EXPORT LED GROWTH HYPOTHESIS:

AN APPLICATION OF KENYAN DATA

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X50/72236/2011

A RESEACH PROJECT SUBMITTED TO THE SCHOOL OF ECONOMICS, UNIVERSITY OF NAIROBI IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF ARTS DEGREE IN ECONOMICS

2013

DECLARATION

This research project is my original work and has not been submitted for academic award or any other kind of award in any other University.

John Robina Kwamboka

Sign…………………………………   **Date ……………………………**

This Research project has been submitted for examination with my approval as University supervisor.

Dr. Daniel Abala

Sign…………………………………   **Date ……………………………**

Dr. Patrick Machyo

Signed…………………………………   **Date ……………………………**

DEDICATION

This research paper is dedicated to my baby girl Patience. May this research work inspire you to achieve greater things in life.

ACKNOWLEDGEMENT

I would like to express my deepest appreciation to the almighty God for His grace that was sufficient throughout this research process

My sincere gratitude goes to the Ministry of Planning and Devolution for funding my studies and to the University of Nairobi for granting me the opportunity to pursue my studies.

I would like to thank my lecturers who imparted valuable knowledge. Special thanks to my supervisors, especially Dr D. Abala for his time, patience and understanding. For all the time you readily assisted and guided me, thank you. It is your advice throughout this process that kept me focused on this topic.

I am also grateful to my colleagues, the MA – Economics class of 2013, the journey was not easy but with your presence, encouragement and motivation, we made it.

My deepest appreciation goes to my family: to my partner and best friend, Jackson Mutua, thank you for your unconditional support and love, to my lovely baby Patience, thank you for your understanding, love you. To my loving parents, your encouragement pushed me this far and my sisters and brothers who prayed for me every day, thank you. Without all of you, I would not be where I am today. THANKYOU

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ACRONYMS AND ABBREVIATIONS

ADF   Augmented Dickey fuller

ARDL   Autoregressive Distributed lag

AVAR   Augmented Vector Auto Regression

COMESA   Common Market for Eastern and Southern Africa

EAC   East African Community

ECM   Error Correction Model

ELG   Export Led Growth

ELGH   Export Led Growth Hypothesis

EPC   Export Promotion Council

EPZ   Export Processing Zones

ERSWEC   Economic Recovery Strategy for Wealth and Employment Creation

GDP   Gross Domestic Product

GLE   Growth Led Exports

GNP   Gross National Product

ISS   Import Substitution Strategy

KETA   Kenya Export Trade Authority

KIPPRA   Kenya Institute for Public Policy Research Analysis

KNBS   Kenya National Bureau of Statistics

MDGs   Millenium Development Goals

NAFTA   North America Free Trade Area

OECD   Organisation for Economic Cooperation and Development

OLS   Ordinary Least Squares

SSA   Sub Saharan Africa

VAR   Vector Auto Regression

VECM   Vector Error Correction Model

ABSTRACT

The export led growth hypothesis, advocates that export growth is key in enhancing economic growth yet no consensus has been reached on the causal relationship between the two. This paper examines the validity of the export led growth hypothesis in Kenya for the period 1980 to 2011 using time series data. The aim of the paper is to determine the direction of causality between export growth and economic growth. A seven variable (GDP, export, import, capital, labour, real exchange rate and terms of trade) model is estimated using the error correction model and granger causality techniques. The results indicate that export led growth hypothesis is valid for Kenya and there exist a unidirectional causality flowing from exports to economic growth. Export diversification, value addition on the export goods and currency stability are some of the recommended policies.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

No country in the world is completely self sufficient, neither can each country produce all goods equally and efficiently. This is because; factors of production are not evenly distributed throughout the world. Countries specialize in the production of those goods for which they have necessary factors and facilities of production and export them, while they import those goods which they cannot produce or can produce only at a relatively high cost.

Todaro (2012), argues that international trade plays a key role towards the development of a given nation. The export success of the East Asian Tiger countries that include Taiwan, Singapore, Hong Kong and Korea has gained much attention towards understanding issues on trade and development. Thailand and Malaysia have since successfully adopted the export led growth strategy pioneered by the above mentioned countries hence the lessons learnt from these countries have been key in steering trade and development.

The Neo classical economists are in agreement that economic growth can be achieved by adopting Export Led Growth strategy (ELG), citing the example of East Asian countries which achieved tremendous growth with the introduction of the ELG strategy. Over the last three decades, new entrants like Malaysia and Thailand have approximately doubled their living standards after every ten years since 1980s (Giles & Williams, 2000). The

experiences of these countries support the argument that, in order to achieve rapid and efficient growth through ELG, openness to trade and proper distribution of domestic resources should be encouraged (Giles & Williams, 2000).

Export Led Growth Hypothesis is considered an economic strategy adopted by the Developing Countries aimed at finding a niche in the international market for their exports which include manufactured products and raw materials. The Governments that support this strategy offer subsidies to the industries producing the export goods thus promoting accessibility to both the domestic and international markets. Countries stand to gain from this strategy through increased foreign reserves which in turn support importation of manufactured products at cheaper prices thus sustain their balance of payment accounts.

Most of the Sub-Saharan African countries are primary product exporters and have accounted for a sizeable proportion of individual gross domestic product. In Kenya, exports contribute 29% of the Gross Domestic Product (GDP) and is mainly through the primary agricultural produce like tea (major export) coffee, horticulture etc (Republic of Kenya 2012). The market and prices of these exports are often unstable and the export dependence carries with it a degree of risk and uncertainty that is not desirable for the nations (Todaro, 1994).

Other than depending on exports, these countries heavily rely on importing raw materials, capital goods, machinery, intermediate consumer and producer goods used in expanding the local industries to satisfy the ever rising demand for the products. The demand exceeds the revenues generated from the exports thus leading to a deficit in the balance of

payment accounts. The deficits deplete the foreign reserves causing currency instability therefore slowing down the economic growth (Todaro 2012).

International trade having made tremendous contribution to the development of less developed countries in the 19th & 20th centuries, it can be expected to make an equally big contribution in the future, (Todaro, 1994), therefore with a little effort; the exports in Kenya can lead to an improvement in economic growth.

Although many economists support the ELG strategy and acknowledge its importance, some economists are of different opinion. Rodrik Dani (1994) argues that the export led growth hypothesis is actually not what led to the growth of the East Asian tigers but it is the Government intervention which played a productive role and in turn was conditioned by a set of comparative advantages that include endowment of human capital and equitable distribution of resources.

1.2 EVOLUTION OF EXPORT POLICIES IN KENYA

The trade policy evolution in Kenya can be traced back to the colonial era where the agricultural sector was protected because it was the producer of raw materials to the colonial masters that is Britain's manufacturing sector (Bigsten et al 2010). At independence, Kenya adopted the import substitution strategy (ISS) which was highly characterized by protective trade barriers. The ISS, in many countries (including Kenya) failed to achieve its intended objectives due to the fact that it had very low export potential and the new capital intensive industries could not create more employment opportunities and also the heavy protection of local firms translated to inefficiency and lack of competitiveness of the industries. Despite the government protection enjoyed by

the industries, the policy measures exercised were biased against exports as evidenced by the cumbersome and bureaucratic structures that included high effective protection rates, control of prices and foreign exchange and discouraging importation through the import licensing and overvaluing of the currency (Were et al., 2002). During the early 1970s foreign exchange crisis was experienced in Kenya and the government further tightened the administrative controls through imposing high tariffs, price controls and rigorous import licensing measures (Bigsten et al 2010).

The import substitution strategy of 1970-1980s having been unsuccessful in achieving its intended objective, the government introduced a series of policy reforms to support export production. The structural adjustment programs (SAPs) adopted in 1980-1990s was in support of the export led growth. The SAPs advocated for countries to export more so as to repay the loans given to them by the two Briton hood institutions. However, due to price wars, commodity prices dropped. Dependence on few primary goods made countries more susceptible to global market conditions. It can be said that SAPs hurt the poor more and did not promote overall growth and development of LDCs as expected.

The export oriented strategies presented in the sixth development plan were adopted in the 1990s providing a policy framework towards implementing export promotion strategy that aimed at creating conducive environment for the growth of exports. Consequently, a series of policy reforms were adopted, like; the Manufacturing under Bond (MUB) was introduced in 1986 (Republic of Kenya 2005) as an export drive policy measure, which aimed at promoting industrial production. The export promotion council body established in 1992 was mandated to promote Kenyan exports worldwide while the EPZ strategy policy established in 1990 aimed at promoting export oriented industrial investments

within designated areas. The EPZ was managed by Export Processing Zone Authority (EPC 2012).

Three development blueprints including the Poverty Reduction Strategy Paper 2001-2004 (PRSP), Kenya Vision 2030 and the Economic Recovery Strategy for Wealth and Employment Creation 2003-2007 (ERSWEC) were also developed to strengthen the policy reforms in Kenya. The national export strategy that was recommended by the Economic Recovery Strategy for Wealth and Employment Creation (2003-2007) proposed plans to increase national competitiveness through improving the export performance. It was mandated to open up new markets, deepen the existing ones, diversify the exports and improve market access for the Kenyan products. The Vision 2030 blue print aims at guiding the government to be economically, socially and politically stable by the year 2030, by improving on certain sectors to enhance economic growth.

Kenya has made strides in ensuring that trade is enhanced by participating and joining regional trading blocs like the Preferential trade area of 1983, Common Market for Eastern and Southern Africa (COMESA) of 1993 and East African Community (EAC) of 2001, which has led to integration accounting for the increase in Kenyan exports (Republic of Kenya 2012)

1.3 STRUCTURE AND COMPOSITION OF EXPORTS IN KENYA.

The Kenyan exports are dominated by the primary agricultural commodities mainly tea, coffee and horticultural produce which accounted for 40.1% of total exports in 2011(EPC 2012). The primary agricultural commodities have made the export sector vulnerable to

the volatile world prices. Though horticulture is a fast growing sector in the export market, tea and coffee still remain the leading exports in Kenya by value (Republic of Kenya 2012).

Table 1, shows the top export products in Kenya for the year 2010 and 2011, where by tea is the leading export commodity.

Table 1: Top export products in Kenya for the year 2011.

Rank 2011	Product	VALUE(KSHS BILLION)		%Share of total exports 2010	%share of total exports 2011	%change(yr 2010 to 2011
		2010	2011			
1	Tea	91.62	102.24	22.36	20.01	11.59
2	Horticulture	72.09	83.33	17.59	16.31	15.59
3	Apparels	15.56	22.26	3.8	4.36	43.05
4	Coffee	16.24	19.3	3.96	3.78	18.79
5	Tobacco products	10.56	18.63	2.58	3.65	76.41
6	Iron & steel	12.13	18.16	2.96	3.55	49.76
7	Animal & vegetable oils	9.89	14.17	2.41	2.77	43.18
8	Essential oils	9.62	13.82	2.35	2.7	43.6
9	Soda ash	7.27	12.37	1.77	2.42	70.28
10	Articles of plastic	6.9	9.35	1.68	1.83	35.61
11	Cement	7.4	8.9	1.81	1.74	20.26
12	Medicine &pharmaceutical	5.86	7.45	1.43	1.46	27.02
13	Leather	4.19	7.21	1.02	1.41	71.95
14	Petroleum products	4.71	6.1	1.15	1.19	29.64
15	Sugar confectionery	4.24	5.21	1.03	1.02	22.87
16	Fish & fish preparations	5.03	4.96	1.23	0.97	1.43
17	Fluorspar	0.73	3.93	0.18	0.77	441.05
18	Footwear	3.21	3.56	0.78	0.7	10.82
	All other	122.54	150.11	29.9	29.37	26.5
	Total exports	409.79	511.04	100	100	24.71

Source: Economic survey, KNBS 2012

In the year 2011, coffee, tea, horticulture and apparels were the main exports accounting for 47% of the total exports. Goods exported to African countries amounted to Kshs 247.6 Billion, which is 48.5% of the total exports in 2011 with COMESA being the leading export region accounting for 35.52% of the total exports. The EU imported Kenyan goods worth Kshs. 97.9 Billion in 2010 and Kshs. 114.9 Billion in 2011 which translated to 23.9% and 22.5% of total exports respectively. Country wise, Uganda Maintained the leading destination for Kenyan goods with the exports raising to Kshs. 75.95 Billion in 2011 from Kshs. 52.11 Billion in 2010 (a 46% increase), followed by UK which imported Kenyan goods worth 46.7 Billion in 2011 up from Kshs. 40.2 Billion in 2010. Tanzania imported products worth Kshs. 41.7 Billion in 2011 up from Kshs. 33.3 billion in 2010 (Republic of Kenya, 2012).

Table 2: Kenyan exports by destination

	VALUES IN KSHS.BILLIONS				
REGION	**2007**	**2008**	**2009**	**2010**	**2011**
Comesa	86.52	111.13	112.89	135.81	181.52
European union	72.66	89.3	92.02	97.92	114.96
Rest of Africa	37.51	51.41	49.84	53.01	66.08
Middle east	13.73	15.93	19.3	30.53	63.55
Far east & Australia	33.73	41.99	40.85	51.84	32.93
America	19.22	20.51	17.42	22.52	25.71
Rest of Europe	6.62	9.11	8.96	11.5	20
All other countries	4.68	5.57	3.67	6.66	6.29
Total exports	274.66	344.95	344.95	407.79	511.04

Source: Economic survey, KNBS 2012

The COMESA region was the leading destination for Kenyan products accounting for 35.52% of the total exports followed closely European Union with 22.50% of the total exports. Kenya exported goods worth Ksh 20 Billion to the rest of Europe (3.91%) and Ksh 25.71 Billion to America (5.03%).

Figure 1 illustrates the export share by region.

Figure 1: Export share by Region.
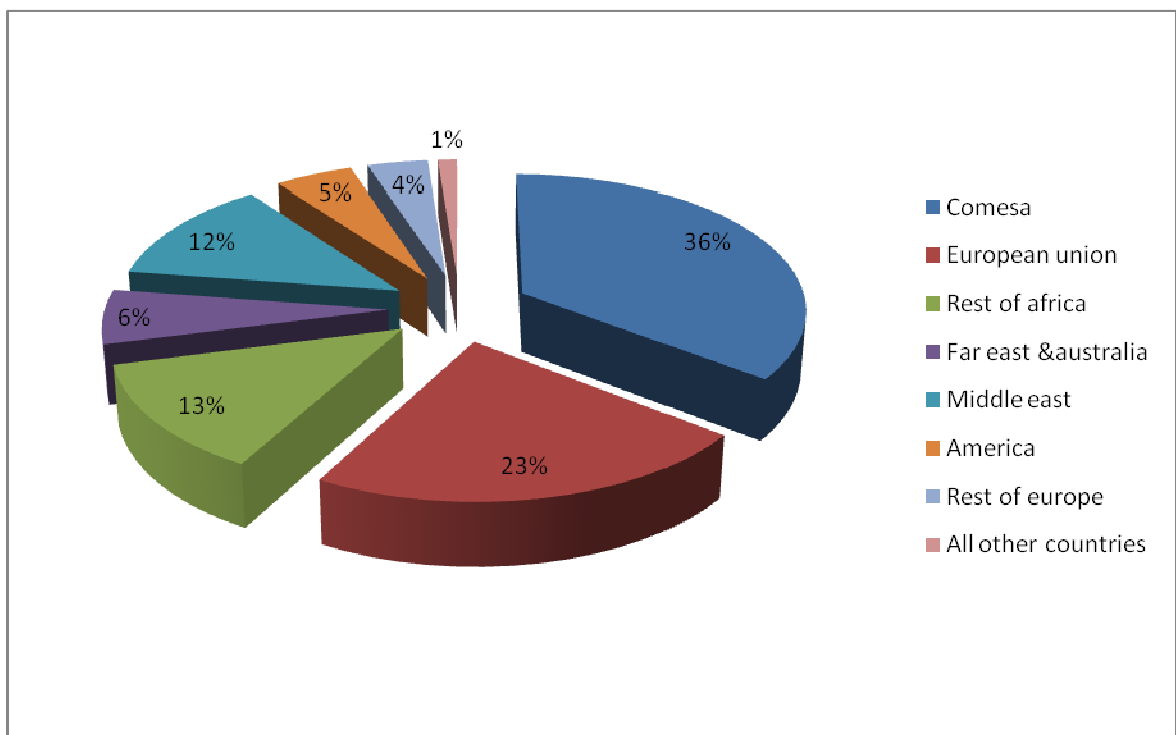
Source: own computation using data from Economic survey, KNBS 2012

1.4 PROBLEM STATEMENT

Trade has been known as an engine of growth in many developing countries. In Kenya, the fluctuating and dwindling exports have had adverse effect on economic growth. The Kenyan exports, mainly dominated by primary agricultural products and raw materials

are characterised by low prices and market volatility, are not diversified hence not competitive in the international markets.

Kenya, having adopted the import substitution strategy which was not successfull in leading to economic growth, shifted her attention to export orientation strategy. Controversy has reigned on the real effects of this strategy, hence the question of whether exports growth determines economic growth or economic growth determines exports growth has not been definitively answered.

Although most of the empirical studies support ELGH there is no overall consensus on the issue and the studies show mixed results. Some economists like Mohan and Nandwa (2007), Shirazi et al,(2004), Were et al,(2002) and Jung and marshal(1985) are all in support of ELGH, whereas others like Shan and Tian(1998) support GLE. Others indicate that export growth and economic growth do not granger cause each other, like , Ngumi et al (2013), Darat (1986) and Konya (2004).

This dilema forms the basis of this study on whether the export growth leads to economic growth or whether the economy has to grow so as the export growth can be experienced in Kenya.This research paper aims at analyzing the causality between exports and economic growth in Kenya.

1.5 RESEARCH OBJECTIVES

The broad objective of the study is to examine the validity of export led growth hypothesis strategy for Kenya while Specific objectives are:

i. To determine the direction of causality between economic growth and export growth in Kenya

ii. To suggest policies based on the study findings.

1.6 JUSTIFICATION OF THE STUDY

This study is motivated by the existing controversy on the causality between economic growth and export growth. Exports having been considered as an engine of growth in kenya,yet the economic growth rate is still low at 4 % of GDP (Republic of Kenya 2012), despite Kenya exporting huge volumes of goods and services especially the primary products. Over the centuries, no consensus has been reached on the real effects of the exports on economic growth. The question of whether exports expansion determine economic growth or economic growth determine exports expansion has not been answered.

The study is significant because the Kenyan government has in the past decade employed techniques that would boost economic growth, for example, ERSWEC, MDGs, Vision 2030 etc. various export promotion strategies have also been adopted but still the annual economic growth rate averaged 4% (Republic of Kenya 2012). This study will contribute to answering the question on whether adopting ELG strategy would rescue Kenya from

the slow economic growth rate or not and if not, then other policy recommendation would be advised.

1.7 OUTLINE OF THE RESEARCH PAPER

The rest of the paper is organized as follows: chapter two reviews both theoretical and empirical literature and gives an overview of the literature while Chapter three outlines the methodology used by specifying the theoretical and empirical model. The chapter gives the data sources, types and measurement of the variables used. Chapter four presents the data analysis and discussion of empirical results obtained and chapter five gives the summary, conclusion, and the policy recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter reviews both the theoretical and empirical literature on export and economic growth. The first section reviews theoretical literature while the second section presents a summary of the empirical studies and their relationship with this study, finally the overview of the literature is given.

2.2 THEORETICAL LITERATURE REVIEW

Trade as an engine of growth is determined by factors like export and dates back to the classical and neo classical school of economists. The classical economists like Adam smith focused on absolute advantage where a country produces more of a good or service that it has absolute advantage over the competitors using same amount of resources. David Ricardo, on the other hand focused on comparative advantage that arose due to technological differences and natural resources. The Heckscher- Ohlin model (H-O model) of the 1920s also advocated that countries would produce and export the goods that made use of the available factors of production and would import those goods that use factors that are scarcely available.

Exports help earn foreign exchange that is needed to import goods and services that could not be cheaply produced domestically, thus making export led growth hypothesis a theoretical root in the relationship between exports and economic growth.

The export led growth strategy reflects on the relationship between exports and economic growth. The proponents of this hypothesis like Balasa (1978) and Tyler (1981) argue that export promotion would increase economic growth.

Herzer et al., (2004) suggests that the arguments supporting the ELG hypothesis include: the demand side perspective, which states that since the growth of domestic demand can be easily exhausted, it is then not sustainable for the small domestic markets to maintain the demand growth, contrary to the export markets that do not have restrictions on the demand thus exports can stimulate growth of income from aggregate demand.

The supply side perspective behind the ELGH supports expanding exports through spillovers from technological transfers and positive externalities as the main factor of growth. (He et al., 2007)

Giles &William (2000) suggest several ways in which export growth may represent growth in output; first, export growth could lead to the increase in demand for the country's output and therefore an increase in the real output would be experienced. Secondly, specialization in export production may represent export growth which would improve productivity levels and cause a general rise in the skill levels in the export sector and finally, the export expansion would loosen the foreign exchange crisis allowing countries to import additional capital goods and hence increased output.

2.2.1 MODELS OF EXPORT- LED GROWTH

There are three main export led growth models, namely; the neo classical supply side model, the balance of payment constrained model and the virtuous circle model. The neo

classical supply side models relationship between exports and growth assuming that the export sector has higher levels of productivity than the non export sector and also the export sector confers externalities on the non export sector due to its exposure to the foreign competition. The first person to give a formal model explaining the export-output growth relation was Feder (1983). In the export sector an assumption is made that output is a function of capital and labour while in the non export sector, output is assumed to be a function of capital, labour and export sector output.

This study employs this model to capture the relationship between export growth and output growth since it is assumed that output is a function of the factors of production.

The balance of payment constrained growth model is important in understanding growth rate differences in open developing countries since majority of the developing countries face BOP constraint and foreign exchange shortage. In this model export growth is termed as the driving force since it relaxes the BOP constrain on demand experienced by many countries hence allowing the other components of demand like investment, government expenditure and consumption to grow faster. The growth of a country cannot be faster than the rate consistent with the balance of payments equilibrium on current accounts unless financing of the ever growing deficit is possible which in general is impossible hence exports being an inducing force to economic growth from the demand side.

The virtuous circle model of the export led growth shows the interrelationship between export and output growth. The virtuous circle can be set up by the growth of exports through the cumulative causation process which works through the produced effect of output growth and increased competitiveness. (Thirlwall 2000).

2.3 EMPIRICAL LITERATURE

The empirical studies were reviewed based on their directional of causality. Some studies concluded that there exists a unidirectional causality from export to economic growth (Mohan & Nandwa 2007, Shirazi et al. 2004) while others found unidirectional causality but from economic growth to export growth (Shan & Tian 1998). Other studies found bi-directional causality (Husein 2009, Musonda 2007, Jordaan et al. 2009) while others concluded that independent causality exist between export growth and economic growth, (Ngumi et al 2013, Darat 1986, Konya 2004, Udude & Okulegu,2012). Due to this inconclusiveness on causality, mixed results have been obtained (Maneschiold 2008, Giles &William 2000, Zestos et al., 2002). Other studies proved to support ELGH but with conditions that must precede the hypothesis (Vohra 2001, Akowuse 2002, Henriques & Sadorsky 1999). Though causality between export growth and economic growth has not been conclusive, many studies showed a positive relation and supported ELGH (Were et.al 2002, Jung & Marshal 1985).

Were et al., (2002) carried out a research for the period 1972-1999 using time series data to examine the factors that influenced Kenya's export by disaggregating the exports in to three categories: traditional agricultural goods that is, coffee, tea, and other exports. Real exchange rate, real foreign income and investment were the variables used. They concluded that export performance was greatly affected by the real exchange rate. Investment which is a proportion of GDP was used as a proxy for supply constraints and had significant and positive impact however, non price factors such as, cost of labour, input cost and credit access also played a crucial role in production and supply of exports. The drawback with this study is that mixed results were obtained due to the use of

investment as a proxy for supply constraints, that is, coffee exhibited positive and significant impact on export volumes unlike the exports of other goods and services. The use of this variable as a measure of supply constrain may have been inappropriate.

A long term relationship between economic growth and exports was established by Mohan and Nandwa (2007). They conducted a time series analysis to re-examine the ELGH in Kenya for the period 1970-2004 using the ARDL, VEC, Granger causality tests and Wald restriction methods. They concluded that there existed a unidirectional causality, running from exports to economic growth and recommended that promotional and sustainable export enhancing policies be adopted in Kenya. Similarly, a study carried out by J.Medina-Smith J(2001) analysing the time series data for the period 1950-1997 using the famous Engel Granger two step procedure, Johansen maximum likelihood and ECM ascertained that exports had a significant and positive effect on economic growth in Costa Rica.

Out of the four African countries included in the Jung and Marshal (1985) study, it is only in Kenya where economic growth had a positive role in boosting export growth, that is, Growth led exports (GLE) and not ELG. Afxentios and Serletis (2000) also carried out a similar time series analysis for fifty countries, including Kenya, they examined the possible causal relationship between export and GNP and also GNP and imports. Afxentious and Serletis (2000) found out that exports growth was not an engine of growth in Kenya.

Ngumi et al., (2013) carried out an analysis to determine if manufactured exports influenced economic growth in Kenya. The variables used were manufactured exports, non-manufactured exports, imports and terms of trade. The study period being 1970-2007, causality tests, unit root and co-integration tests were carried out. They concluded that, manufactured exports were not significant in explaining economic growth and thus manufactured exports in Kenya did not granger cause economic growth, however there was bidirectional causality between manufactured exports and imports. The study omitted an important variable that is, private investment which is one of the major drivers of export growth.

According to Musonda (2007) who analyzed time series data for the period 1970-2003 in Zambia using the Johansen and Jeselius procedure, ECM and Wald restriction estimated GDP, real imports, real gross fixed capital formation, skilled and unskilled labour force, real exchange rate, terms of trade and degree of openness, established a bidirectional causality running from exports to economic growth and vice versa. The limitation with this study was that due to unavailability of labour force data, the population data was used as a proxy which may not actually reflect the true data.

Export led growth hypothesis was valid in Jordan according to Husein (2009) who analyzed time series data for the period 1969 to 2005 to determine co-integration and causality of a multivariate framework. The evidence showed that there existed a stable long run equilibrium relationship among real output, real exports and terms of trade. A bidirectional causal relationship was established between export growth and GDP and

recommended promotion of export through the export promotion councils which would enhance economic growth in Jordan.

Seeking to investigate the feasibility of ELG and Growth led Exports using data for the period 1960-1997, Konya (2004), found that, depending on the econometric testing used, the results were varied, in the 25 OECD countries selected, Netherlands exhibited independent causality while Canada and Japan supported Growth led Exports, Export led Growth was evident in Iceland. A bi directional causality was demonstrated in UK and Sweden. This ambiguity could be attributed to the uncertainty of the deterministic trend, that is, the causality test results obtained after using a model with or without a linear time trend were often different.

A study Investigating the export led growth hypothesis for the East Asian countries (Hong Kong, Korea, Taiwan and Singapore) using the co-integration analysis and rolling causality technique was carried out by Tang and Lai (2011). Quarterly data for the period 1960 to 2007 was used. Both bivariate (export and GDP) model and trivariate (export, GDP and exchange rate) model were employed. The study found out that economic growth and exports were co-integrated in all the four economies. The export led growth hypothesis was valid in Singapore and Hong Kong using the bivariate model and bi causality indicated, but the hypothesis was justifiable in all the four countries using the tri-variate model. Uni-directional causality was established running from economic growth to exports in Korea and Taiwan. Darat (1986) also studied on the links between export expansion and economic growth in each of the four East Asian countries namely Singapore, Taiwan, Korea, and Hong Kong. The findings reported that Export led growth

was not supported in all the four countries. The draw back with the Darat (1986) study is that causality test was not carried out thus this inefficiency contributed to the result showing that there existed no evidence of causality from exports to economic growth in all the four countries.

Maneschiold (2008) examined the role of export in the economic process in Argentina, Brazil, and Mexico using causality tests within an error correction framework data for the period 1993 to 2001. Quarterly data for Argentina was used (53 observations), Brazil covered Q1:1991 to Q1:2006 (63 observations) and Mexico covers period from Q1:1980 to Q1:2006 (105 observations). The study found co integration relationship for Argentina and Mexico for the pre-break and post break period after the introduction of NAFTA, but no such relationships for Brazil which exhibited a bi-directional causal relationship running from exports to GDP in the post break period and unidirectional in pre break period. Short run causality test for Brazil revealed unidirectional causality from exports to GDP.

Examining the casual relationship between growth rates, exports, imports and the GDP of Canada and United States, Zestos et al., (2002), found out that there existed a bi-directional causality in Canada from foreign sector to GDP and vice versa; but a weaker relationship existed between foreign sector and GDP in the United States. The vector error correction (VEC) model and Granger causality tests were performed on the time series data for the period 1948-1996. The causality test supported Canada to having a more open economy than the United States and more trade dependent. Unlike this study, Henriques and Sadorsky (1999) found that a one way granger causality relationship

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existed in Canada for the period 1870 to 1991. GDP, Exports and Terms of Trade were the variables used.

Some studies support ELGH but with some conditions that must precede the hypothesis. Vohra (2001) carried out a study on the linkage of export and economic growth in Philippines, Thailand, India, Malaysia, and Pakistan, using time series data for the period 1973 to 1993. Using the production function model and the Feder (1983) framework Vohra (2001), found out that as long as a country has attained some level of economic development, exports would have a positive and significant effect on economic growth. The study signified the importance of liberal market strategies by pursuing export expansion policies which created opportunities for foreign investments. Likewise, Akowuse (2002) examined the ELGH in Canada by testing for granger causality from exports to national output growth using the VECM and AVAR for the quarterly data of 1961:1 to 2000:4.the six variables analyzed were GDP exports, terms of trade, labour, capital and foreign output. Akowuse (2002) found out that the study supported ELG with changes in exports that would precede the changes in real gross domestic product, however, the only drawback is that Akowuse, considered only the data for manufacturing sector employment as a proxy for labour ignoring other sectors.

A comprehensive review of 150 applied papers on ELG from 1963-1998 were analyzed by Giles and Williams (2000). They divided literature in to: cross country correlations, cross sectional and country specific time series. About two thirds of the papers reviewed used time series and among that, 70 of them were on dynamic relationship of exports and economic growth using the granger causality. The results were mixed and had

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contradicting conclusion. The draw back with the research was that combining 150 reviewed literature to come up with a single conclusive finding may not be easy since various variables were used in the 150 papers which is hectic and non conclusive

2.4 OVERVIEW OF THE LITERATURE

From the literature discussed, it is evident that export growth plays an important role in economic growth especially for the developing economies and over the years it has proved to be an important economic development strategy.

Although a number of studies on the export led growth hypothesis have been conducted, literature has failed to strike a consensus on the direction of causality between export growth and economic growth. One group of study found unidirectional causality (Mohan & Nandwa 2007, Jung & Marshal 1985, Fosu 1990) while others found bi directional causality (Musonda 2007) and others independent causality, that is, export growth and economic growth do not granger cause each other (Ahmad & Kwan,1991, Hsiao, 1987, Jin & Yu ,1996, Udude & Okulegu,2012)

Many studies carried out are majorly concerned with the cross-country investigations, these cross-country studies have assumed a common economic structure across the countries studied which is not the case, and nevertheless, countries have different economic and demographic structures. This study utilizes a multivariate framework incorporating important macro economic variables omitted in other studies which used bi-variate models. Aggregation of the exports helps obtain a holistic view of the export sector thus distinguishing this study from the rest of the studies.

Due to the inconclusiveness on the causality between export growth and economic growth, this study seeks to determine the direction of causality in a country specific study, that is, Kenya considering the uniqueness of the Kenya economy which will be a contribution to the existing literature.

CHAPTER THREE

METHODOLOGY

3.0 INTRODUCTION

This chapter outlines the theoretical framework of the study, the model used and Data types and sources. It also gives the definition of the variables used and their expected signs

3.1 THEORETICAL FRAMEWORK

Economic growth is defined as an increase in the productive capacity of a county which is identified by a rise in the National Income. The national income comprises of factors that enhance its increase. Export is one of the important factors in determining the National Income as postulated by the Keynesian theory.

Traditional classical economic theory argues that economic growth is a function of factors of production. The Neo-Classical growth model pioneered by R. Solow (1956) is regarded as the first major economic growth model. Its foundation is based on earlier work done by Harrod and Domar in the 1930's and 40's. The model follows a Cobb-Douglas production function and suggests output to be a function of labour, capital and technology and therefore this study adopts this production function conceptual framework and borrows from Al-Yousif (1999) to analyze the causality between export growth and economic growth.

The following basic production function was used:

$$Y = f(K, L) \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots (1)$$

Where Y represents output, K is capital and L is labour. This implies that capital and labour are necessary factors of economic production through increased productivity.

From the production function in equation 1, aggregate output is not only a function of labour and capital as factors of production but also incorporates export in to the production function as follows:

$Y = f (K, L, X)$…………………………………………………………………… (2)

According to Riezman et al. (1996), import is a very valuable variable since its omission would result in to a spurious regression because imports are used as inputs in the production of export goods hence this variable is included in the model.

The exchange rate being an important variable in foreign trade is adopted in to the model to check for the impact of price competitiveness in the external market and its effect on economic growth through export growth channel (Al-Yousif 1999, Keong et al.2005).

Terms of trade which is taken as the ratio of price of exports to price of imports is incorporated. According to Broda (2003) an increase in the terms of trade encourages accumulation of factors of production and prolonged effects on a country's economic growth.

By augmenting equation 2 to include other variables that are not accounted for in equation 2, hence the following function is adopted:

$Y = f (K, L, X, M, R, T)$………………………………………………….…….. (3)

Where; X is exports, M is Imports, R is real exchange rate, T is terms of trade.

3.2 EMPIRICAL MODEL

The functional form of the linear model estimated is as follows:

GDP = f (K, L, X, M, R, T)…………………………………………………..…… (4)

Where;

GDP represents real gross domestic product, K represents capital where real gross fixed capital formation is used as a proxy, L represents labour force, X represents the real exports, M represents real Imports, R represents real exchange rate, T represent the terms of trade.

Since the effects of the independent variables on the dependent variable (GDP) are unlikely to be linear, the specific Cobb-Douglas production function estimated takes the following form:

$GDP = A\ K^{\beta 1}\ L^{\beta 2}\ X^{\beta 3}\ M^{\beta 4}\ R^{\beta 5}\ T^{\beta 6}$…………….…………………….……… (5)

Where; A is the intercept

Equation 5 is linearized by taking logarithms on both sides (double- log) as illustrated on equation 6. The variables are in logarithms hence the estimated parameters interpreted as elasticities

$lnGDP = \beta_0 + \beta_1 lnK + \beta_2 lnL + \beta_3 lnX - \beta_4 lnM + \beta_5 lnR + \beta_6 lnT + \varepsilon$ …………….……..(6)

Where; $\beta 0$, is a constant term (ln A), $\beta 1$, $\beta 2$, $\beta 3$, $\beta 4$, $\beta 5$, $\beta 6$ are parameters representing elasticities of the respective independent variables. ε is the error term.

3.3 VARIABLE DEFINITION AND DESCRIPTION.

Gross Domestic Product is used as a measure of the national output, that is, proxy variable representing Economic growth in Kenya, the real GDP data is used to control for inflation or changes in relative price. This variable is taken as the dependent variable.

Labour force is an important factor of production and it is considered to play a vital role in the export–growth relationship. It is defined in this study as people of age 15 to 64 who are employed, unemployed and the first time job seekers. A positive relation is expected since through specialization, a skilled and growing labour force allows for economic growth.

Capital is an important factor of production hence incorporation of this variable. The gross fixed capital formation data is used as a proxy for this variable. More efficient use of capital which is a form of investment would lead to more output and thus economic growth, therefore a positive relation is expected.

Export is also an important variable since it represents the value of all goods and services provided to the rest of the world. The exports include agricultural products, raw material products and manufactured exports. Export growth would help earn foreign exchange therefore facilitating import of capital good thus faster growth therefore a positive relation is expected.

Import is taken as a variable in this model. It is defined as the value of all goods and services imported. Riezman et.al (1996) omission of import as a variable can lead to spurious conclusions since imported capital goods are inputs for export and domestic

production. A negative relation is expected because imports deplete the foreign reserve thus slowing down economic growth.

Real Exchange Rate was adapted in to the model to check for the impact of price competitiveness in the world market; it evaluates the chance for the Kenyan exports to compete with other international products. It is expected that depreciation in the Kenyan shilling will raise the competitiveness of the domestic goods which will increase exports in the country hence overall increase in the economy hence a positive relation is expected.

Terms of Trade is defined as the ratio of export price index to import price index for all items. This variable is important because it's a measure of the country's competitiveness. It is suggested that an increase in the terms of trade may encourage factor accumulation and prolonged effects on a country's economic growth thus a positive relation is expected.

3.4 DATA TYPE AND SOURCES

The study used time series data for the period 1980-2011, the choice of the period was determined by the availability of data. The basic data for analysis were the gross domestic product (GDP) used as a measure of economic growth, Labour force, real export, real import, Real exchange rate, terms of trade and gross fixed capital formation, a proxy of the capital stock .

The data was obtained from secondary sources that is, various economic surveys and statistical abstracts (KNBS) and World Development Indicators from World Bank and the Penny table.

3.5 ESTIMATION TEST.

The regression results were based on time series data for the period 1980-2011, (31 years). Ordinary least square method (OLS) was used for estimation purpose. The OLS method was adopted since it gave the best unbiased estimators and it is easy to use with this kind of data (time series).

3.6 UNIT ROOT TEST- DICKEY FULLER TEST

Time series data is mostly subjected to non-stationarity. Non stationarity is a problem because if not addressed, spurious regression can be obtained which may cause policy implication problems. A stationary series has no unit root, hence it is integrated of order zero i.e. 1(0) and does not require differencing and has no estimation problem. Non stationary series will have to be made stationary by differencing before running a regression. A series is said to be integrated of order (d), i.e. if after differencing d times it becomes a stationary series (Engel and Granger 1987), differencing can be done as many times to make the series stationary.

The unit root test is based on the hypothesis of the existence of a unit root ($H_O=1$) against the alternative hypothesis of stationarity /no unit root ($H_O \neq 1$).

The Augmented Dickey –Fuller (ADF) test is the appropriate test to ascertain whether the data contains a unit root. This test relies on rejecting a null hypothesis of unit root in favour of the alternative hypothesis of stationarity.

3.7 CO-INTEGRATION ANALYSIS

Co integration means that despite data being individually non stationary, a linear combination of two or more time series can be stationary and this suggest that there is a long run equilibrium relationship between them (Gujarati, 1995) Engel and Granger (1987) say that a non stationary time series is integrated of order (d), or I (d) if after differenced d times it becomes a stationary series. The null hypothesis that the series is not cointegrated against the alternative hypothesis that the series is cointegrated. If the series is co integrated, modeling of the long run relationship among the variables is necessary. The Error Correction Model is used to reconcile the static long run equilibrium relationship of co integration time series with its dynamic short run equilibrium.

3.8 GRANGER CAUSALITY TEST

The granger causality test aims at finding out whether variable A, granger causes variable B, or vice versa. According to Granger (1969) a variable (in this case export) is said to granger cause another variable (GDP) if past and present values help predict GDP. The Granger causality test for all the variables in the model was applied assuming bi-directional relationship. In this test, there are three possible situations: there could be a unidirectional causality that is, from Exports to Growth or Growth to Exports, a bi-directional causality meaning both Exports and Growth determine each other, and finally, there can be independent causality, meaning that Exports and Growth do not determine each other.

3.9 DIAGNOSTIC TESTS

The Ramsey Regression Error specification Test (RESET) for model stability and auto correlation (Breusch Godfrey) test were used. These tests were used to check whether the model is correctly specified, that is, if errors of measurement exist, omission of a relevant variable or including irrelevant variable or wrong functional form etc. the aim was to ensure that the inferences made are valid and efficient.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION OF EMPIRICAL RESULTS

4.0 INTRODUCTION

This chapter analyses the data and discusses the results obtained. The objective of this research paper was to determine the direction of causality between export growth and economic growth which was achieved through the various tests that were carried out to ensure that the inferences made were correct.

4.1 DESCRIPTIVE STATISTICS

The descriptive statistics give summaries about the data used. The mean, median and standard deviation, maximum and minimum statistics were evaluated to check on the normal distribution of variables. Kurtosis and skewness were also measured.

Table 3 gives the descriptive statistics

Table 3: Descriptive Statistics

Variable	Mean	Std.dev.	Minimum	Maximum	Skewness	Kurtosis	JB
LnGDP	23.382	0.297	22.891	23.923	-0.7312	3.194	0.268
Lnexport	21.963	0.409	21.356	22.692	0.187	2.990	0.919
ln capital	21.583	0.457	20.995	22.586	0.256	2.834	0.839
Lnimport	22.053	0.641	21.028	23.196	0.044	1.905	0.482
ln rer	3.637	0.779	2.004	4.371	0.760	3.195	0.242
Lnlabour	16.436	0.339	15.850	16.944	0.198	2.541	0.801
ln tot	4.468	0.123	4.262	4.004	0.017	2.511	0.865

Source: own computation using stata

The average GDP was 23.382 while the minimum being 22.891, the maximum was 23.923 with a standard deviation of 0.297. GDP was skewed to the left with normal distributed residuals.

Skewness is a measure of symmetry or the lack of it. For a normal distribution, the value of skewness is zero. Any negative value for the skewness indicate that the data is skewed to the left and the left tail is long relative to the right, while positive values indicate that the data is skewed to the right and the tail is long relative to the left. In this test only GDP had a negative value, that is, -0.7312 meaning that GDP was skewed to the left while the other variables data shows that they were skewed to the right.

The kurtosis is a measure of the peakedness or flatness of the data relative to normal distribution. High kurtosis data tend to have a distinct peak near the mean and have heavy tails. Low kurtosis data tend to have a flat top near the mean rather than a sharp peak and implies a negative kurtosis. For a normal distribution, the value of kurtosis is 3 or near 3. In the test carried out the data showed that import had a very low kurtosis of 1.905 indicating that it was flat topped. The other variables had a kurtosis of 3 or near 3 which is desirable.

Normality test was also carried out because it is important for the error term to be normally distributed for inference purpose. The Jarque- Bera test's null hypothesis is that the residuals are not normally distributed, while the alternative hypothesis is that the residuals are normally distributed (Gujarati 1995). From the table 3, it is clear that the residuals are normally distributed since the Jarque- Bera p value is greater than 0.05(5%

confidence level) then the null hypothesis of residuals not normally distributed is reject

and accept the alternative that residuals are normally distributed.

4.2 UNIT ROOT TEST.

Before testing for causal relationship between economic growth and export, the first step

is to check if the time series data is stationary. This is done by the use of the augmented

dickey fuller test. The aim of this test is to establish if the time series data has a stationary

trend and if not (non-stationary) establish the order of integration, by doing this, chances

of obtaining spurious regression and erroneous inference are minimized. The test results

are reported on table 4 and 5.

Table 4: unit root test at level

Variable	ADF Test Statistic	Mackinon P value	Comment	Order
Ln Gdp	-0.001	0.9584****	Nonstationary	I(1)
Ln Export	-0.127	0.9467****	Nonstationary	I(1)
Ln capital	0.843	0.9923****	Nonstationary	I(1)
Ln Import	0.248	0.9748****	Nonstationary	I(1)
Ln RER	-2.290	0.1751****	Nonstationary	I(1)
Ln Labour	-2.905	0.0447**	stationary	I(0)
Ln ToT	-2.081	0.2524****	Nonstationary	I(1)

Source: own computation using stata

,** indicate statistical significance at 5% and not statistically significant respectively

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Table 5: Unit Root Test at First Differencing

Variable	ADF Test Statistic	Mackinon P value	Comment	Order
ln Gdp	-3.053	0.0302**	stationary	I(1)
ln Export	-5.867	0.0000*	stationary	I(1)
ln capital	-3.511	0.0077*	stationary	I(1)
ln Import	-3.751	0.0035*	stationary	I(1)
ln RER	-4.392	0.0003*	stationary	I(1)
ln ToT	-7.824	0.0000*	stationary	I(1)

Source: own computation using stata

*, ** indicate statistical significance at 1 and 5 percent respectively.

Table 4 and 5, show that all the variables were integrated of order one I(1) except labour which was stationary at levels I(0). The level of integration indicates the number of times the series has to be differenced before they are stationary. For a series to be termed stationary, the ADF test statistic has to be to be greater than the critical values of 1%, 5% and 10%, or the Mackinnon p value less than 0.05 using 5% critical value which was used in this test.

4.3 COINTEGRATION TEST

The co-integration test was used to establish if there exists a linear long run economic relationship among variables. The co integration test was carried out on the non stationary variables, that is, at level since inducing stationarity by differencing leads to loss of long run information.

Table 6:   JOHANSEN TESTS FOR COINTEGRATION

Maximum rank	Eigen value	Trace statistic	5% critical value
0	.	255.5165	124.24
1	0.97659	142.8794	94.15
2	0.79372	95.5237	68.52
3	0.66901	62.3538	47.21
4	0.57851	36.4353	29.68
5	0.53045	13.7561*	15.41
6	0.30895	2.6696	3.76
7	0.08514		

Source: own computation using stata

The Johansen test for co integration test was employed to determine whether a linear combination of the variables exhibited a long run, or equilibrium, relationship among them. The Eigen values from table 6 were significantly greater than zero hence the null hypothesis of no co integration among the variables is rejected. The test showed that long run equilibrium relationship existed and there were at least five co integrating equations at 5% significance level as evident from the trace statistic.

4.4 GRANGER CAUSALITY TEST

The aim of the granger causality was to determine what caused the other. The aim of the study was to establish if exports growth granger caused economic growth or economic growth granger caused export growth and also the causality among the other variables for the period 1980 to 2011. This test was performed by first estimating the VAR process of the variables. The results of the granger causality are reported on table 7. Refer to appendix II for Full results on the test.

Table 7: GRANGER CAUSALITY TEST

Variable	exclude	Chi2	Prob
D1lngdp	D1lnexport	8.0309	0.018
D1lngdp	D1lngfcf	3.176	0.204
D1lngdp	D1lnimport	10.755	0.005
D1lngdp	D1lnrer	3.1608	0.206
D1lngdp	D1lntot	0.80116	0.670
D1lngdp	lnlabour	14.862	0.001
D1lnexport	D1lngdp	2.2535	0.324
D1lngfcf	lnlabour	7.4538	0.024
Lnlabour	D1lngfcf	0.23065	0.891
D1lngfcf	D1lnimport	2.3398	0.310
D1lnimport	D1lngfcf	6.2901	0.043
D1lnexport	D1lnrer	0.08256	0.960
D1lnrer	D1lnexport	7.9764	0.019
D1lnimport	D1lnrer	0.85051	0.654
D1lnrer	D1lnimport	10.455	0.005
D1lnrer	lnlabour	24.828	0.000
Lnlabour	D1lnrer	0.88828	0.641

Source: own computation using stata

If the p values are less than 0.05 then we reject the hypothesis using the 5% confidence level but if it is greater than, then we do not reject the hypothesis. From table 7 we can reject the null hypothesis that export does not granger cause GDP but we cannot reject that GDP does not granger cause export. Therefore, there is a unidirectional causality flowing from exports to GDP in Kenya, this is in support of ELGH. This is consistent to earlier studies carried out on ELGH in Kenya, like that of Mohan and Nandwa (2007) and also J.Medina-Smith J (2001) among many others that supported ELGH.

Independent causality between GDP and capital proxied by Gfcf was identified. We can reject that import does not granger cause GDP but cannot do the same on GDP granger causing import thus a unidirectional causality from import to GDP. There is also an independent causality between GDP and RER, GDP and TOT. A unidirectional causality flowing from labour to GDP is also evident. There is a one way causality flowing from capital to imports while the other variables that is export, RER, TOT and labour do not granger cause imports. Capital and terms of trade do not granger cause RER unlike export, import and labour which do granger cause real exchange rate. There exists a unidirectional causality from RER to TOT.

4.5 AUTO CORRELATION

Auto correlation is held to occur most frequently when using time series data. It is also referred to as serial correlation. With time series data, there may be a tendency for random shocks or disturbance to 'spill over' from one time period to another hence detecting auto correlation is important so that correct inference is made and for OLS to be the Best Linear Unbiased Estimator (Thomas R.L.1996). With autocorrelation present OLS is still linear, unbiased as well as consistent but are no longer efficient that is no minimum variance (Gujarati 1995)

Table 8: Auto correlation test

Lags(p)	Chi2	df	Prob > chi2
1	1.884	1	0.1699

Source: own computation using stata

Table 8 indicates the auto correlation test that was carried out using the Breusch Godfrey test. The test was carried out to establish if there existed a correlation of the series across periods. The null hypothesis of no serial correlation against the alternative hypothesis of serial correlation, (H0: no serial correlation, HA: serial correlation) was tested. From table 8, we cannot reject the null hypothesis meaning that we rather accept it that the whole system model has no serial correlation.

4.6 RAMSEY REGRESSION ERROR SPECIFICATION TEST (RESET)

The Ramsey regression error specification test is a general test for misspecification, used to test for inclusion of irrelevant variable or exclusion of relevant variables. The null hypothesis is that the model has no omitted variables, against the alternative of the model has omitted variables. Rejection of the null hypothesis is if the p value is less than 0.05 (5% confidence level). From table 9, we cannot reject the null hypothesis that the model has no omitted variables hence the model is correctly specified.

Table 9: Ramsey RESET Test

f-statistic	1.65
P value	0.2130

Source: own computation using stata

4.7 TEST FOR HETEROSKEDASTICITY

OLS assumes that the disturbance term has a constant variance (homoskedastic) but when this is violated the problem of heteroskedastic arises. However, it is equally important to test for this problem since failing to do so may lead to wrongful inferences being made.

Table 10. Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

chi2(1)	0.32
Prob > chi2	0.5719

Own computation using stata

Table 10 shows the results obtained after carrying out a Breusch pagan/ Cook-Weisberg test for heteroskedasticity. The test revealed that the problem of heteroskedasticity is not present. The null hypothesis of Constant variance against the alternative of no constant variance (Ho: Constant variance, HA: No constant variance) cannot be rejected.

4.8 DISCUSSION OF THE RESULTS

A relationship between economic growth and the other variables that is, export, capital, import, Real Exchange Rate, terms of trade and labour was established. Table 11 shows the relationship among the variables using stationary data.

4.8.1 Regression of Stationary Data

Table 11: Regression of Stationary Data

Variable	Coefficient	SE	T statistic	P value
D1 ln Export	0.1255296	0.0383181	3.28	0.003
D1 ln capital	0.1289026	0.0365804	3.52	0.002
D1 ln Import	-0.0197802	0.0275902	-0.72	0.480
D1 ln RER	-0.1236887	0.0250477	-4.94	0.000
D1ln TOT	-0.0081683	0.024217	-0.34	0.739
Lnlabour	-0.0321807	0.009063	-3.55	0.002
Const	0.5624466	0.149163	3.77	0.001
N 30				
F 9.56				
Prob 0.0000				
R^2 0.7050				
ADR^2 0.6313				

Source: own computation using stata

From table 11, export is significant in explaining the changes in GDP and demonstrates the expected sign. On average a 1% increase in exports would lead to 0.1255296% increase in GDP.

Capital is also statistically significant in explaining the changes in GDP. This variable exhibited the expected sign which is a positive sign. A 1% increase in capital would lead to 0.1289% increase in GDP hence capital contributed positively to economic growth.

Import demonstrated the expected sign though not statistically significant in explaining changes in GDP. However, 1% increase in imports would lead to a 0.0197% decrease in GDP. This implies that imports do not contribute to economic growth in Kenya

Real exchange rate is a significant variable in explaining the changes in economic growth where 1% appreciation in the Kenyan shilling will lead to a 0.1236887% decrease in economic growth (GDP), this is so because Kenyan exports become very expensive compared to the other country's due to currency appreciation thus slowing down exports and in turn economic growth (GDP)

Worth noting is that Labour demonstrates unexpected sign though it is statistically significant in explaining changes in GDP. It was found that 1% increase in labour led to a 0.0321807% decrease in GDP. The unexpected sign could be attributed to the fact that most of the exports in Kenya are primary products and the industry is majorly labour intensive thus slowing down economic growth.

4.8.2 Long Run Relationship

From the tests carried out, it was established that there existed a long run relationship among the variables. Table 12 shows the long run relationship between the dependent and independent variables.

Table12: Long Run Relationship

Variable	Coefficient	SE	T statistic	P value
ln Export	0.207	0.055	3.76	0.001
ln capital	0.018	0.087	0.22	0.830
ln Import	-0.054	0.061	-0.90	0.378
ln RER	-0.135	0.049	-2.76	0.011
ln Labour	0.993	0.151	6.59	0.000
LnTOT	0.010	0.057	0.18	0.856
Const	3.7379	1.559	2.40	0.024
N 32				
F 494.55				
R^2 0.991				
AdR^2 0.989				
P 0.000				

Source: own computation using stata

From the long run relationship, the following equation was established;

GDP= 3.737 +0.207export +0.0188capital - 0.0548import - 0.1357RER +0.9935Labour +0.0104TOT. …………………………………………………………………..7

Where, GDP is the dependent variable.

From equation 7, the average level of GDP in Kenya is 3.737. The positive sign indicate that the proportion of GDP in Kenya tends to increase ceteris paribus in the long run.

Looking at the t-statistics, export is significant in explaining the changes in GDP. A 1% increase in exports will lead to 0.207% increase in economic growth in Kenya. This means that exports contributed positively to economic growth.

The impact of import on economic growth is negative and insignificant, this could be attributed to the fact that an increase in imports would lead to a reduction in the foreign exchange reserve, thereby economic growth slowdown.

A 1% appreciation in the Kenyan shilling would lead to a 0.135% decrease in economic growth this is so because currency appreciation would lead to exports being dearer in the international market thus slowing down exports growth and in turn economic growth. This variable is statistically significant in explaining changes in economic growth.

Terms of trade is not statistically significant in explaining the changes in GDP though this variable exhibited a positive sign which was expected. From the coefficient, a 1% increase in Tot would lead to 0.010% increase in GDP.

Labour also demonstrated the expected sign and it was statistically significant in explaining changes in economic growth. A 1% increase in labour would lead to a 0.993% increase in GDP.

4.8.3 ERROR CORRECTON MODEL

In order to absolve the short run dynamics of the relationship, the granger representation theorem states that a negative and statistically significant error correction coefficient is a necessary condition in the model. In this case the error correction term is -0.6555946 while the statistical significance of 3.11 using the t statistic satisfies the second condition. The coefficient reveal the speed of adjustment between the short run and long run towards equilibrium. All terms in the ECM are stationary.

Table 13: Short Run relationship

Variable	Coefficient	SE	T statistic	P value
D1 ln Export	0.1017243	0.0324369	3.14	0.005
D1 ln capital	0.047989	0.0420738	1.14	0.267
D1 ln Import	0.0558318	0.0347031	1.61	0.123
D1 ln RER	-0.1255234	0.0215228	-5.83	0.000
ln labour	-0.0280156	0.0081601	-3.43	0.002
D1ln TOT	-0.0249307	0.0226028	-1.10	0.283
L1D1lngdp	0.4772781	0.139684	3.42	0.003
L1 Resid	-0.6555946	0.2106598	-3.11	0.005
Const	0.4777591	0.13496	3.54	0.002
N 30				
F 12.13				
R^2 0.8221				
ADR^2 0.7544				
P 0.0000				

Source: own computation using stata

Table 13 shows that the error correction term is negative and significant. The term reflects attempts to correct deviations from the long run relationship. The coefficient is interpreted as the speed of adjustment or the amount of equilibrium transmitted each year to economic growth. From the table, the coefficient shows that the speed of adjustment between the long run and short run relationship is 0.656, meaning that the speed of adjustment towards equilibrium is at the rate of 65.6% towards long run equilibrium.

The R^2 of 0.8221 indicates that the model satisfies the goodness of fit requirement. The value shows that 82.21% of the total variations in economic growth (GDP) are explained by the independent variables. The F statistics of 12.13 indicate that jointly, the

independent variables are statistically significant in explaining the variation in economic growth (GDP).

The test statistics indicate that export is significant in explaining the variations in the GDP in the short run. A 1% increase in exports leads to 0.1017% increase in GDP.

Capital is not statistically significant in explaining the change in GDP though this variable exhibits the expected sign that is a positive sign. The coefficient can be interpreted as a 1% increase in capital leads to 0.047989% increase in GDP.

Labour exhibits a negative coefficient which goes against our priori expectation. 1% increase in labour leads to a 0.0280% decrease in GDP. The negative coefficient can be attributed to labour intensive kind of production mostly attributed to primary goods production where resources are used on the huge number of labour force in terms of wages and other labour force related expenses hence contributing negatively to economic growth.

A 1% appreciation in the Kenyan shilling leads to a 0.1255% decrease in economic growth (GDP), this is so because exports become expensive when currency appreciates leading to few exports and more imports thus negatively affecting economic growth. The variable is statistically significant in explaining economic growth in Kenya.

Terms of trade also exhibited a negative coefficient despite being insignificant in explain changes in economic growth. This negativity (unfavorable TOT) is against the priori expectation but can be explained that a country competitiveness declines with appreciation of its currency (as demonstrated by RER) and economic growth is on a slow rate. Another possible explanation for unfavorable TOT is that, Kenya being a developing country that

rely on primary commodity, has little leverage over her export prices since the world market dictates the price of export thus making Kenya as a price taker.

Imports is another variable that shows unexpected sign, the variable shows a positive relation instead of a negative one, this is due to the fact that most of the imports are used as inputs in the production of export goods hence the positive relationship in the short run. A 1% increase in import led to 0.05583% increase in GDP.

CHAPTER FIVE

SUMMARY, CONCLUSION AND POLICY SUGGESTIONS

5.0 INTRODUCTION

This chapter gives the summary, conclusion and policy recommendations. For economic growth to be achieved, policy implementation should play a vital role.

5.1 SUMMARY AND CONCLUSION

The aim of this research work was to examine the export led growth hypothesis in Kenya and also determine the direction of causality. This was achieved by use of macroeconomic variables like GDP, export, capital, import, real exchange rate, terms of trade and labour force for the period 1980 to 2011 using the Cobb- Douglas estimation model. Several econometrics techniques were employed to achieve the intended objectives. The stationarity tests which proved that all variables except labour were integrated of order one, I (1). Co integration tests using the Johansen co integration test was carried out and proved that there were at least five co integrating equations at 5% significance level. The error correction model showed that that the speed of adjustment towards equilibrium was at the rate of 65.6% towards long run equilibrium.

The exports were statistically significant and had a positive relation with economic growth; this implied that exports contributed positively to economic growth. Real exchange rate was also significant in explaining the changes in economic growth hence the inverse relation considered and therefore currency stability ought to be maintained. Another variable that exhibited positive and significant relations with economic growth is

labour. This implied that in the long run labour was important in determining economic growth in Kenya.

The findings, revealed that export led growth hypothesis is supported in Kenya and so Kenya has to curve a niche in the international market. This could be done by ensuring that her exports are of high quality, affordable and diverse. Embracing technology, improving on infrastructure and factors of production, promotion of her products and offering incentives to manufacturers of export goods could also serve as avenues to ensure export growth and consequently economic growth in Kenya.

5.2 POLICY RECOMMENDATIONS

From the findings of the research where exports were deemed important in economic growth, proper planning and adoption of strategies that would enhance export growth are recommended.

In the bid to achieve economic growth, diversification of export commodities must be looked in to. It is clear that Kenyan exports are mostly primary agricultural products and the revenue obtained is not substantial in making any meaningful economic growth yet we see that the export growth can lead to economic growth in Kenya; hence diversification of the export products is highly recommended.

Value addition to the primary goods exported can also be used as a strategy to enhance economic growth. Some of the products produced in Kenya are exported as raw materials and later imported as finished products or refined products, Kenya can take advantage of this through industrialization and add value on their products before exporting them.

The other important aspect observed from the research carried out is that real exchange rate is very important in both economic growth and exports growth. Real exchange rate does not granger cause exports but exports do granger cause real exchange rates. Real exchange rate has an inverse relation to GDP, hence it is important to maintain currency stability. Appreciation of the currency would make the export more expensive and thus lower the revenue obtained. This would lead to a decrease in the economic growth since the foreign reserve would be depleted in obtaining imports.

The other important factor that has an impact on GDP is the labour force, in the long run; labour has a positive impact on the GDP. With this, efficiency has to be enhanced by improving the kind of labour force in the country, this would intern improve the export and overall economic growth would be achieved.

Improved infrastructure and technology can also help in acceleration of export growth and therefore lead to economic growth. Technology is very necessary in ensuring that export goods are of the highest quality and good infrastructure would ensure more production and market access.

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APPENDIX I

DATA USED

YEAR	GDP	EXPORT	CAPITAL	IMPORT	RER	LABOUR	TOT
1980	8740219572	1965981315	1827293942	2509894891	7.420187499	7645747	89
1981	9070035621	1883663101	1916160932	1981905940	9.047498333	7943075	105
1982	9206673736	1943569146	1529602234	1662289909	10.922325	8254508	100
1983	9327193720	1899165589	1377904278	1356490750	13.31151667	8580465	94
1984	9490906209	1915775399	1352320073	1598854163	14.413875	8921341	110
1985	9899068497	2044468201	1313153084	1484992599	16.43211667	9277696	92
1986	10609579622	2244250986	1496478313	1735129032	16.22574167	9648370	103
1987	11239481763	2250075493	1639026951	1965668234	16.45449167	10033924	85
1988	11936687476	2353742849	1620276497	2143113758	17.7471	10438513	88
1989	12496559752	2575184826	1694544111	2352441837	20.57246667	10867652	79
1990	13020421906	3155642293	1708776384	2431917670	22.91476667	11324513	71
1991	13207700727	3116443143	1761526157	2322897775	27.50786667	11811542	82
1992	13102105956	3092148529	1582069621	2268503105	32.21683333	12325489	79
1993	13148382236	4066812135	1729588259	3035594754	58.00133333	12856841	90
1994	13494550809	4019817448	1906249170	3546242626	56.050575	13392520	101
1995	14089149936	3711849439	2067181161	4166536187	51.42983333	13923196	96
1996	14673404337	3881070175	2196288208	4242389002	57.11486667	14444305	93
1997	14743088617	3467907708	2264812477	4690096176	58.73184167	14958468	102
1998	15228167742	3298523006	2448070601	4909624913	60.3667	15472247	100
1999	15579236184	3604633268	2429538881	4837004881	70.32621667	15995777	86
2000	15672664146	3645545259	2630243319	4929801873	76.17554167	16535972	84
2001	16265076196	3777054079	2955913167	5889612226	78.563195	17095884	79
2002	16354023315	4045791682	2774985474	5224913334	78.74914167	17671955	78
2003	16833601049	4337576876	2554312747	5221695236	75.93556944	18256704	81
2004	17692838510	4883892023	2741673070	5863748257	79.17387606	18839442	77
2005	18737895401	5341992261	3503820003	6739990236	75.55410945	19413059	72
2006	19924122755	5505690549	4153451778	7940476823	72.10083502	19975349	72
2007	21317473473	5871701065	4717639713	8818472580	67.31763812	20530594	75.5
2008	21642980382	6294391212	5167843998	9404013084	77.71	21086158	76.2
2009	22234961889	5708388582	5311724212	9667164921	75.82	21652581	100
2010	23516785868	6716594910	5721864227	10252313804	73.10425255	22237983	88.1
2011	24545864807	7164597150	6439924500	11849596923	72.67325525	22845000	84.1

APPENDIX II

GRANGER CAUSALITY TEST

Variable	exclude	Chi2	Prob
D1lngdp	D1lnexport	8.0309	0.018
D1lngdp	D1lngfcf	3.176	0.204
D1lngdp	D1lnimport	10.755	0.005
D1lngdp	D1lnrer	3.1608	0.206
D1lngdp	D1lntot	0.80116	0.670
D1lngdp	lnlabour	14.862	0.001
D1lnexport	D1lngdp	2.2535	0.324
D1lnexport	D1lngfcf	3.2258	0.199
D1lnexport	D1lnimport	1.5265	0.466
D1lnexport	D1lnrer	0.08256	0.960
D1lnexport	D1lntot	0.89652	0.639
D1lnexport	lnlabour	2.3748	0.305
D1lnexport	ALL	9.0433	0.699
D1lngfcf	D1lngdp	2.845	0.241
D1lngfcf	D1lnexport	0.67323	0.714
D1lngfcf	D1lnimport	2.3398	0.310
D1lngfcf	D1lnrer	1.6215	0.445
D1lngfcf	D1lntot	2.3005	0.317
D1lngfcf	lnlabour	7.4538	0.024
D1lngfcf	ALL	14.595	0.264
D1lnimport	D1lngdp	1.3514	0.509
D1lnimport	D1lnexport	0.67678	0.713
D1lnimport	D1lngfcf	6.2901	0.043
D1lnimport	D1lnrer	0.85051	0.654

D1lnimport	D1lntot	0.60095	0.740
D1lnimport	lnlabour	3.0038	0.223
D1lnimport	ALL	12.318	0.420
D1lnrer	D1lngdp	5.557	0.062
D1lnrer	D1lnexport	7.9764	0.019
D1lnrer	D1lngfcf	1.0556	0.590
D1lnrer	D1lnimport	10.455	0.005
D1lnrer	D1lntot	1.1721	0.557
D1lnrer	lnlabour	24.828	0.000
D1lnrer	ALL	55.068	0.000
D1lntot	D1lngdp	3.3791	0.185
D1lntot	D1lnexport	4.1645	0.125
D1lntot	D1lngfcf	0.50147	0.778
D1lntot	D1lnimport	2.5958	0.273
D1lntot	D1lnrer	5.6608	0.059
D1lntot	lnlabour	0.96431	0.617
D1lntot	ALL	30.62	0.002
Lnlabour	D1lngdp	1.4307	0.489
Lnlabour	D1lnexport	0.18718	0.911
Lnlabour	D1lngfcf	0.23065	0.891
Lnlabour	D1lnimport	0.34519	0.841
Lnlabour	D1lnrer	0.88828	0.641
Lnlabour	lntot	0.86014	0.650
Lnlabour	ALL	7.6378	0.813