationship

Dependent Variable: LNY (probability value in parenthesis)

Regression	1(a)	2(a)	3(a)	4(a)
C	-0.2353	-0.7172	4.0091	0.1255
	(0.9375)	(0.8175)	(0.1765)	(0.9688)
LX	0.8179			
	(0.0010)			
LPX		0.9306		0.7418
		(0.0014)		(0.0272)
LMX			0.2481	0.1104
			(0.0122)	(0.3020)
LIM	-1.3458	-1.3954	-1.2724	-1.3510
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
LGK	1.7502	1.7575	1.8403	1.7191
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
D93	0.2914	0.3793	0.3744	0.3216
	(0.0415)	(0.0048)	(0.1410)	(0.0250)
Adjusted R^2	0.8334	0.8303	0.8060	0.8309
F(P)	0.0000	0.0000	0.0000	0.0000
Jarque-Bera F (p)	0.1958	0.3502	0.2569	0.2219
Autocorrelatio LM F(p)	0.1440	0.2176	0.0200**	0.1811
Het test F(p)	0.9061	0.8458	0.8006	0.9101
Reset F(p)	0.1991	0.1264	0.0511*	0.2289
ECT ADF	-4.3690***	-4.4583***	-3.5768***	-2.6933***

*** significant at 1%, ** significant at 5%, * significant at 10%
(p) diagnostic and specification tests probability values

These results clearly support the export-led-growth hypothesis, which mainly originates from primary exports to economic growth. This is a confirmation of economic theory on exports benefits and supports the ELGH in that exports growth positively influences economic growth. The influence is brought by foreign exchange earnings and positive externalities of exports. Foreign exchange earnings from exports are a major factor influencing imports particularly in developing countries. However, it is notable that the impact of exports is less than that of capital, implying that economic growth in Kenya is driven more by capital formation than exports. In accordance with national income accounting identity, imports are withdrawals from the national income system and this explains the negative impact of imports on output growth.

4.5   Error Correction Model Estimation

Foi wing the Granger representation theorem, cointegrated variables can be generated by an r correction model, implying that cointegrated series have an ECM representation. Since the \ariables in this study are cointegrated, the Engle-Granger method is applied to estimate an error correction model given by equation (11) for each of the above four equations. The stationary variables, the first differences, are used together with the one-step lagged residual from the long-run equation. The results are given in Table 4.5 below.

Table 4.5: Short-run Relationship

Dependent Variable: DLNY (probability value in parenthesis)

	Kb)	2(b)	3(b)	4(b)
C	0.0469	0.0434	0.0459	0.0478
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
DLX	-0.2119			
	(0.0000)			
DLPX		-0.1554		-0.1292
		(0.0013)		(0.0003)
DLMX			-0.0722	-0.0611
			(0.0000)	(0.0000)
DLIM	-0.0662	-0.0798	-0.0864	-0.0741
	(0.0533)	(0.0731)	(0.0397)	(0.0246)
DLGK	0.2425	0.2600	0.2786	0.2552
	(0.0000)	(0.0008)	(0.0003)	(0.0000)
D93	-0.0219	-0.0193	-0.0628	-0.0233
	(0.0061)	(0.0590)	(0.0100)	(0.0027)
ECT(-1)	-0.0548	-0.0756	-0.0628	-0.0586
	(0.0462)	(0.0307)	(0.0490)	(0.0275)
Adjusted R^2	0.7561	0.5727	0.5884	0.7788
S.E. of regression	0.0194	0.0257	0.0253	0.0185
AIC	-4.8839	-4.3233	-4.3608	-4.9594
SBC	-4.6146	-4.0540	-4.0914	-4.6452
F(p)	0.0000	0.0002	0.0000	0.0000
Jarque-Bera F (p)	0.4827	0.0000***	0.9884	0.9147
Autocorrelatio LM F(p)	0.6674	0.8100	0.3764	0.5272
Het test F(p)	0.2900	0.5553	0.1250	0.5975
Reset F(p)	0.0835*	0.0763*	0.6755	0.3787

*** significant at 1%, ** significant at 5%, * significant at 10%
(p) diagnostic and specification tests probability values

The coefficients of the error correction terms have the correct negative sign and are significantly different from zero in all equations. Model 4(b) is preferred over the others since it has the least standard errors, minimal AIC and SBC, it has the highest explanatory power of [T]7.9°o and model specification is satisfactory. As shown in Appendix I, based on recursive residual estimates, CUSUM and CUSUM of squares stability tests, the model parameters are stable since the cumulative sum lies within the area between the two critical lines. This model indicates a significant adjustment rate of 5.9%. This further confirms the existence of cointegration among the variables considered. The constant is significant and this indicates that the equation does not include other relevant explanatory variables. The results indicate that in the short-run changes in domestic exports and both primary and manufactured exports negatively influence economic growth. As expected, changes in imports and capital formation negatively and positively affects economic growth respectively.

Since the first differences represent growth rates of the variables, the results implies that growth rates of domestic exports and both primary and manufactured exports negatively influences economic growth rate in Kenya. This is the case of growth-reducing exports in an exports-led growth scenario. Similar results for manufactured exports were also found by Too (2005) and Kundhi (1996). The negative impact of primary exports could be explained by instability of exports earnings due to either price or volume volatility emanating from domestic supply constraints, external shocks, low price and income elasticities and dominating influence of major trading partners, Kenya being a small trading country that cannot influence commodity prices in the global market.

The negative impact of manufactured exports is possible due to inadequate investment and uncompetitiveness of manufactured exports, which is a disadvantage of the imports-substitution trade regime. Consequently, it is possible that exports instability increases uncertainty in the domestic economic environment and since imports also highly depends on exports earnings, this definitely causes imports instability. These two outcomes adversely affect investment decisions in the country. This unfavourably affects economic growth performance, a possible explanation of the undesirable growth path experienced in Kenya.

••./.houeh the 1993 trade liberalization has a long-term positive effect on economic growth, in x short-run. the impact is significantly negative. From economic theory, this could be .\plained by "perverse" effect of exchange rate devaluation, also known as the "J-curve" - momenon. This is indicated by balance of payments deterioration immediately after evaluation followed by improvement, due to contracts maturity and both price and quantity .djustment lags. In Kenya, the adverse effect of trade liberalization on economic growth could Jso be explained by the negative impact of the liberalization on primary exports, which dominates domestic exports. This is further attributed to long time lags and inefficient institutions and structures in the primary export sectors that hamper effective realization of potential benefits of the trade liberalization policy.

CHAPTER FIVE: CONCLUSIONS AND POLICY IMPLICATIONS

he main objective of this study is to investigate the exports-growth relationship in case of • .iya using multivariate time series analytical framework. Stationarity of the variables in -st differences indicate that the growth paths of trade and GDP variables did not change cnificantly. which can be possibly explained by the failure of the country to radically change the composition of the growth components. For instance, primary exports continued to dominate domestic exports.

The empirical results indicate unidirectional causality from domestic exports to economic growth, implying Kenya has been experiencing export-led growth (ELG), which is attributed to primary exports. On the other hand, there is no causality from economic growth to either domestic exports, primary exports or manufactured exports. The feedback between economic growth and imports as was expected is as explained by economic theory. An increase in GDP represents an increase in income, which positively influences aggregate demand both internally and externally. This also explains why both primary and manufactured exports are causing imports, since exports increases national income through foreign exchange earnings that are consequently used to import. On the other hand and contrary to expectations, imports are not Granger causing exports. Therefore, it appears that Kenya's imports are not causing exports probably because they are dominated by consumer goods or more likely that they are used to produce goods for domestic consumption. It is also possible that even if imports are causing economic growth, it is not through investment for exports but through other channels such as private and public consumption.

Cointegration analysis has given evidence of a significant long-run relationship between economic growth, exports, imports and capital formation. There is a significant and positive impact of exports on economic growth, which mainly emanates from primary exports. The results indicate that exports and capital are significant in the growth process but manufactured exports are yet to make any significant impact on economic growth in Kenya, eleven years after trade liberalization. However, since there is a significant long-run relationship when manufactured exports are used instead of exports, this probably gives hope on the potential benefits of manufactured exports.

ihe same time, the results show that capital's impact on growth is higher than that of rvrts. This implies that growth is mainly driven primarily by traditional factors of r eduction, capital formation in this case and, although exports have acted as an engine of \vth. the impact is relatively smaller. This is a clear pointer to the significant role of capital - the growth process. The results indicate that in the short-run changes in domestic exports and both primary and manufactured exports negatively influence economic growth. This c< Jd be explained by instability of primary exports earnings and uncompetitiveness and inadequacy of manufactured exports.

5.1.   Policy Implications

The policy implication of the positive association between exports and economic growth with undesirable effects is that despite the economic reforms towards exports promotion, including trade liberalization, there is much more to be done for Kenya to achieve desirable economic growth and development. Kenya's economic growth performance under the ELG has not been desirable, may be mainly due to instability associated with primary exports earnings largely caused by eternal factors. This is an open indication that Kenya should not rely further on primary exports-led growth for its development objectives. Indeed this has proved to be unfavourable and unviable development strategy. Therefore, there is need to reflect on the growth path and re-engineer the whole process. There is hope, since there is a long-run positive relationship between economic growth and manufactured exports and this could be an opportunity that should be exploited by promoting manufactured exports growth.

Kenya should create a more conducive policy environment in order to enhance manufacturing exports performance. More resources and efforts should be directed to policies specific to manufacturing exports growth, exports diversification through value-addition of primary exports and exploration of new exports markets. For Kenya to achieve a better and sustainable export-led growth path, the structural shift from primary exports to manufactured exports is inevitable. This is expected to reduce dependence on primary exports which are more vulnerable to external shocks including changing weather conditions. Furthermore, industrialization may reduce the country's dependence on the rest of the world and ensure greater economic stability.

Kenya should therefore concentrate first on developing the domestic economy aiming at increased investment, trade openness and improved economic integration in order to promote industrialization in general and manufacturing exports in particular so as to effectively compete in international markets. The domestic economic environment should be improved in terms of physical infrastructure development, investment in human capital, good governance through institutional reforms, telecommunication growth and macroeconomic stability. Hence there is need for simultaneous efforts to improve both supply capacity and foreign market access in order to enhance the performance of the exports sector. This internally generated growth is expected to promote exports growth and a vicious circle will be developed whereby in return exports are expected to boost national income as articulated in the neoclassical growth theory. Kenya should learn from the highly successful South East Asian countries that have benefited mainly due to internally generated growth.

It is expected that Kenya would accelerate its economic growth through application of modern technology and relying on manufactured exports in an appropriate policy framework. Since manufactured exports tend to offer greater potential for sustained learning and more externalities to other industries, they are expected to contribute to a more stable growth path if they are competitive. The more important issue is to get right the growth fundamentals of internally generated growth and an industrialization structure with high and competitive productivity. If this requires some elements of protection, Kenya must not be afraid to deviate from free trade on legitimate grounds of increased domestic income, industrialization with positive externalities such as increased employment.

Kenya's imports are not causing exports may be because consumer goods imports are more than capital goods and raw material imports or may be the imports are used to produce goods for domestic consumption. However, this could be partly explained by the high cost of major inputs such as oil, which raises the cost of production resulting into uncompetitive exports. However, there is need to closely monitor and regulate or even restrict importation of consumer goods and encourage importation of goods for investment purposes. This is expected to allow technology inflow, promote manufactured exports and make Kenya meaningfully benefit from trade liberalization.

5.2. Study Limitations and Research Agenda

This study encountered some problems worth mentioning. The first problem is data inconsistency among the different sources and even within the same source, for example Government of Kenya publications, discrepancies exist among publications of different time r«riods. especially during 1970s. The other problem is lack of quarterly data, which could have produced better results with higher degrees of freedom. Most of the macroeconomic data in Kenya, especially those used in this study are not available in quarterly data.

The study is limited in that it uses the neoclassical growth model that has been extensively used in past empirical work. The Solow model developed in 1956 is based on unrealistic assumptions of perfect competition and exogenous technological change. However, by considering the endogenous growth theory through productivity growth, this limitation is less severe in this study. Finally, since this study does not aim at estimation of a comprehensive growth model for Kenya, the results should be taken with appropriate caution. All in all, despite these shortcomings, all the objectives of the study are achieved and the study is an improvement of past empirical work and it provides helpful insight into the exports-growth relationship, resource allocation prioritization in Kenya and areas of further research.

While the study gives some useful guidance for policy analysis, some issues could be clarified by further empirical work, and this could give better specificity to policy guidelines. Therefore, for future research, there is need to analyse the linkage between exports and investment so as understand how exports can be influenced by investment and economic growth. This requires estimation of Kenya's export model that should include investment and income as explanatory variables and examine both exports supply and demand sides simultaneously. This could help in understanding transmission mechanisms assumed under growth-led exports hypothesis. Considering that Kenya's exports are dominated by few commodities, this study recommends further disaggregation of both primary and manufactured exports into specific commodities or sectors such as horticulture, tea, coffee and tourism so as to get deeper understanding of their specific contribution to exports and hence economic growth.

major concern in this study is why imports are not causing exports. Hence, it is very -portant to study the role of imports when examining determinants of investment in the c ontry. Furthermore, the composition of Kenyan imports should be analysed. This will help disaggregate the imports and get better and more specific results for example on relative -.are and role of imported capital and intermediate inputs. The use into which imports are utilized should be closely monitored in order to find out whether imports are used for consumer goods production or investment for exports. Finally, a similar study, using dynamic modelling and quarterly data, should be carried out using panel data analysis for Kenya and also for its trading partners in the region. This could bring out individual country specific effects more clearly for comparison and learning purposes under the on-going regional economic integration initiatives.

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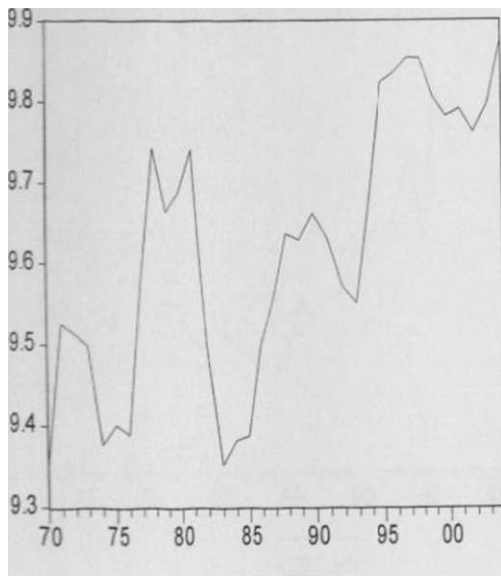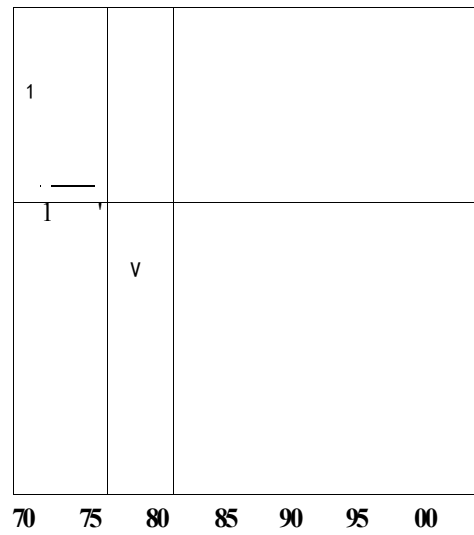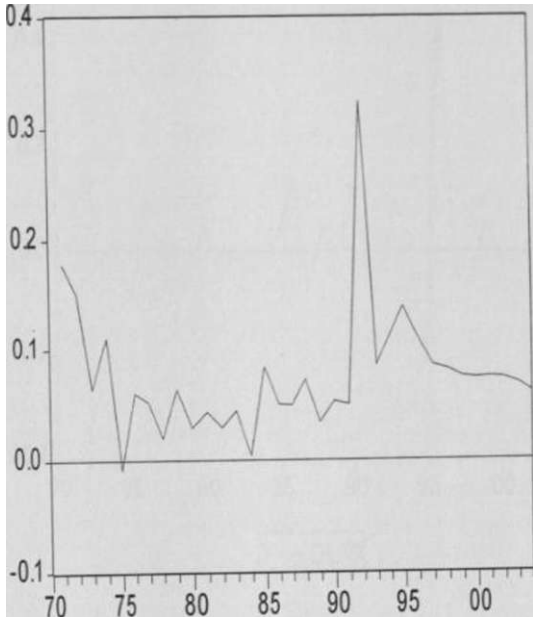# APPENDIX I: Graphical Analysis

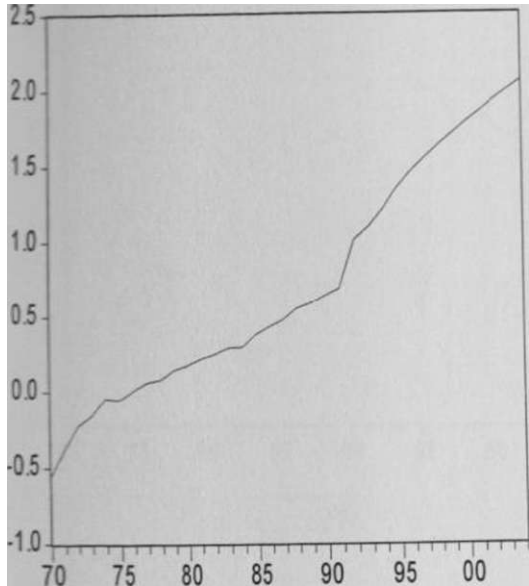**Real GDP**
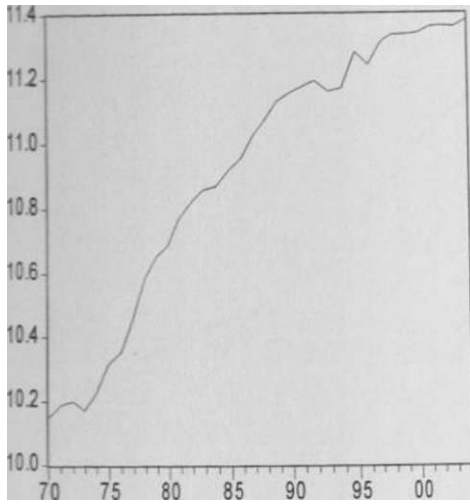
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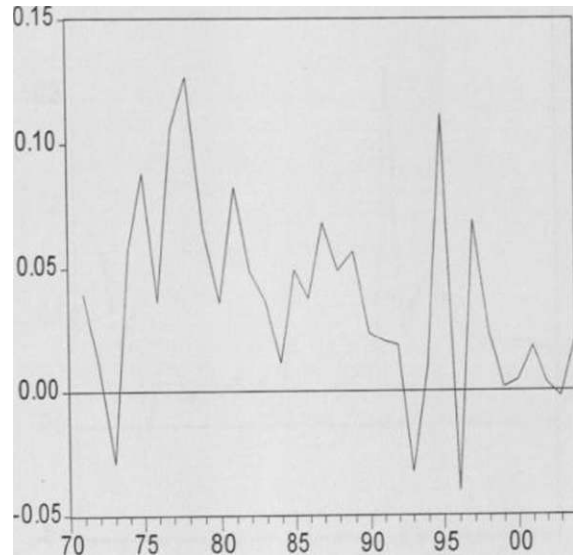
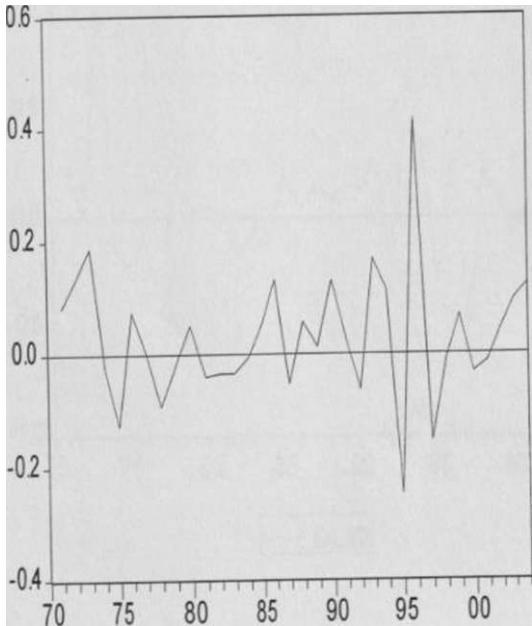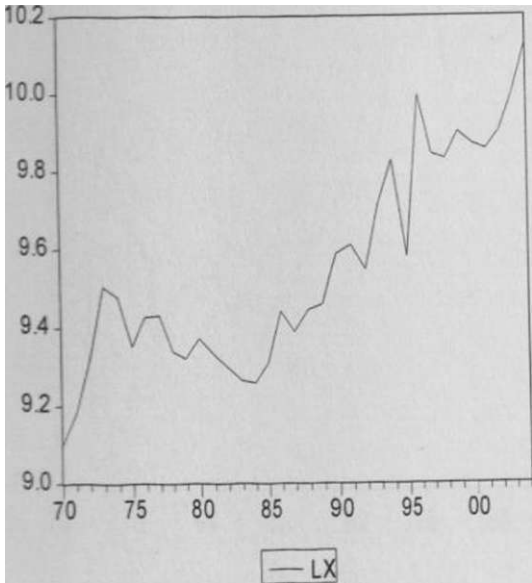i − DLNY

Real Gross Capital Formation
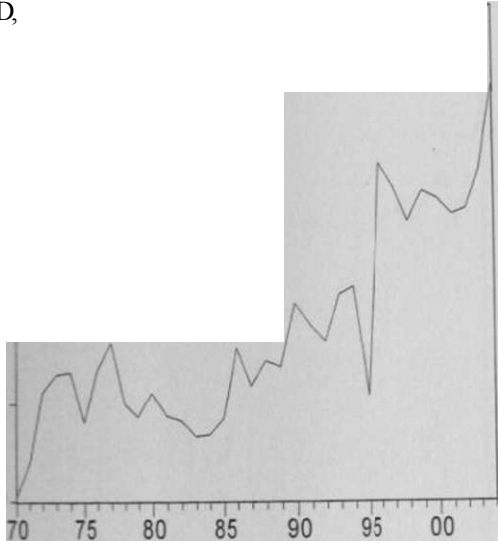

− IGK

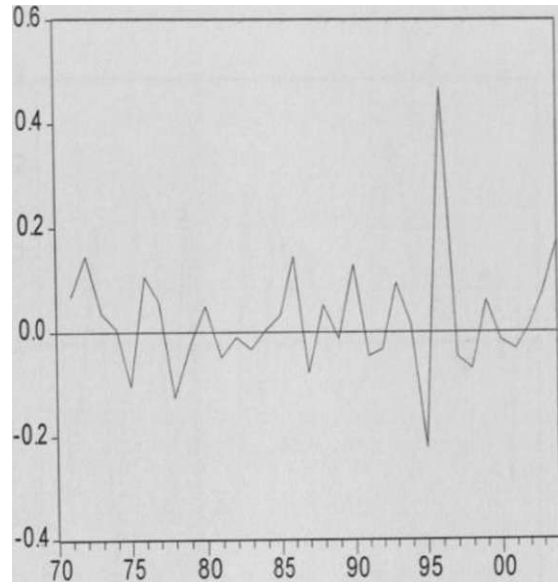

− DLGK

Employment

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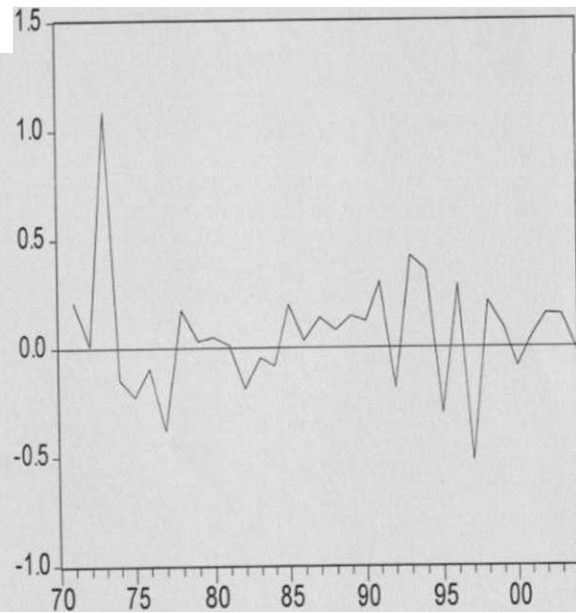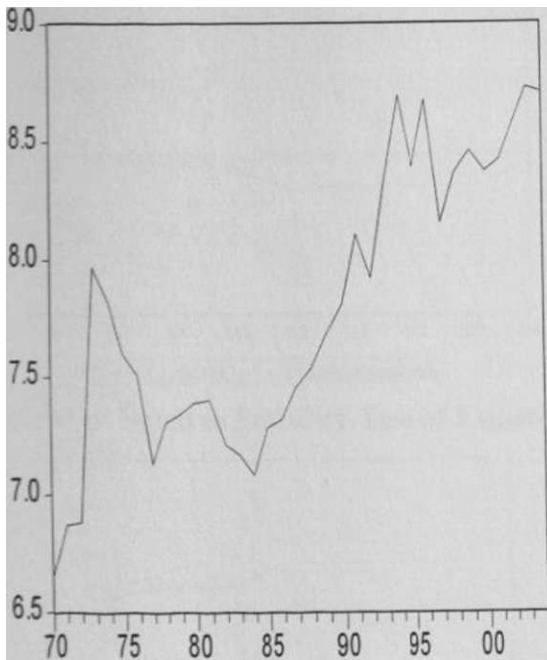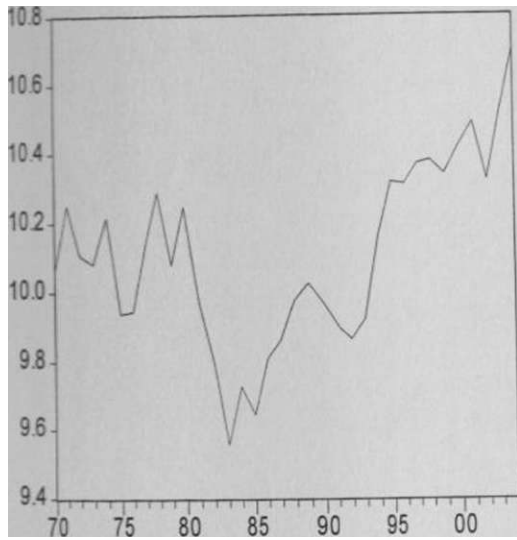Real Domestic Exports

— DLX

Real Primary Exports

10JD,
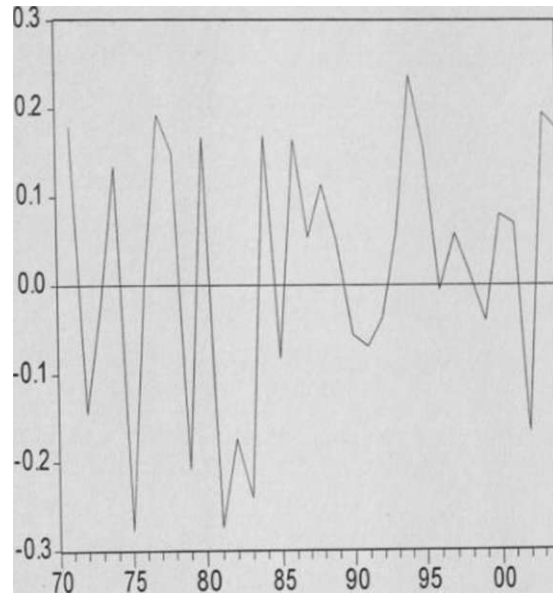

—   LPX

1 — DLPX

Real Manufactured Exports
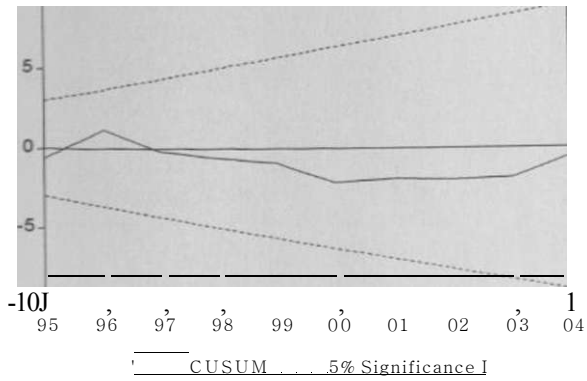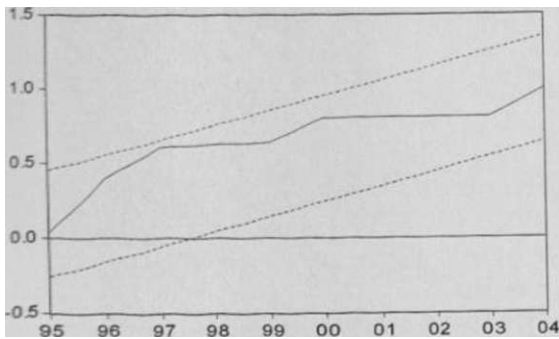

—   DLMX

Real Imports

— LIM;

- DLIM

CUSUM Stability Test of Equation 4(b)

CUSUM ..... 5% Significance I

CUSUM of Squares Stability Test of Equation 4(b)

CUSUM of Squares, - _ 5%_Signi«cance

APPENDIX II: The Data

	GDP	Domestic Exports	Manufactured Exports	Total Imports
1970	10,432	2,061	179	2,841
1971	11,501	2,141	212	3,682
1972	13,172	2,557	224	3,679
1973	14,802	3,488	752	4.303
1974	17,926	4,577	876	7,384
1975	21,052	4,608	800	7,044
1976	25,562	6,708	985	8,140
1977	32,699	9,605	960	10,629
1978	35,601	7,399	967	13,223
1979	39,543	7,711	1.061	12,403
1980	44,648	9,753	1,343	19.181
1981	51.641	10,277	1.490	18,648
1982	60.987	10,915	1,356	18.006
1983	69,473	12,662	1,554	18,112
1984	77.524	15.096	1,715	21.944
1985	88.478	15.702	2,067	23,920
1986	102,299	19.159	2.286	26,758
1987	112.965	15.068	2,179	28,618
1988	129,612	18,354	2.720	35,303
1989	147.756	19,997	3,386	44.779
1990	168.455	24,647	4,151	50.913
1991	193,788	32,224	7,181	52,918
1992	228.050	34,162	6,730	59,097
1993	283,708	72.504	18,386	101.128
1994	338.065	83.414	26,919	115.080
1995	393,767	93.124	28,400	155,168
1996	449.621	113,926	30,499	168.486
1997	536,264	114,459	21,180	190.674
1998	596.539	114.445	26,510	197.789
1999	639.056	114.842	27,261	206.401
2000	685.436	119,764	26,883	247.804
2001	767.381	121.434	29,012	290.108
2002	849.988	131,394	34,930	257,710
2003	968,424	136,709	38,300	281.844
2004	*1,080,328*	159,063	38,700	364.205

NB: Values in Kshs millions at Current Prices, 2004 GDP estimated