UNIVERSITY OF GHANA

EXPORTS AND ECONOMIC GROWTH: THE CASE OF GHANA
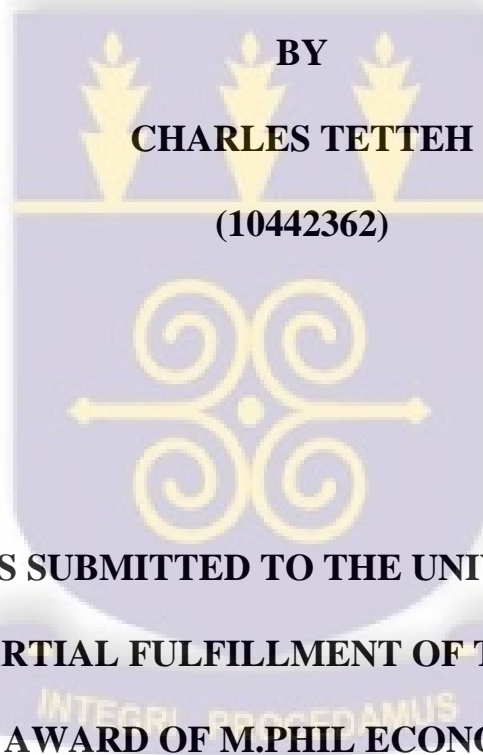
BY

CHARLES TETTEH

(10442362)

THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA,

LEGON IN PARTIAL FULFILLMENT OF THE REQUIREMENT

FOR THE AWARD OF M.PHIL ECONOMICS DEGREE.

JULY, 2015

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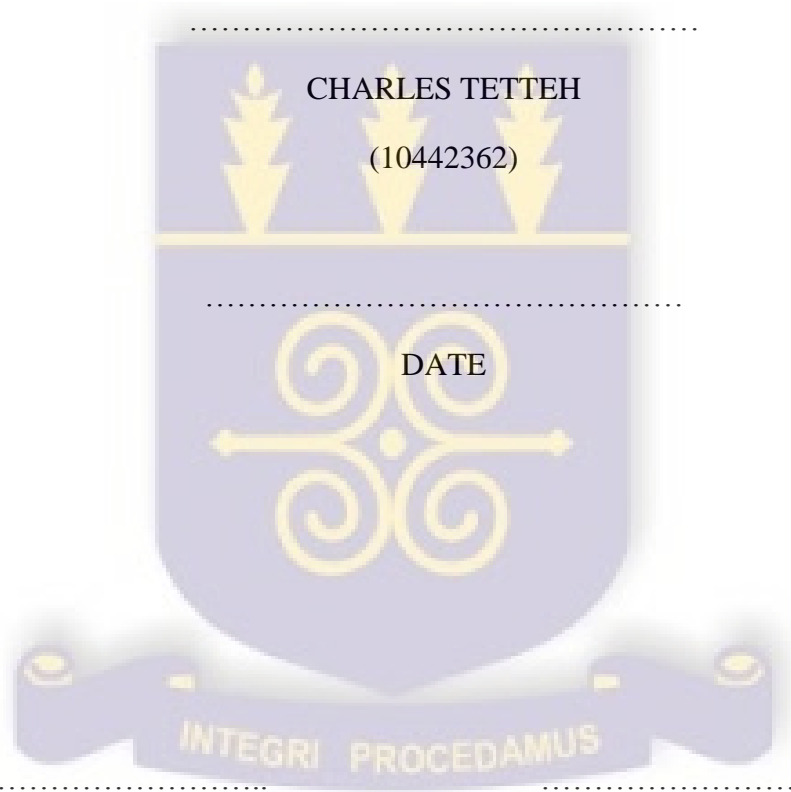**THIS THESIS IS SUBMITTED TO THE UNIVERSITY OF GHANA,**

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DECLARATION

I hereby declare that this thesis is the result of my own original work and that no part of it

has been presented for another degree in this university or elsewhere.

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CHARLES TETTEH

(10442362)

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DATE

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PROF. AUGUSTIN K. FOSU   DR. EMMANUEL CODJOE

(SUPERVISOR)   (SUPERVISOR)

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i

ABSTRACT

The study examined the impact of exports on economic growth in Ghana using annual data for the period 1980 to 2013. Applying popular time series econometric techniques of cointegration and vector error correction estimation, the study sought to explore long-run and short-run relationships between exports and gross domestic product (GDP). The Johansen's cointegration test revealed the existence of long-run relationships between real GDP, exports, gross capital formation and labour in Ghana. There was also evidence of bi-directional causality between exports and GDP growth using Granger causality test.

The study found that in both the short-run and long-run, real exports and gross capital formation had positive impacts on real GDP. Labour had a negative effect on GDP in the long-run, but it was positively related to real GDP growth in its immediate past year of the short-run. All variables were statistically significant at the 5% significance level in the long-run. The speed of adjustment toward the long-run equilibrium was about 83.5 percent, suggesting that the adjustment is rather rapid.

Based on the results, the study recommends that policy makers should focus on maintaining an open and export oriented policy in order to ensure growth in the economy and also to adequately promote economic growth for export expansion.

ii

ACKNOWLEDGMENT

DEDICATION

This thesis is affectionately dedicated to my parents: Mr. Cephas KwaokumaTetteh and Mrs. Faustina Nyimingor Tetteh for their care, love and immeasurable sacrifices that have facilitated my spiritual and personal development in life.

iv

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

ADF	Augmented Dickey-Fuller
AIC	Akaike Information Criterion
ARDL	Auto Regressive Distributed Lag
ARMA	Autoregressive Moving Average
CUSUM	Cumulative Sum of Recursive Residuals
CUSUMSQ	Cumulative Sum of Squares of Recursive Residuals
DOTS	Data on Trade and Statistics
ECM	Error Correction Model
ECT	Error Correction Term
ELGH	Export-Led Growth Hypothesis
ERP	Economic Recovery Programme
EU	European Union
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
GEPA	Ghana Export Promotion Authority
GEPC	Ghana Export Promotion Council
GFZB	Ghana Free Zones Board
IMF	International Monetary Fund
LDCs	Least Developed Countries
LEX	Log of Exports
LGCF	Log of Gross Capital Formation
LGDP	Log of GDP

LLAB	Log of Labour
NTE	Non-Traditional Exports
PNDC	Provisional National Defense Council
PP	Phillips-Perron
SAP	Structural Adjustment Programme
SBC	Schwartz-Bayesian Criterion
SIC	Schwarz Information Criterion
SSA	Sub-Saharan Africa
US$	United States Dollar
VAR	Vector Autoregressive
VAT	Value Added Tax
WDI	World Development Indicator
WTO	World Trade Organization

CHAPTER ONE

INTRODUCTION

1.1   Background Information

The economic growth of every country is very crucial to its economic development. Growing the economy has become the target of most governments in the developing world. Over the years, these governments have adopted a number of measures aimed at accelerating growth and development. In this period of open economy, nations are concerned with improving the quality of life of their citizens. This quality of life, mainly comes from macro-economic prosperity. Thus, fast growth of Gross Domestic Product (GDP) has become an important objective of any economy. There are various approaches to achieve this objective. One of them is presumably the export promotion strategy.

The relation between export and economic growth has been an important issue of discussion among scholars and economists throughout the world.Thus, this thesis is an attempt to investigate the relationship between exports and economic growth for Ghana over the period 1980 to 2013. Most countries in recent times have shifted from import - oriented strategies (import substitution) towards outward orientation (export expansion). According to Husain(1996), these countries engage themselves in foreign trade due to the following reasons:to increase foreign exchange earnings, to raise propensity to save, to promote investments, to create employment and to increase the productivity of limited inputs and resources.

According to Azam (2009), the shift from trade restricted economy to trade liberalization is attributed to the positive relationship that exists between exports and economic growth. This therefore implies that export promotion has the potential of contributing substantially to economic growth. The contributions of exports to growth are both direct and indirect. The direct effects include increased foreign exchange earnings, factor productivity and increased employment in labour-surplus economies, whereas the indirect contributions include, efficient resource allocation, greater utilization of economies of scale, and technological improvements (Kravis, 1970).

Ghana being a developing country with a relatively small market, economic growth must necessarily come through increased international trade (Ghana Trade Policy, 2005). As a result of increasing trade liberalization among various countries of the world and increased globalization of the world, almost all economies are involved in international trade. Today, international trade is at the heart of the global economy and it is also responsible for much of the development and properties of the modern industrialized world. Extensive studies done on the growth performance of East Asian countries show the positive relationship between export promotion and economic growth. The experience of the Far East Asian countries, namely, Hong Kong, South Korea, Singapore as well as India and Brazil have been the main motivating factor for the shift of the countries originally known for exporting primary products towards the export of manufactured or industrialized products because of technological innovations (Amsden, A. H. 1993).

Several African countries such as Burkina Faso, Ghana and Nigeria however, are gradually making progress toward diversifying their economies to reduce the dependence on few traditional primary exports. Trade theories suggest that countries engage in international trade when they expect to be better off. Thus many studies have examined the relationship between exports and economic growth. Examples of such studies include: Kavoussi (1984), Jung and Marshall (1985), Chow (1987), Ram (1987), Fosu (2001a; 2001b), Bahmani-Oskooee et al. (1992), Clarke and Kirkpatrick (1992), Shechey (1992), Dodaro (1993), Love (1994), Yaghmaian (1995), Doraisami (1996), Attah (1998), Erfani (1999), Vohra (2001), Thurayia (2004), Akeem (2011), Enu et al. (2013), etc.

1.1.1 Exports in Ghana

Export commodities in Ghana have been categorized into two main groups.

- Traditional Exports
- Non-traditional Exports

In December 2010 when oil exports from the Jubilee Field commenced, the country added a third sector, which is the oil sector (GEPA, 2014). The commodities that are grouped under Traditional Exports are: Cocoa beans, logs, mineral ore (e.g. unprocessed gold), electricity, fresh fish and fresh food crops. Commodities that are grouped under non-traditional exports are all commodities outside the traditional export list such as fruits, vegetables, cashew, handicrafts, aluminium products and textiles (GEPA, 1990).

In 2007, Ghana's Jubilee oil field, which contains up to 3 billion barrels of oil was discovered among many other oilfields in Ghana. Since then, Ghana National Petroleum Cooperation (GNPC) began to put measures in place for the exploration of oil and gas in the country. From the first quarter of 2011, Ghana started producing crude oil and natural gas in commercial quantities. It is expected that the country could expand its reserves up to 5 billion barrels ($790,000,000m^3$) of oil in reserves within a few years. The expected annual tremendous inflow of capital from crude oil and natural gas production in the Ghanaian economy began from the first quarter of 2011. In the first and second quarter of 2013, Ghana produced 115,000 to 200,000 barrels of crude oil per day and 140 million to 200 million cubic feet of natural gas per day (GEPA, 2014).

Over the years, gold has been Ghana's major export contributor, followed by cocoa beans until crude petroleum displaced cocoa beans as Ghana's second-most valuable export contributor in 2012 with shipments worth $3 billion (GEPA, 2014).

The top 5 products exported from Ghana are:

  i.   Gold (44%)

  ii.   Crude petroleum (18%)

  iii. Cocoa Beans (15%)

  iv.   Cocoa Paste (2.3%) and

  v.   Manganese ore (1.3%)

The top 5 export destinations of Ghana are also as follows (Bank of Ghana, 2014):

  i.   South Africa (27%)

ii. United Arab Emirates (9.9%)

iii. Switzerland (7.9%)

iv. France (7.3%) and

v. Italy (6.7%)

1.2   Problem Statement

Exports have contributed tremendously to the development of the Ghanaian economy by providing foreign exchange to finance government activities and also helped in opening up of the Ghanaian economy to foreign markets through trade. Ghana's export sector is mainly dominated by few primary products such as cocoa beans, timber and gold. Its main export partners are South Africa, United Arab Emirates, Switzerland and France. Anytime there is a production shortfall or world prices of these products drops in the international market, foreign exchange earnings drops as well. In 2013, Ghana lost some 1.3 billion US dollars in forgone export revenues due to the slump in both gold and cocoa prices in international market and production short falls (Bank of Ghana, 2014).

Oil exports, however, increased by 31% within the same period as a result of increased production. This helped the value of merchandise exports during the ten-month period to remain broadly unchanged at $11.4 billion compared to the same period in 2012. Almost midway 2014, there is little succour as cocoa and gold prices became higher than what they were at the beginning of the year.

Exports in Ghana averaged 1747.69 million US dollars from 2003 until 2014, reaching an all-time high of4118.30 million US dollars in the first quarter of 2012 and a record low of 565.06 million US dollars in the first quarter of 2003 (Bank of Ghana Annual Report, 2012). Although the possibility of short-run price increase cannot be ruled out, the long-term prospects of rising international cocoa prices are poor given the development of synthetic substitutes.

Related studies on Ghana have concentrated on opportunities and challenges the export sector faces (Attah, K. B. 1998;, Adu, J. 2011;, Enu, et al, 2013). Other studies also have argued that there exists causality between exports and economic growth (Jung and Marshall, 1985 and Chow, 1987). This research therefore aims at filling the knowledge gap by providing information on the role of exports in the economic growth of Ghana. Specifically, this research seeks to find the long-run and short-run dynamics between exports and economic growth of Ghana, and also to examine the direction of causality between exports and economic growth in order to recommend appropriate policies to authorities for implementation. Most of the previous studies have ignored the issue of simultaneity and have gone ahead to use correlation coefficients and other econometric tools to analyze the export-growth nexus (Michaely, 1977;, Balassa, 1978;, Tyler, 1981;, Feder, 1983;, Fosu, 1990b). Though there has been substantial work in the area of exports in the Economic Community of West African States (ECOWAS) sub region, (e.g., Odusola, A.F. and A.E. Akinlo, 1995; Attah, 1998; Akeem, 2011; Enu et al, 2013), their findings and results vary in one way or the other. Consequently, this study uses time

6

series analysis to investigate the contribution of export performance to the economic growth in Ghana based on its time series evidence.

1.3 Objectives of the Study

- The general objective for this project is to find the impact of exports on economic growth in Ghana.

- The specific objectives include the following:

  a) To find long-run and short-run relationships between exports and economic growth.

  b) To find causality between exports and economic growth.

  c) To recommend policies based on the above.

1.4 Scope of Study

This study investigates the impact of exports on economic growth in Ghana using annual time series data set for the period 1980 to 2013. The choice of the period is as a result of data availability. Also, because time series analysis was carried out, the research concentrates mainly on those exports that are registered under the Ghana Export Promotion Council. Such products have available data for analysis. The study employs four variables: gross capital formation (GCF) as a proxy for capital investment, rate of labour participation as a proxy for the variable labour, exports and gross domestic product as a proxy for output.

1.5   Testable Hypotheses

The study will carry out test on the following hypotheses:

H_0: Exports have no impact on economic growth in Ghana.

H_1: Exports have an impact on economic growth in Ghana.

H_0: There is no causal relationship between exports and GDP growth.

H_1: There is a causal relationship between exports and GDP growth.

1.6   Justification of the Study

Ghana engages in international trade in order to bring about rapid economic development. The experience of other countries as well as the adverse effects of the intermittent import substitution strategies which have been pursued in most Sub Saharan African countries has led to realization of export promotion as an investment strategy. This therefore necessitates the need to exploit the channels through which economic growth can be efficiently and quickly achieved.

These developments suggest that Ghana and its development partners believe that the export-growth nexus holds for the country. This belief must however be empirically investigated to help in giving policy recommendations, which are based on reality and not just some aspect of theory. The study, therefore, seeks to investigate to what extent the export sector has contributed to economic growth in Ghana, in order to reinforce the need for outward orientation.

1.7   Policy Relevance of the Study

This study will seek to investigate to what extent the export sector has contributed to economic growth in Ghana. The research will provide policy makers with information on the impact of export expansion on economic growth and therefore seek to guide them with an insight on how to promote export expansion towards economic growth in Ghana.

Policy makers will be enlightened on the need to add value to exports by way of processing primary exports so as to attract wider markets and better prices. Another policy to be recommended by this study will be the policy of diversification of our exports and the movement in niche trade (Trade based on goods and services with a certain degree of uniqueness, generally involving a trade relationship between the producing country and a small number of outside partners, with little or no competition from abroad). Examples of such goods are garments and African arts. This will broaden the export market and increase foreign exchange earnings.

1.8   Organization of the Study

The study is divided into sixmain chapters with each chapter divided into sections. Chapter one focuses on the introductory chapter of the study and outlines the background, problem statement, objectives, the hypothesis to be tested, significance, and policy relevance of the study. The overview of Ghanaian exports in general will be discussed in chapter two. Chapter three focuses on the review of related literature, both theoretical and empirical, between exports and economic growth with the objective of identifying all the possible influences. Chapter four is devoted to the methodology, which formulates the

9

empirical model and econometric estimation methods employed in carrying out the study. Chapter five reports on the econometric estimation results and discusses the time series characteristics of the dataset. Chapter six then presents the summary, conclusions, and recommendations.

CHAPTER TWO

OVERVIEW OF EXPORTS IN GHANA

2.1   Introduction

This chapter takes a careful look at an overview of both traditional and non-traditional subsectors of exports in Ghana. Specifically, the trend analysis of traditional and non-traditional exports (both before and after the Economic Recovery Program of Ghana), policy initiatives in support of export diversification in Ghana, the Ghana Export Promotion Council (GEPC) and export development, Ghana's major export markets and successive governments' special initiatives to promote exports in Ghana shall be provided in this section.

2.2   Traditional and Non-traditional Exports

Exports commodities in Ghana have been categorized into traditional and non-traditional exports (NTEs). Traditional exports predominantly comprise of primary commodities or raw materials, notably cocoa beans, minerals (gold, diamond, bauxite and manganese), timber and fresh fish. NTEs are all other exports such as handicrafts, aluminium products and horticulture products (GEPC, 1986). The NTEs are considered a major means for poverty reduction, especially in the rural communities in Ghana due to its great potential for job creation and income generation.

The NTEs sector is driven by four main sub-sectors: Agricultural non-traditional commodities, processed and semi-processed products, handicrafts and services. Agricultural non-traditional commodities are divided into horticulture, fish products,

11

game and wildlife and other agricultural products mostly fresh fruits e.g. pineapples, mangoes medicinal seeds and plants, tropical flowers and vegetables such as okra, tinda and marrow. Others include yam, natural rubber, kola nuts, cotton seeds, maize, coconuts, assorted fruits, and lobsters/shrimps/prawns. Also, the processed and semi-processed products consist of wood products, manufactured products such as pharmaceuticals, electrical cables and aluminium products, canned foods and beverages, and other processed products. Handicraft consists mainly of carving, weaving products, woodcrafts and ornamentals such as beads and jewelry. Services also comprise of medicinal tourism, financial services and education (GEPA, 2013).

Processed and semi-processed goods contribute almost 90% of earnings whiles agriculture and non-traditional commodities and handicrafts make up the rest. In 2012, processed and semi-processed foods topped the sub-sectors with US$2,110.03 million followed by agriculture with US$306.11 million and handicraft with US$2.46 million. Cocoa paste, cashew nuts, articles of plastic and canned tuna took the top-four spot of non-traditional exports in 2012. Others were veneers, natural rubber sheets, animal feed, medicinal plants, aluminium plates and Iron/steel products (GEPA, 2013).

2.3   Trends in Exports, Key Export Commodities and Composition of Exports in Ghana

Economic mismanagement, rampant coup d'etats which resulted in political instability, and adverse international economic environment in the late 1960s laid the foundation foreconomic retrogression in the 1970s and early 1980s. "With a reasonably high GDP

12

growth in the 1950s and early 1960s, the Ghanaian economy began to experience a slowdown in GDP growth as of 1964. Growth was turbulent during much of the period since the mid-1960s and only began to stabilize by 1984. In 1966, 1972, 1975-1976, 1979, 1980-1983, the growth rate was negative. The years in which negative growth was experienced generally coincide with change in government and sometimes with policy changes or reversals" (Fosu, 2002).

During the late 1980s, the Ghanaian government successfully rehabilitated major economic sectors that had deteriorated since the 1960s. This was largely made possible by the introduction of the Economic Recovery Program (ERP) in 1983. A major feature of the ERP was the adoption of an outward-oriented development strategy as a primary channel for eliminating the current account deficit the country was facing at the time. Throughout the decade, Ghana saw growth in GDP and the repair of some of its economic infrastructure. Through fiscal austerity, the government achieved balanced budgets at the same time that it invested in developmental projects. In particular, the export sector regained some strength by the early 1990s with resurgence in cocoa, gold and timber exports. The government, however, in its desire to promote export diversification shifted its attention on the desirability of non-traditional exports. The importance of NTEs lay in the role that export diversification plays in promoting economic revival (Oduro et al, 1992). Ghana's exports have increased significantly over the last three decades. The country's exports increased from US$635 million in 1986 to US$14,377 million in 2011 (WTO, 2012); representing an average annual growth in exports of 70% within the period. **Table 1** shows total export values and the contributions

of the three key traditional export commodities to export earnings in Ghana as well as

NTEs and others (cash crops, fish products and aluminium products).

Table 1: Export Earnings and Percentage Contribution of Key Commodities to

Export Earnings, 1986-2011 (Real 1987 million US dollars)

Years	Total Exports	Cocoa pro. & Marketing (%)	Gold (%)	Timber (%)	Non-Traditional Exports & Others (%)
1986	635	67	17	6	10
1987	827	60	19	11	10
1988	908	52	21	13	14
1989	865	51	23	10	16
1990	897	40	22	13	25
1991	999	35	30	12	23
1992	986	31	35	12	22
1993	1064	27	41	14	18
1994	1238	26	44	13	17
1995	1431	27	45	13	15
1996	1571	35	39	9	17
1997	1490	32	39	12	17
1998	2091	30	33	8	29
1999	2005	28	35	9	28
2000	1936	23	36	9	32
2001	1867	20	33	9	38
2002	2064	23	33	9	35
2003	2297	36	36	8	20
2004	2704	38	31	8	23
2005	2802	32	34	8	26
2006	3365	36	41	9	14
2007	3216	25	47	8	20
2008	5181.7	27	43	6	24
2009	5882.1	32	43	3.06	21.04
2010	7960.09	25	48.2	2.3	24.5
2011	14377	23	38	1.9	37.1

Source: Bank of Ghana, 2012

From **Table 1**, it can be seen that cocoa and gold have been the two most important

export commodities in Ghana over the years. The contribution of timber to export

earnings has been declining consistently due to deforestation and lack of proper afforestation programs to adequately replace trees that are harvested. Production of oil in commercial quantities in September 2010 led to the steep rise in the contribution of NTEs to total exports from about 25% to 37% in 2010 and 2011 respectively.

Figure 1: Trends in Contribution of Key Commodities to Export Earnings (1986-2011)
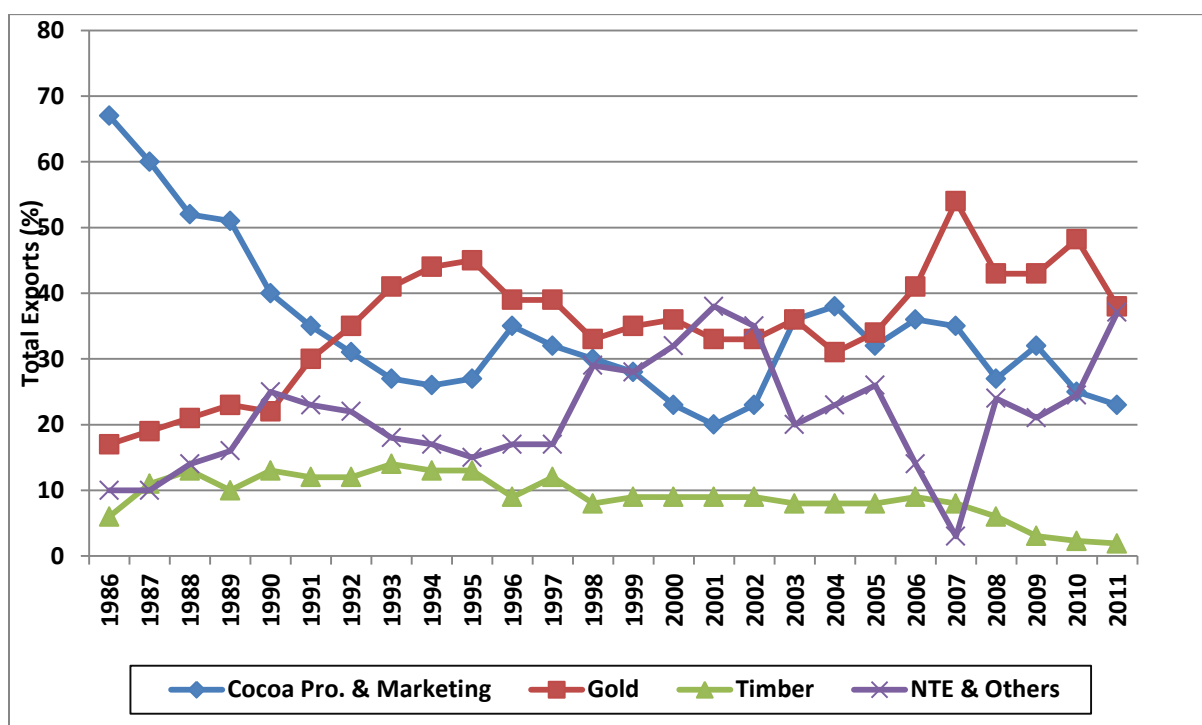
Source: Bank of Ghana, 2012

Earnings from Gold in percentage rose steadily from a low of 17% in 1986 to a high point of 45% in 1995 (**Table 1 and Figure 1**). It then began declining yet again from then to 33% in 2002 and then shot up again to a record high of 48.2% of total exports in 2010. Earnings from cocoa have dominated the export sector of Ghana. The dominance

of this sector, however, has continued to dwindle over the years as Ghana expanded its export base. Cocoa's share of export earnings declined steadily from 67% in 1986 to 20% in 2001. It then appears to have picked up again to 38% in 2004 and then declined yet again to 23% in 2011 (**Table 1 and Figure 1**). The contributions of NTE and others (cash crops, fish products and aluminium products) unlike cocoa to total export earnings have been increasing over the years. Earnings from NTEs and others have risen steadily from 10% in 1986 to 37.1% in 2011 (**Table 1 and Figure 1**). Timber export earnings on the other hand rose from 6% in 1986 to 14% in 1993. But owing to persistent deforestation and lack of replacement of harvested timber over the years, the contribution of timber export earnings to total exports of Ghana reduced steadily from 14% in 1994 to 1.9% in 2011.

2.3.1 *Export Development in the Pre- ERP Period*

On March 6, 1957, after nearly eight years of struggle, the state of Ghana achieved independence under Dr. Kwame Nkrumah. He instituted a variety of wide-spread industry reforms under a socialist framework. In the early 1960s, Ghana had one of the richest economies in Sub-Saharan Africa. Though export diversification started since the colonial period, the post-independence export diversification strategy included the industrial sector, which the pre-independence period did not take into account. Dr. Kwame Nkrumah's vision after independence in 1957 was to modernize the economy through pervasive industrialization. The government then introduced a comprehensive 7-year Development Plan between the years 1964 and 1970. One major objective for introducing   this development plan was to engage in industrialization in order to increase

the value of exports by processing raw materials before exporting them. Specifically, another two-year plan (1968/69 to 1969/70) was introduced within the seven year plan to expand and diversify the commodity structure of exports.

The overthrow of Dr. Kwame Nkrumah in 1966, led to the bonus scheme not being fully implemented and hence it was re-introduced in 1972 and was applicable to all NTEs. This notwithstanding, there was very little growth in NTEs between 1970 and 1983 despite the introduction of incentive packages and the creation of institutions to encourage exports. Since the mid-1960s, some cocoa beans have been processed into cocoa paste and butter so as to increase their value for export. In 1965, the quantity of cocoa exported reached its peak of 502,000 tonnes. Cocoa products contributed, on average, 59% of the total value of exports in the 1960s; this share rose to 72% by 1970, and by 1980, cocoa products accounted for about two-thirds of total export earnings. Timber (both logs and sawn) contributed 14% of total exports in 1960, but dropped to 3.3% in 1980. The share of gold was 10% in 1960, but contributed only 6% in 1970. In 1980, due to an increase in the world price of gold, its share rose to 17% of total export earnings. In value terms, the shares of the other minerals: bauxite, manganese and diamonds have not been very significant (Attah, 1998). The budget statement for 1972/1973 proposed the reorganization of the Ghana Export Company, in a further attempt to develop the institutional structure around which export promotion was to be organized and in particular, to increase the share of NTEs in total export earnings. Moreover, in the 1977/1978 budget, the export bonus was increased from 20 to 30%

17

(equivalent to the value of the increase in export earnings compared with the previous year) for NTEs, remaining at 20% for all other exports except cocoa (Adu, 2011).

The Ghana Export Promotion Council (GEPC) was issued with a bulk import license for the importation of packaging materials and chemicals. However, not much progress was made in increasing the share of NTEs in the commodity structure of trade despite these measures to encourage the NTEs. Oduro et al (1992), states that "a realistic exchange rate policy was not pursued during most of the period. By 1982, the index of the real effective exchange rate was approximately ten times its 1970 level; this was a large disincentive to export production". It has been argued that, in promoting export prior to the ERP, policies pursued in terms of their composition were extremely inadequate. There were frequent changes in benefits received by exporters which did not permit them (entrepreneurs) to make long-term investment.

2.3.2   *Trends in Export – Post ERP (1983 onwards)*

In 1983 the government led by leader of Provisional National Defence Council (PNDC); J.J. Rawlings launched the Economic Recovery Program (ERP) under the guidance of the World Bank and International Monetary Fund (IMF). The ERP was to reduce Ghana's debts and to improve its trading position in the global economy. Hence, one major stated objective among others included rehabilitating infrastructure to enhance conditions for the production and export of goods.

The promotion of Ghana's foreign trade has been central to all government plans to revive the economy since 1983. Under the ERP, export-producing industries received the most direct support; they also received the most direct support through the improvement of their proximate infrastructure. The government introduced several policies to adjust the pattern of Ghana's trade structure. These include devaluing the currency as well as raising producer prices for crucial exports such as cocoa. In addition, the government introduced an interbank foreign exchange market to facilitate currency exchange. The total value of NTEs started to show a remarkable improvement after 1986. In the mid-1980s, Ghana experienced unprecedented growth. Adulated by the IMF and World Bank as a model country, investors worldwide regarded Ghana as the "Asian tiger" of Africa (Meng, 2004). Under the Economic Recovery Programme, a flexible exchange rate policy was instituted and has contributed to an expansion in the volume of exports. In response, export volumes increased at an average annual rate of 10% between 1983 and 1990 (Kapur et al., 1991).

By early 1990s, government efforts had resulted in the restoration of many of Ghana's historical trade relationships. Exports were again dominated by cocoa, which earned US$280 million in 1993. Commodities in 1993 were gold (US$416 million) and timber (US$140 million) followed by electricity, diamonds, and bauxite. Ghana's non-traditional exports such as furniture, cola nuts and pineapple have also increased significantly. NTEs tripled since 1993 reaching US$403 million in 1999, thereby increasing their contribution from 10% to about 20% of total exports. Ghana's merchandise exports as a ratio of GDP, which amounted to 17% in the early 1980's, peaked at 28% in 1998 and dropped to 24%

19

by 2000. Throughout the 1990s, a flexible exchange rate policy was adopted, coupled with the continued liberation of the trade and investment regime, contributed to the steady and broad-based expansion of non-traditional exports. Diversification was, however, limited and Ghana continues to rely on a few traditional primary commodities as the main source of foreign exchange earnings.

The ERP, however, has been criticized for overemphasizing the importance of export industries of mineral extraction and cocoa production at the expenses of other agricultural and industrial sectors (Meng, 2004). In addition to supporting traditional export industries such as cocoa and gold, the government also attempted to diversify the content of Ghana's exports. To encourage non-traditional exports in the fishing and agriculture sectors, the government offered to refund 95% of import duties on goods destined for re-export and even to cancel sales taxes on manufactured goods sold abroad.

The government also devised a scale of tax rebates ranging from 20% to 50% determined by the volume of the total production that was exported. These incentives generated considerable response. By 1988, more than 700 exporters were dealing in 123 export products, the items being pineapples, marine and fish products (especially tuna), wood products, aluminium products, and salt. By 1990, the value of NTEs had risen to US$62 million. In 1992, GEPC announced a plan to raise NTEs to US$335 million by 1997 through increased market research, trade missions, trade fairs and exhibitions and training. Among its most ambitious specific targets were increase in tuna and shrimp sales to US$45 million and US$32 million respectively by 1995 and increase in pineapple

sales to US$12.5 milliion. In the manufacturing sector, wood products, aluminium goods and processed rubber were targeted to yield US$44 million, US$42 million and US$23 milliion respectively. Salt was projected to rise to 20 million.

Much of the rapid expansion in NTEs especially in the 1990s reflects sporadic foreign investments in key agro-processing activities (cocoa processing, canned tuna, and palm oil) which enjoy preferential access to European Union (EU) markets. Value-addition to some of these agro-processing products was at best marginal who posed questions about their long-term sustainability should EU preferences be removed. Moreover, in August 1995, the parliament of Ghana made a slight change in the classification of NTEs when it passed the Import/Export Act, 503 which placed veneer, coffee, cocoa butter, cocoa cake, cocoa powder and cocoa liquor under NTEs. This contributed to the rapid expansion in NTEs in the 1990s. The classification boosted the contribution of the Subsector of foreign exchange.

2.4   Ghana Export Markets

Trade openness, which followed a downward trend between 1970 and 1982, assumed an upward trend after the liberalization policies of 1983. The trade intensity of 46.35% in 1984 had surged to 128.9% by the end of 1999 and stood at 110.32% in 2009 (Ocran et al, 2006). Ghana is one of the few countries in Sub-Sahara Africa that has been classified as an intensive trade liberalizer because of the pace and extent with which trade liberalization was carried out during the structural adjustment program in 1983 (Ocran et al, 2006). Although Ghana's trade liberalization started in the mid-1980s, the momentum

21

of the liberalization continued into the 1990s (Jebuni et al, 2004). In early 1990s, Ghana continued to trade primarily with the European community, particularly Britain and Germany. Britain continued to be the principal market for Ghanaian cocoa beans, absorbing approximately 50% of all cocoa beans exported. In 1992, Germany was the single most important destination of Ghana's exports, accounting for some 19% of all exports. Britain was the next, accounting for about 12%; followed by the United States, 9% and Japan, 5%.

Europe has been a long standing and leading destination of Ghanaian exports over the years, followed by the US. Trade has been mostly in cocoa and other NTEs. Between the period of 2006-2007 and first half of 2008, the top two importers of Ghanaian products were the Netherlands and UK. Netherlands imported 14% of the total exports of Ghana and the UK imported 9.2% of Ghanaian exports. Cocoa, gold and timber constituted 75% of Ghana's commodity exports in 2008 (IMF, 2008). The major export partners of Ghana in 2010 were the EU27 with a total volume of Ghanaian products of €1,3175 million representing 38.7% of total export from Ghana. This was followed by the USA with a total of €1940 million representing 5.7% of total exports from Ghana. Within the EU27, the Netherlands had the highest share of 11.7%, followed by UKs share of 7% and then that of France by 5.7%. The EU share of total exports in volume from Ghana increased to €3,134 million representing 51.5% of total exports from Ghana and then reduced to €2,987 million representing 42.5% of total exports from Ghana in 2011 and 2012 respectively (IMF; DOTS, 2013).

Table 2: Ghana Export Trade Structure by Partner, 1990-2011 (Real 1992 US$)

Year	Volume of Trade (millions)	EU (%)	Africa (%)	Asia (East, Southern & South East) (%)	Developed economies (%)	Developing economies (%)
1990	1,235	63.7	2.5	3.6	84.4	9.0
1995	1488	58.4	7.4	7.5	77.9	16.5
2000	1566	50.1	10.2	5.6	68.4	18.7
2001	1544	49.4	11.0	5.5	66.9	19.9
2002	1648	52.2	10.8	5.5	66.3	19.9
2003	2009	51.4	12.1	5.4	64.1	22.6
2004	2327	48.8	10.0	6.8	62.2	21.4
2005	2370	45.9	9.0	9.5	58.6	25.0
2006	2841	45.2	9.4	7.0	58.2	25.3
2008	4175	39.7	9.3	10.7	59.3	24.2
2009	3465	39.9	10.7	11.6	49.4	28.6
2010	4547	38.4	11.4	10.6	50.0	29.0
2011	12700	50.7	14.1	12.2	63.2	32.2

Source: UNCTAD Handbook of Statistics, various years

Table 2 gives a summary of Ghana's major export destinations. As stated earlier, the European Union market has been the main destination of Ghana's exports. However, the share of Ghana's total exports to the EU has persistently declined over the years. While about 63% of the total exports found its way to the EU market in 1990, by 2010 the export share ofthe EU had declined to about 38%. Interestingly, around the same period, the share of Ghana's total export within Africa increased from 2.5% to 11.4%. Ghana's exports to the EU, however, increased sharply from the 2010 figure to about 51% in 2011. This sudden change in trend of Ghana's exports to the EU recorded in 2011 is attributed to oil exports.

Figure 2: Ghana's Export Market (2013)
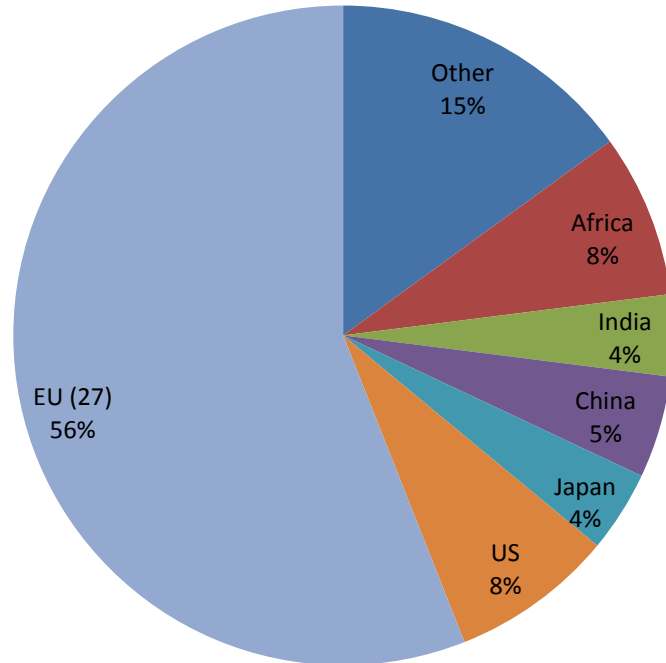
Source: Ghana Statistical Service (2013)

The EU by far, still continues to be Ghana's largest export market, accounting for more than half of all exports (**figure 2**). Trade with the EU represents nearly about 56% of the Ghana's total exports (Ghana Statistical Service, 2013). The ECOWAS sub-region, however, happens to be the largest destination of Ghana's NTEs with it absorbing about 35% of total NTEs in 2013 (**Figure 3**). The EU, other countries, other developed countries and other African countries follow in that order representing 31%, 20%, 10% and 4% respectively (**Figure 3**).

Figure 3: Destination of Non-Traditional Exports, January – December 2013
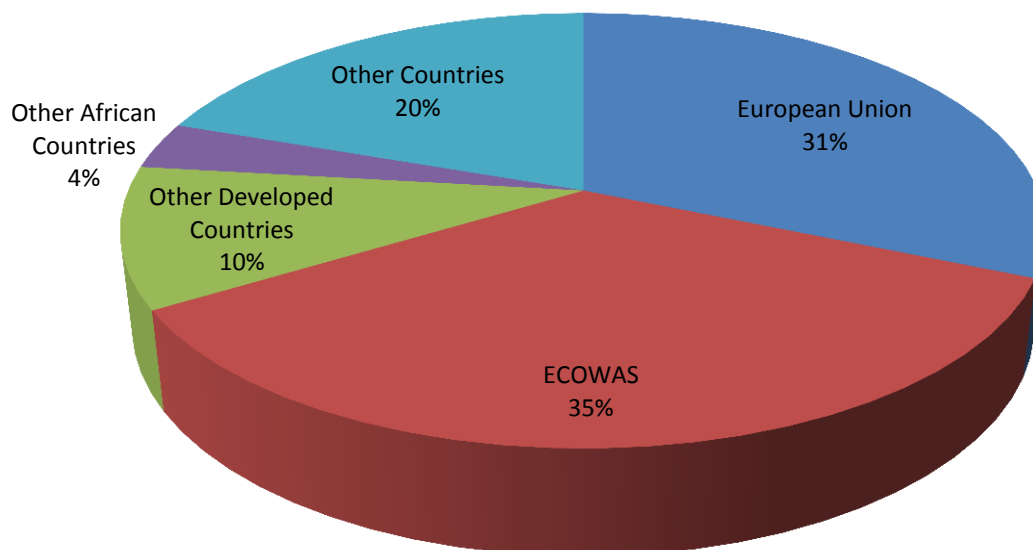
Source: Ghana Export Promotion Authority (2013)

Table 3: Leading Countries in Market Categories

European Union	ECOWAS	Other African Countries	Other Developed Countries	Other Countries
Netherlands	Burkina Faso	South Africa	Switzerland	India
UK	Togo	Egypt	United State	Estonia
France	Nigeria	Cameroon	Japan	Vietnam
Spain	Cote d'ivoire	Equatorial Guinea	Canada	China
Belgium	Benin	Congo	Australia	Poland

Source: Ghana Export Promotion Authority (2013)

2.5   Policy Initiatives In Support of Exports in Ghana

Since Ghana attained independence in 1957, successive governments have pursued with varying degree of policies, programmes and projects to accelerate the growth of the Ghanaian export sector to raise its competitiveness level in the international market.

These policies, programmes and projects are often expressed in the form of national development policy frameworks or plans around which national and development partner's efforts are coordinated.

As noted earlier, the need for export diversification was recognized as far back as the early 1960s. This led to the establishment of the GEPC in 1969 by the government of Ghana. Export promotion initiatives and import restrictions (surcharges) to boost NTEs were introduced. However, these policies were implemented without a comprehensive national development plan until the early 1980s (Obeng, 1985).

The political commitment made by the Provisional National Defense Council (PNDC) government to the NTEs within the context of the ERP in 1983 was, therefore, a major shift in the focus, emphasis and pattern of national economic development policy (Addo et al, 2000). Due to this, it became very necessary for the introduction of new policies and programs to remove the following major challenges in the NTEs: overall low productivity in relation to their main overseas competitors, lack of sector operator cooperation, over-liberalisation of the sectors, market and product development, a weak production base, high domestic production costs causing uncompetitive prices on the world market, the non-availability of funding, poor marketing infrastructure, inadequate export incentives, a lack of knowledge about export procedures and weak institutional support for export development. The sector associations (Ministry of Trade and Industries and GEPC) which are supposed to assist their members to overcome this constraint are

also unable to carry this function because they do not have the adequate resources that are necessary to fulfil that responsibility on behalf of their members.

In the case of product development, several operators complained of the insignificance of research institutions since research findings usually reach operators either too late to be of value or they tend to be too expensive for many small holders. This therefore compelled the creation of export awareness throughout the country which accorded a high priority. Institutional reforms were introduced to ensure that financial requirements of the NTEs were adequately met, incentives were expediently provided, marketing infrastructure were adequately improved, funding was made readily available and export procedures were streamlined. As part of the export reforms, the GEPC was restructured to facilitate export administration and documentation formed part of the reforms. Hence, it became the core duty of the GEPC to ensure national export diversification program to be successful. Through budgetary allocations to GEPC, the government of the day was committed to providing financial support to the NTEs. Concurrently, a major reform of financial institutions undertaken in 1987 was aimed at streamlining their transactions both nationally and internationally in support of the NTEs (Addo and Marshall, 2000).

Ghartey (1989) states that, the most relevant boost to the NTEs was, however, the institution of the Export Finance Company (EFC) in 1989 to wrestle the problem of inadequate export financing. Export incentives were therefore provided to exporters and producers of export products among other reasons to (GEPC, 1987):
- Attract investment to the sector and boost export development.

- Lower the cost of production of exports and make them more competitive on international markets.

- Ensure that administration of the incentive regime, example, duty drawback at VAT refund does not increase the cost of production for export or exporting.

To ensure this, the government of Ghana through the GEPC export diversification strategy introduced 5-major export oriented initiatives to boost exports in general of the country (GEPC, 1989).

1. Government will facilitate access to export credit and provide support such as cash payments, tax rebates and effective World Trade Organization (WTO) complaint subsidies.

2. Government will ensure efficient and effective duty drawback and VAT refund on all imported inputs for export production.

3. Government will exempt key imported inputs from VAT, thus improving competitiveness of producers for both the domestic and international markets.

4. Government will facilitate the establishment of efficient free multi-purpose zones to enable quick and effective movement of imported inputs and finished exports through the ports, combined with additional fiscal incentives to lower costs and support efficient logistics for exporting.

5. Government will provide a system of inward processing under bond to enable procedures to obtain up-front duty and VAT-exempt imported inputs.

In September 1995, Parliament of Ghana formally proclaimed the Free Zones Act to fast-track the exploitation of the country's export potential. In line with this proclamation, the Ghana Free Zones Board (GFZB) was set up to monitor and support the activities of the Export Processing Zones (EPZs) to be established in the country. One key task of the Free Zones Board was to encourage the development of commercial and service activities at sea port and airport areas. The government of Ghana launched the gateway programme in 1998 to promote Ghana as the trade and investment centre of West Africa. Much emphasis was adequately placed on export processing zones and foreign investment as the main instrument for export development in the medium term (Ajayi, 2006).

Ghana together with other 23 Sub-Saharan African countries qualified for African Growth and Opportunity Act (AGOA) and its trade benefits after being declared eligible on October 2, 2000 and was also declared eligible for apparel provision on March 20, 2002. The three core objectives of AGOA are: deliberations on the Trade Policies for sub-Saharan Africa, deliberations on the Trade Benefits and the deliberations on the Economic Development Related Issues. The AGOA's main obligation was to provide incentives for African countries to continue efforts to open their economies and to build free markets.

In pursuing a development strategy based on export growth and increasing inward direct investment, the government of Ghana developed a National Trade policy in 2005. This trade policy aims to enhance international competitiveness and secure greater market access for Ghana's products. In particular, the policy seeks to promote regional

integration within the ECOWAS through the harmonization and the reduction of tariffs and non-tariffs barriers to trade (AfDB/DECD, 2007).

As a result, all the countries which qualified to be beneficiaries of this act were provided with duty free and quota free levies on their exports to the USA. Ghana, being a beneficiary of the AGOA, hosted the sixth AGOA meeting in Accra from 16th to 19th July, 2007 after having been rated the leader in Africa and star in liberalized economies as attested by multinational agencies and financial institutions. This however created an opportunity for the country to perform well in the international arena through trade and investment (AGOA: the 6th AGOA Forum, July 2007).

With this initiative, Ghana benefited enormously in the production and exports of both traditional and NTEs. Examples of which include, cocoa, cashew, cotton, oil palm and textiles and garments. For instance, cocoa and cashew exports from Ghana to the US went up by 300% within a period of 13 years under the AGOA initiative since its inception in 2000 (GEPA, 2014). Also, the share of NTEs to the US in Ghana's total exports increased from 33% in 2000 to 37% in 2001.

In Ghana's response to the AGOA to provide duty free and quota free levy on Africa exports, the President's Special Initiatives (PSI) were enacted in August 2001 by the government of Ghana. The initiative was to stimulate public-private partnership sector and to create some 100,000 jobs within a four year period. The PSI, which is in two folds, is expected to lead to the realization of the nation's Golden Age of Business vision of the

government (PSI, 2006). In view of this, the PSI is described by the government as the new pillar for export drive and real economic growth (PSI, Kyeremateng, Jan 2004).

The PSI initially focused on the development and export of starch from cassava, garments and textiles to the US market in fulfillment of the AGOA initiative. However, there has been an expansion in the scope, covering salt, oil palm, cotton and distant learning (Tettehfio, 2009). Specifically, the Ayensu starch factory was set up at Bawjiase in the central region to process the output of out-grower farms in the Awutu-Efutu Senya and Akwapim South districts.

The PSI on textiles and garments was also designed to build a new and international competitive garments manufacturing and export industry in the country that can take full advantage of the significant opportunities created by the US AGOA, particularly duty-free and quota access to the $60 billion market for clothing and apparel in the US (PSI, Garment and textiles, 2003). The PSI on textiles and garments was also an objective of government in implementing the PSI strategy by actively supporting, facilitating and accelerating the development of the garment industry and to make it a leading export sector and a primary source of employment generation in Ghana as a non-traditional export commodity (PSI: a new pillar for economic growth-Kyeremateng, Jan 2004).

As a result, a 3-tier strategy was developed by the government to lure 10 existing large-scale producers from other countries to relocate their factories to Ghana's export processing zone over a four-year period. Other 25 high performing Ghanaian garment

31

producers per year were also selected subsequently (over a four year period). They were provided with a comprehensive range of services to enable them produce export-quality garments to gain access to the US market. This initiative is to revive the dying textile industry through facilitation and sustenance of the manufacturing platform in Ghana.

2.5.1   *The Ghana Export Promotion Council and Exports*

Export promotion refers to any effort aimed at increasing the exports of a country. This is considered a relevant tool in any viable long-term development effort. In the late 1960s and early 1970s, Ghanaian and foreign economists felt that Ghana was too dependent on cocoa exports and some other traditional exports. If the country continued being mono-crop economy, its economy will not flourish or keep pace with the global trends (GEPA, 2014). So to help the country's economy and help it meet the challenging global trends, the Ghana Export Promotion Council (GEPC) was established in 1969. The GEPC is a national export trade support institution that facilitates the development and promotion of Ghanaian exports. Its focus has primarily been to diversify Ghana's export base from the traditional gold and other unprocessed minerals, cocoa beans, timber logs and lumber. Currently, there are over 400 different NTE products categorized as Agricultural, Processed/Semi Processed products and Handicrafts. Export trade in services is a new and recent addition to the Ghanaian portfolio.

 As part of GEPCs mandate, it was established to assist producers to export by providing information on international markets. Hence, the main goal of the export promotion council is to ensure that export trade plays a role in aiding economic growth of the

country. The council concentrates on marketing non-conventional products using some strategic and aggressive marketing.

In order to meet its objectives, the council has a wide-ranging scope of activities, which include the following (GEPA, 2014):

➢ Create awareness about export in the country.

➢ Identify products suitable for export and locate appropriate markets for them.

➢ Organize exhibitions and trade fairs in and outside the country to create goodwill for products made in Ghana.

➢ Provide Ghanaian exporters with all the required help, so that they can enter competitive markets abroad.

➢ Organize market missions to facilitate meetings between exporters and prospective buyers from abroad.

➢ Offer advice to exporters on export marketing.

➢ Train exporters and staff from export institutions to enhance their export marketing skills.

➢ Recommend to the government the assistance and/or incentives that Ghanaian exporters need.

➢ Provide businessmen and exporters travelling overseas from Ghana with relevant information and knowledge about target markets.

In association with the Ministry of Trade and Industry, the export council offers many export incentives to Ghanaian exporters, such as giving rebates on corporate tax, offering

competitive forex rates to exporters to change all the proceeds from the export, giving a customs duty drawback of up to 100 percent on imported materials that are used to produce the export product. This notwithstanding, more efforts need to be put in place if the country really wants to achieve much on the international market. This is due to the fact that a considerable number of products that are being exported are still in their raw unprocessed form. One significant contribution of export promotion is the employment opportunities that the promotion of especially the NTEs has created in the economy especially in the rural communities. It is expected that, as more markets are created for different products and more exporters come on board, output in the economy (GDP) will increase.

The NTE sector, eventhough growing rapidly is underperforming because of a number of challenges that they face. In other words, the share of the NTE sector to the country's GDP can be multiplied manifold if sufficient effort is deployed by the government and the private operators to address the many constraints that the operators face. Generally, the setbacks bedevilling the export sector, especially the NTE sector include the following (Tettehfio, 2009):

➢ Poor finishing and packaging of products which served as a barrier to export to the EU and US markets.

➢ Technical barriers such as the inability to meet export orders on schedule, high tariffs charged at some export destinations of Ghanaian NTEs are a couple of problems that hinder the industry's ability to permeate the export markets.

Most of the industries in the NTE sector imports a lot of its raw material inputs from mainly the EU and US as well as India, Nigeria and among others. These raw material imports like cotton are complementary to local production; therefore they (African Prints from Cote d'voire, Nigeria and South East Asia countries) tend to crowd out local production. Usually, finished products from these countries bear potent designs, logo and trademarks of local NTE production industries, and are sold cheaply on the local markets. The local markets are thus faced with stiff competition from finished products from these countries. It was noted that doing business within the ECOWAS sub-region is faced with undue trade barriers. These are impositions of 20% duty by Cote d'voire contrary to ECOWAS regulations of free trade among member states, transit tax collected at Benin, extortion by Nigerian authorities and risk of currency devaluation. Most of the commodities that are exported are done in their raw, unprocessed form, hence they face low price in the export markets. Usually, processed commodities have better prices on the world markets than unprocessed commodities.

Also, there has been the development of synthetic substitutes for products like cotton, hides and skin as well as rubber. This can be seen in the fall in volume of the listed products volume over the years. The restrictive tendencies of the developed countries as far as exports from developing countries are concerned are other problems facing the Ghana export promotion program in the country. Furthermore, due to structural rigidities, the Ghanaian exports are sometimes unable to respond to foreign demand for exports. These rigidities take the form of limited resources, poor weather conditions and

unproductive pattern of land tenure system particularly where primary agriculture products are concerned.

Meeting the quality needs of the advanced countries has also been another issue. Exporter products sometimes are unable to produce to the specified requirement such as size, length and among others. This therefore lessens their capabilities to export their produce to these advance economies and as such narrow the destinations for their export produce.

CHAPTER THREE

LITERATURE REVIEW

3.1   Introduction

The argument concerning the role of exports as one of the main deterministic factors of economic growth across the globe is not a new phenomenon. For a long time economists have been presuming a strong and positive relationship between a country's engagement in international trade and its economic performance. Hughes (1992) stated "the importance of trade for economic growth has been recognized since the economics of development evolved, in the 1950s". From the 1960s on, export activities were widely considered as a path to industrialization and instruments that useful in boosting economic growth in the developing countries (Krugman & Obstfeld, 2003). This argument dates back to the classical economic theories of David Ricardo and Adam Smith, who were strongly of the view that international trade plays an important role in economic growth and that there are economic gains from specialization. Since then, a number of arguments concerning the potential contribution of exports to economic growth have been put forward by several studies and the debate is still ongoing.

The relationship between exports and output is being agreed on by most economists on three directions: The first states that the expansion of exports increases output by using technical effectiveness with specialized production factor (Grossman and Helpman, 1991; Romer, 1990). The second direction states that there is a possibility that output leads to export expansion because economies of scale tends to increase trade (Kunt and Martin,

1989). The final direction states that there can be mutual feedback effect between trade and output (Sharma et al, 1991).

The argument of neo-classical economists is that competition in international market promotes economies of scale and increases efficiency by concentrating resources in sectors in which the country has a comparative advantage. These positive externalities promote economic growth. Debates concerning whether countries should favour the protectionist theories, that is inward looking (import substitution) or outward looking (export promotion) trade strategy thereof have been advanced. The role of exports in improving the growth potential of a country occupies the centre stage in especially development literature where export promotion and increased openness gradually has replaced import substitution to enhance growth.

3.2   Theoretical Literature Review

A number of theoretical studies have proved a strong and positive relationship between export and economic growth. The theoretical Literature review discusses theoretical works on the relationship between export and economic growth of various nations.

3.2.1   *Export Pessimism and Export Promotion*

The first school of thought on export pessimism was postulated by Raul Prebisch (1950) and Singer (1950). Prebisch and Singer argued that, the main exports of developing economies are primary products and these primary products will persistently decline in the terms of trade so far as no value is added to it.

Nurkse (1959) was also of the view that developing countries would continue to depend heavily on primary products and that there would be a decline in the growth of demand for these products by developed countries. His 'elasticity pessimism' argument was based on the low absorptive capacity of developing countries' exports in the foreign markets. The expansion of the world market and hence demand will therefore determine the primary commodity exports of developing countries.

Lewis (1980), in his "trade as an engine of growth" appears to agree with Nurkse. Lewis agreed that the slowdowns in the prosperity of the industrialized countries will slow downtrade and growth in the developing countries. In view of the above developments, many developing countries implemented policies based on a limited degree of openness. The policies implemented by these developing countries known as import substitution industrialization (ISI) strategies had their origins in the ideas of Raul Prebisch (1950) and Singer (1950).

Export pessimism was, however ignored by the Far East countries: Taiwan, Singapore, Hong Kong and South Korea (known as the Gang of Four or the Four Tigers). The Four Tigers rather promoted export promotion strategies (Hughes, 1992). Most developing countries followed this example by these four countries and led to the growth of their respective economies eventually.

The pessimism theses, especially that of Lewis and Nurkse were debunked by the East Asian experience based on domestic policies (Bhagwati, 1988). Bhagwati showed that

39

manufactured exports grew nearly as twice as fast as the growth in the incomes of the economic boom of the 1960's and the troubled times of the 1970's.

Kravis (1970, 1973) questions the dominant, positive role of economic growth. In particular, he contradicts the famous view of Nurkse (1961) that trade had worked like an "Engine of growth" through demand effects of a growing world economy. He argues that economic performance instead depends primarily on internal factors, which produce both growth at home and a more competitive position in world markets. Thus, trade must be seen merely as an extension of favourable opportunities at home and it may be only one among many factors affecting growth (Heitger, 1986).

Tyler (1981) also debunked the Prebisch-Singer thesis and argued that there was no readily apparent relationship between terms of trade changes and economic growth performance. He therefore suggested that rather than expressing grave concern over terms of trade movements, policy makers in middle-income countries should go ahead and implement policies to increase export growth.

3.2.2   *Export and Economic growth causality*

Since the early 1960's scholars and policy makers alike, have shown great interest in the possible relationship between exports and economic growth. The main motivation behind this is that: should a country promote exports to speed up economic growth or should it primarily focus on economic growth which in turn will promote exports? Many have examined the causal relationship between export and economic growth. Several

theories/hypotheses have been formulated to explain the relationship as to whether exports causes economic growth or if it is economic growth rather which causes exports expansion. The two main hypotheses formulated for this phenomenon are the Export-Led Growth Hypothesis (ELGH) and the Growth-Driven Export Hypothesis (GDEH).

The literature on international trade, which suggests that exports have a positive impact on economic growth is known as the Export-led-growth (Giles & Williams, 2000). The first study, using this methodology, was conducted by Jung and Marshall (1985). They investigated the causal relationship between export and growth for 37 countries and found that export promotion policies just supported in 4 countries. Darrat (1987) investigated the ELG hypothesis for South Korea, Singapore, Hong Kong and Taiwan for the period 1955-1982. His findings, although indicated a positive relationship between exports and economic growth under the investigated period, Granger causality test results did not support the ELG hypothesis for the three countries with the exception of Korea.

Different reasons have been proposed for explaining the evidence found in previous studies dealing with this issue on export-led growth. The simplest explanation to this phenomenon is that, since the contribution to growth made by domestic consumption is limited to only the size of regional (or national) markets, sales to foreign markets represents an additional consumption demand which increases the amount of real output produced in the economy (Giles & Williams, 2000). Another more elaborated explanation to this issue is that exporting is associated with more productive firms (Bernard & Wagner, 1997; Bernard & Jensen, 1999), and thus export-led growth at

41

aggregate level may be the result of the accumulation of within-firm productivity gains from export participation and or the reallocation of resources from comparatively less productive non-exporters to more productive exporters (Roberts & Tybout, 1991; Bernard & Jensen, 2004).

This hypothesis states that exports play a crucial role in the growth and development of an economy. More specifically, the ELGH postulates that export expansion or growth leads to economic growth. Medina-Smith (2001) states that, a country can achieve economic growth by not only increasing the quantity of capital and labour within the economy but increasing exports. The proponents of this hypothesis argue that export promotion through policies such as exchange rate depreciation or export subsidies will increase economic growth. The substance of these neoclassical arguments underlying the export-led growth hypothesis is that competition in international markets, promotes economies of scale and increases efficiency by concentrating resources in sectors in which the country has a comparative advantage. These economies of scale promote economic growth (Balassa, 1978;, Bhagwati, 1978;, Krueger, 1978;, Feder, 1982).

The contributions of export-led growth to the development of a country are both direct and indirect in nature. The direct contributions include increased factor productivity and foreign exchange earnings, which could be used to import intermediate raw materials and capital goods to expand productive capacity of the country. The indirect contributions include efficient resource allocation, technological improvements, greater capacity utilization of economies of scale, and increased employment in labour-surplus economies

(Kravis, 1970 and Feder, 1983). The Export-Led growth hypothesis further argues that the expansion of aggregate exports have a favourable impact on economic growth through injections into the circular flow of income, thereby improving the output level through the multiplier effect. Advocates of this theory argue that some developing countries have achieved poor economic growth as a result of their inward oriented policies under the import substitution strategy (Balassa, 1980).

The second proposition, the growth driven export hypothesis, postulates a reverse relationship to that of ELGH. It is based on the idea that economic growth induces trade flows. It can also create comparative advantages in certain areas leading to specialization and facilitation of exports. Bhagwati (1988) argues that economic growth leads to export expansion. That is, when a country achieves high and sustained growth in output, it will lead to an expansion of that country's exports. According to Lancaster (1980) and Krugman (1984), the GDEH exist because, economic growth leads to the enhancement of skills and technology. This increases the efficiency in production of output of the country, and as a result facilitates exports.

These two approaches can co-exist as far as the relationship between export and economic growth is concerned. Therefore the third notion is a feedback relationship between exports and economic growth. That is, there can be a bi-directional causality relationship. Bhagwati, (1988) argues that increased trade produces more income, which leads to more trade. Helpman and Krugman (1985) also hold that exports may increase

43

when economies of scale are realized through productivity gains, with further implications for further cost reductions, and even more productivity gains.

The direction of causation is therefore important to know. This is because discovering the direction of causation has important policy implications for development strategies (Khan et al, 2008). It is worthy of note that if a definite unidirectional causality running from economic growth in exports is found, then it would imply that higher level of economic activity is needed for export expansion in developing countries. If the direction of causation is running from export expansion to economic growth, then it would lead credence to the export-led growth strategy. If the causation is bi-directional in nature, then exports and economic growth have a reciprocal relationship. If there is no causality between exports and economic growth, then it implies alternative strategies rather than export promotion may be needed to structurally transform the economy.

3.2.3   *The Classical and Neoclassical theories of Exports and economic growth*

As stated earlier, the role of exports as one of the deterministic factors of economic growth dates back to the classical economic theories of Adam Smith and David Ricardo. They were of the view that, international trade plays an important role in economic growth and that there are economic gains from specialization (Abou-Stait, 2005). It can be said that the positive effects of international trade on economic growth were first pointed out by Smith (1776). This idea prevailed until World War II, although with relative hibernation during the marginalist revolution.

44

Smith (1776) holds that on one hand, international trade made it possible to overcome the reduced dimension of the internal market and, on the other hand, by increasing the extension of the market, the labour division improved and productivity increased. The international trade would therefore constitute a dynamic force capable of encouraging technical innovations and the accumulation of capital, of intensifying the ability and skills of workers, of the possibility to overcome technical indivisibilities and generally speaking, and of making it possible for participating countries to enjoy economic growth (Afonso, 2001).

The relationship between export expansion and economic growth has been extensively examined by economists over the years in the context of suitability of the alternative development strategy. Policy makers and academics, in particular, have shown great interest in the relative merits of export promotion strategies as against import substitution development strategies. Most of the studies and theories came to an agreement in favour of export promotion as a development strategy. Such consensus was based on the following reasons:

- ➤ The competition in the export markets abroad or international trade may lead to exploitation of economies of scale, efficient resource allocation, greater capacity utilization and an acceleration of technical progress in production.
- ➤ Higher export earning workings through alleviation of foreign exchange constraints may enhance the ability of developing countries to import more capital goods and industrial raw materials which in turn may expand its productive

capacity. This resulted in various studies to ascertain the merits of pursuing export promotion strategies on the economy.

Economies that adopted the inward approach trade strategies gained rapid industrialization in their early stages of implementing them. However, these gains eroded due to a host of reasons which includes: Inefficient domestic industries due tolow economies of scale andlack of competition, unsustainable capital intensive ventures coupled with its high cost of importing raw materials, declining export sector caused by an anti-export bias and poor exchange regime management.

3.2.4   *Neoclassical Theories*

Neoclassical economists naturally emphasize the market-oriented features of outward-looking regimes and pronounce these strategies essential for success. They are of the view that the outward-looking strategy is simply the outcome of market forces, and that international trade is the engine of growth. In order to reap the full benefits of trade, there should be, among other things, the practice of comparative advantage, a reduction in trade barriers, free international movement of capital and diffusion of technical knowledge and skills. The basic principle underlying international trade requires each country to engage in international trade to specialize in the production of the goods in which its comparative cost is least. The theory of comparative advantage was demonstrated by David Ricardo (1778-1823). Ricardo argued that a country should specialize in producing and exporting only those goods and services which it can produce more efficiently, that is at a lower opportunity cost than other goods and services that it

should import. This comparative advantage principle explains why countries specialize in producing and exporting products based on their endowment of resources. The concept is especially important in international trade, suggesting that countries should specialize in producing commodities in areas in which they have comparative advantage. Thus, with an international specialization that has become the norm of the day, each nation concentrates on the production of only such products in which it has the comparative advantage and the least comparative cost (Akeem 2011;, Ray, 2011;, Shim et al 1995;, Kalra, 1997).

In relation to the comparative advantage theory is the theory developed by Swedish economist Bertil Heckscher and subsequently developed by Eli Ohlin, that contend that international trade is based on differences in the comparative costs of production and attempts to explain those factors responsible for the differences in comparative costs. The differences in comparative costs, according to them arise due two reasons:

➤ Different countries have different factor endowments.

➤ Different goods require different inputs for production.

They argue that, different goods require different factor proportions, and different countries have different relative factor endowments. Hence, countries will have comparative advantages in producing the goods that use their abundant factors more intensively. For this reason each country will end up exporting its abundant factor goods in exchange for imported goods that can be produced by using its scarce factors more intensively. Such a mechanism is known as factor-abundance hypothesis. Thus, according to the theory, a nation should produce and export a product for which the large

amount of relative abundant resources is used and import the commodity in which a great deal of its relatively scarce and expensive factors is used (Shim et al, 1995; Kalra, 1997; Akeem 2011; Ray, 2011). Hence, the Heckscher-Ohlin model and Ricardian trade theory, both predict that trade promotes the specialization of a country so that it can realize maximum trading gains (Osterfeld, 2007). From the above discussions, it could be seen that trade is an engine of economic growth.

To conclude, it is worthy of note that, the relationship between export and economic growth is not just a one way causality. Hence, when explaining the relationship between export expansion and economic growth, it would be inappropriate to characterize such findings as one in which export promotion has induced growth. In light of this, this study, therefore has one of its objectives: the testing of the causal relationship between exports and economic growth.

3.3   Empirical Literature

This section reviews the empirical studies relating to export performance and economic growth. In view of the importance of the subject and the wide divergence in the theoretical positions, many empirical studies have been conducted to assess the role of exports in economic growth. Bhagwati et al, (1983) and Diaz-Alejandro et al, (1977) are of the view that the empirical literature largely confirms and underscores the theoretical case for export promotion policies, namely: that countries with export promotion policies grow faster than economies which are inward oriented.

Many empirical studies have analyzed the role of exports in the economic growth specifically for developing countries. A number of these studies have documented a strong and positive relationship between exports and economic growth. Examples include: Kavoussi (1984), Jung and Marshall (1985), Chow(1987), Ram(1987), Bahmani-Oskooee et al. (1992), Clarke and Kirkpatrick (1992), Shechey (1992), Dodaro (1993), Love (1994), Yaghmaian (1995), Doraisami (1996), Erfani (1999), Vohra (2001), Thurayia (2004), Akeem (2011). The results reveal evidence in support of the export-led growth hypothesis for various countries.

Much of this Literature attributes the effects of exports on economic growth to several factors. One of the key factors however, is that exports promote thresholds effect due to economies of scale, increased capacity utilization, productivity gains, and greater product variety. It is also argued that exports of goods and services provide the opportunity to compete in the international markets, which leads to technology transfer and improvement in managerial skills. Indeed, a recent review by Gunter et al. (2005) concludes that any gains from trade liberalization are often associated with external effects that are dynamic in nature.

Two different approaches have been used to conduct the empirical studies on the relationship between exports and economic growth. The first approach used inter-country statistical comparisons to investigate the relationship between export expansion and economic growth. The second approach is characterized by a number of case studies which have examined the effects of trade on the economic performance of individual

countries. Most of the empirical studies have been conducted on the differences between economic and demographic structures of different countries.

According to Ram (1987), even if the sample of countries chosen seems homogeneous using cross-sectional analysis, it is difficult to divulge the important parametric differences across the countries.

Vohra (2001) showed the relationship between exports and economic growth in five separate developing countries (India, Philippines, Malaysia, Thailand and Pakistan) for the period 1973 to 1993. The empirical results indicated that exports have a significant and positive impact on economic growth when that country has achieved a certain level of economic development. The study also showed the importance of liberal market policies by pursuing export promotion strategies and by attracting foreign investments. Some empirical studies of causality which relate closely to this study include the following: Jung and Marshall (1985) applied the Granger causality test to 37 developing countries to determine the direction of causality between output growth and export expansion in order to test the validity of the export promotion hypothesis. The general conclusion from their study is that the evidence in favour of export promotion is weaker than previous statistical studies had indicated.

Chow (1987) conducted a research in eight newly industrialized countries over the period 1960 to 1970. He found bi-directional causality in Brazil, Hong Kong, Israel, Korea, Singapore, Taiwan, unidirectional causality in Mexico and no causality in Argentina.

Bahmani-Oskooee et al. (1992) also found inconclusive results about the causal relations between exports and economic growth for twenty developing countries. Five countries (Dominican Republic, Indonesia, Korea, Taiwan and Thailand) indicated positive causality, while three countries (El Salvador, Paraguay and Peru) exhibited negative causality from exports to economic growth. Positive causality was found from output to export growth in four countries (Korea, Nigeria, South Africa and Thailand), while Indonesia exhibited negative causality running from output growth to exports.

Dodaro (1993) used the Granger causality test for eighty-seven developing countries in a study of the export promotion hypothesis. He found no support for the neoclassical theory in any of the Newly Industrialized Countries. Dodaro's results were in support of the export-led growth hypothesis only in seven primarily poor and low-income countries.

Love (1994) found overall stronger support for causality from exports to economic growth than in previous studies for twenty developing countries. Love's result indicated positive and statistically significant unidirectional causality from exports to economic growth in the case of seven countries and negative causality in the case of four countries. Statistically significant and bi-directional causality was found for three countries. Love interprets his results as a sign of substantial support for the hypothesis that export growth causes growth of output.

Yaghmaian (1995) used the Granger causality test to test the causal relation between export orientation and economic growth for a sample of forty-four countries in Africa.

The study concludes that the case for export-led growth in Africa is very weak and unsubstantiated by empirical evidence. For thirty-eight of the countries in the sample, the causality test does not support the contention that export expansion causes economic growth. The results also fail to support the adverse contention that economic growth causes the growth of exports.

Erfani (1999) examined the causal relationship between economic performance and exports over the period 1965 to 1995 for many developing countries in Asia and Latin America. The results showed the significant and positive relationship between exports and economic growth. The review of causality tests above clearly indicates that the dominant technique is the Wiener-Granger concept of causality. This study, thus, will employ the Granger (1969) causality test.

Ram used data for eighty-eight Less Developed Countries (LDC's) for the period of 1960 – 1982. For more than 80 percent of the countries, he found positive correlation between exports and economic growth. Kavoussi (1984) by the application of a simple production function shows the effect of export growth on total factor productivity through an inter-country regression analysis. Kavoussi considered average annual growth rates of Gross National Product, labour force, capital stock, and exports between 1960 and 1978. He divided LDC's into middle and Low-income countries based on the World Bank designation of $360.00 GNP per capita as the dividing point. He used seventy-three countries of which country selection was solely based on availability of data. The coefficient of real exports was highly significant and positive in both low and middle -

income countries, indicating the major role of export promotion in influencing the growth of total factor productivity. Since a larger percentage of exports in middle-income countries are composed of manufactured products, the higher coefficient of exports in this sub sample mean that the effect of manufactured exports on factor productivity is greater than that of primary products. The results show that the impact of commodity composition of exports is quite different for middle and low income countries.

With data concerning forty-one LDC's, considering two periods of time (1963- 1973) and (1973-1985), World Bank report (1987) on world development supported outward orientation of ensuring economic growth. It grouped the countries into four, according to the commercial strategy adopted (strongly extroverted, moderately extroverted, moderately introverted and strongly introverted). As a result, it came to the conclusion that the extroverted strategy was superior and decided that the fastest, most sustainable and even most balanced (in terms of personal distribution of income), economic growth was obtained with this commercial orientation.

Thurayia (2004) examined the relationship between exports and economic growth experienced in Saudi Arabia and Sudan. Results indicated that the growth rate in total exports in Saudi Arabia had an active role in achieving economic growth while it had a weak influence in Sudan. The results from cointegration and error correction models showed a positive effect of exports on GDP in both short and long-run, which confirms the validity of the export-led growth hypothesis in Saudi Arabia and Sudan.

Most of the cross country studies tend to confirm the importance of exports developing nations. Yet, there are some doubts concerning the importance of trade openness. For instance, Clarke and Kirkpatrick (1992) used pooled data for 80 developing countries from 1981-1988 to estimate the impact of trade policy reform on the economic performance and came to the conclusion that trade reforms does not affect economic performance.

In similar survey, Shechey (1992), limiting the analysis to fifty-three non-oil developing countries, finds that the positive impact of exports is only important for the industrialized economies. He argued that, a major problem facing most developing countries is that there is heavy dependency on the export of raw materials. Changes in the world economy affect its demand for primary products, which then affects the economic performance of less developed countries. As noted earlier, taking countries as a group assumes that those groups have some common characteristics. In reality, as Dull and Gosh (1996) argued, individual characteristics of each country may result in vast difference within the group. The causality structure between export and growth is economy specific and attempts at generalization are inappropriate.

Aurangzeb (2006) examined the link between exports, productivity and economic growth in Pakistan: a time series analysis from the period 1973 to 2005. The main focus of the study was to examine the direct and indirect impacts of exports on Pakistan's economic growth for the period 1973 to 2005 using the analytical framework developed by Feder (1983). The estimation results indicated that marginal factor productivities are

significantly higher in the export sector and thus the results of this study are in favour of the export oriented outward-looking approach to trade relations adopted by policy makers over the past decade.

Doraisami (1996) studied the relationship between exports and economic growth for Malaysia over the period 1963 to 1993, using a multivariate estimation methodology with annual data. His findings indicated a strong support for a bi-directional relation between exports and national output and a positive long-run relationship between export and growth.

From the aforementioned studies, it is evident that in today's highly globalized world, trade is an important mechanism for growth and development in general. Notwithstanding the usual issues of potential endogeneity and reverse causality (e.g., Rodríguez and Rodrik, 2001), the currency of the empirical evidence is in favour of trade leading to growth, especially at the macroeconomic level (e.g., Frankel and Romer, 1999; Irwin and Tervio, 2002; Singh, 2010). This is the global evidence of trade and growth. But can we say same about the importance of trade for growth and development in Africa?

Helleiner (1986) emphasized that no evidence of positive relationship between export performance and economic growth had been found yet in the case of Sub Saharan Africa. However, in recent times, a number of studies suggest that trade is indeed essential for growth of African countries. Sachs and Warner (1997), for instance, find that the

historically slow growth in African countries can be attributed to the lack of trade openness to international markets, as widely defined to include: tariffs, non-tariff barriers, state monopoly, exchange-rate overvaluation and limited economic freedom. Other narrowly defined trade openness variables, such as the growth of exports for instance, have also been found to exert positive impacts on growth.

For example, Fosu (1990a) also examined the extent to which the export-growth nexus was true for African countries as a subgroup, especially since export contents and transmission mechanisms may differ between African and other LDC's. Exports of Africa are known to be weighted towards primary products and factors like managerial, industrial and cultural differences may affect the mechanism between export growth and economic growth. A pooled time series and cross sectional (panel) regression was obtained separately for both African and Non-African LDC's over the period 1960-1980. Results from his panel regression indicated that, in particular export growth exhibits a positive impact on economic growth. A 10 percent increase in the growth of exports independently induced economic growth by slightly over 1 percent on the average. Thus African LDC's apparently enjoy a beneficial impact from exports in the previous findings for all LDC's.

Lussier (1993), in a bid to critically review the evidence, subsequently comes to a similar conclusion about the positive impact of exports on the growth of African economies. Savvides (1995) similarly estimates for African countries a positive effect of trade, which includes both exports and imports. Furthermore, Onafowora and Owoye (1998) for the

56

large majority of the 12 African countries considered, find that trade led to greater growth. They conclude that economic growth may be increased for at least some African countries through an outward-oriented strategy of export expansion.

Fosu (2001a) in presenting a review of the importance of the global setting for African economic growth, observes that export-promotion strategies are indeed growth-enhancing for African economies, though the manufacturing exports tend to be more potent than primary exports. Moreover, volatility in the trade sector can be consequential for economic growth. Bleaney and Greenaway (2001), for instance, estimate that terms-of-trade and exchange-rate volatilities are deleterious to African economic growth. Fosu (2001b) also finds that instabilities in the trade sector, especially import instability, are detrimental to the growth of African economies. Hence, the need to promote export expansion strategies. Although majority of the relevant literature concentrates on trade's relationship with economic growth, there is now emerging literature on trade and development. However, the evidence on African countries is quite limited. Much of this literature is about trade's effect on poverty.

Despite the claim by Dollar and Kraay (2001) that developing countries that have become more open have grown faster and have reduced their level of poverty more than the less-open group of countries, most of the existing studies find that the effect is far from being ambiguous. It depends on the degree of complementarity of institutions and policies in the specific country (Krueger, 1983;,Winters et al. 2004). For example, in the case studies of Krueger (1983), she demonstrates that the employment effects of free trade were quite

limited, despite the fact that manufactured exports in developing countries tend to be labour-intensive. The role of labour market adjustments is critical in this regard (Edwards, 1988; Fosu, 2002; Fosu and Mold, 2008). While the import-competing sector contracts relatively quickly in response to trade liberalization, the demand for labour in the exportable sector tends to be rather sluggish due to supply-side constraints. Thus, net employment, especially for the relatively unskilled is likely to be negative in the short to medium run, with adverse implications for progress on poverty. Despite the critical importance of the above and related issues, furthermore, it is well-recognized that information and/or data on African trade and trade finance are limited. And, where available, the data may not be reliable for decision making.

Odusola and Akinlo (1995) as cited by Uche (2009) used the traditional Granger causality test in examining whether the export-led growth hypothesis is valid for Nigeria. The results of the study showed that a bidirectional (or feedback effect) relationship exists between exports and economic growth in Nigeria. Thus the study validated both the export-led growth hypothesis and the growth-driven export hypothesis for Nigeria. The study did not consider the issue of co-integration though it examined the stationarity properties of the variables used. The issue of co-integration is very essential in determining whether or not to apply the traditional Granger (1969) causality test in the analysis of causality.

Jordaan (2007) investigated the causality between exports and GDP of Namibia for the period 1970 to 2005. The export-led growth hypothesis is tested through Granger

causality and cointegration models. It tests whether there is unidirectional or bi-directional causality between exports and GDP. The results revealed that exports Granger-cause GDP and GDP per capita, and suggested that the export-led growth strategy through various incentives has a positive influence on growth.

Rangasamy (2008) examined the relationship between exports and economic growth for South Africa, and provides the evidence that the unidirectional Granger causality runs from exports to economic growth.

Elbeydi, Hamuda and Gazda (2010) investigated the relationship between exports and economic growth for Libya for the period 1980 to 2007. The findings indicate that there exists a long-run bi-directional causality between exports and economic growth, and thus, the export expansion policy contributes to the economic growth of Libya.

Akeem (2011) did a study on the topic "performance evaluation of foreign trade and economic growth in Nigeria (1970-2005)". He found out that a onepercent increase in export will cause economic growth to decrease by nineteen percent. He suggested that conscious efforts should be made by the government to find the various macroeconomic variables in order to provide an enabling environment to promote foreign trade. Hailegiorgis (2012) researched on the topic "The Effect of Export-Led Growth Strategy on the Ethiopian Economy". The causal relationship between export and economic growth of the country was analyzed with the application of Granger (1969) causality test using annual data for the period 1974 to 2009. The results of the study indicate that there

is evidence of uni-directional causality between export and economic growth for Ethiopia.

Attah (1998) empirically examined the causal relation between GNP growth and export growth for Ghana from 1960 to 1992. The theoretical framework used in the study is the staple theory of growth. The staple theory emphasizes the fact that staple exports are the leading sector of the economy, which set the pace for economic growth. Several econometric tests were performed, the ultimate test being the Granger (1969) causality test. The test indicates unidirectional causality between the growth rate of real GNP and real exports.

Enu et al. (2013) did a study on the effect of foreign trade on economic growth in Ghana using a cointegration analysis between the period of 1980 and 2012. The empirical analysis was based on time series econometrics. The study borrows the idea of the Cobb-Douglas production function specification where real gross domestic product is related to the inputs of exports, imports and foreign direct investment. The study found out that in the long-run, export had a positive effect on real gross domestic product and as a result, an increase in exports leads to an improvement in real gross domestic product.

3.4   Conclusion

In conclusion, it is clear from the above literature review that the evidence regarding exports-economic growth nexus is rather ambiguous and mixed. A number of studies support the export-led economic growth while others do not. Furthermore, studies on this

issue in the context of Ghana are only a few, some of which I have indicated above. Therefore, this paper intends to use time series analysis to properly situate the exports-economic growth nexus for Ghana from 1980 to 2013. This study will provide useful information helpful to policy makers. It can also serve as a reference to subsequent research works on the issue "exports-economic growth nexus" in the context of Ghana.

CHAPTER FOUR

METHODOLOGY

4.1   Introduction

The objective of this research is to investigate the dynamics of the relationship between exports and economic growth in Ghana using the annual data for the period 1980 to 2013. This chapter therefore will look at the model specification to aid in achieving the objectives of the study.

4.2   Theoretical Framework

In order to achieve the objectives of this work, this study will employ the use of a simpler model to illustrate the basic relationship between exports and economic growth. The study, therefore, borrows a framework proposed by Fosu (1990b). The model uses the standard production function approach. The model assumes that a given country's production is characterized by the augmented aggregate production function expressed in the form:

$$Q = Q \ [(L, K)]; \ X \qquad\qquad (1)$$

Where Q is real aggregate output; L and K denotes labour and capital inputs respectively; and X represents exports. X is not a proper argument of a production function. However, it is intended to reflect those international factors that affect productivity but are not captured in labour and capital inputs. Therefore, X may be seen as a systematic error term affecting real aggregate output due to the reasons already stated above, so that the conditional expectation $E \ (X/L, \ K)$ is non-zero. Hence, unless one of the estimates

appropriately controls for *X*, the estimates of the effects of *L* and *K* on *Q* may be biased or inconsistent.

Differentiating equation (1) totally, we have

$$dQ = Q_L\,dL + Q_K dK + Q_X\,dX \tag{2}$$

Where Q_i is the partial derivative of Q with respect to the ith functional argument. Dividing equation (2) through by Q and manipulating terms, equation (2) becomes

$$\dot{Q} = e_L\dot{L} + e_K\dot{K} + e_X\dot{X} \tag{3}$$

Where $\dot{Q}, \dot{L}, \dot{K}$ and $\dot{X}$ are growth rates of output, labour, capital and exports respectively; e_L, e_K, and e_X denote the respective elasticities of output with respect to labour, capital and exports. As currently stated, equation (3) is homogenous. However, a more flexible form allows for a constant term. The estimating equation, then, becomes:

$$\dot{Q} = b_0 + b_1\dot{L} + b_2\dot{K} + b_3\dot{X} + \mu \tag{4}$$

Where b_i ($i = 0, 1, 2, 3$) are the regression coefficients to be estimated, and μ denotes the stochastic disturbance term.

It is expected that b_1, b_2 and b_3 will be positive. However, the focus of the current analysis is on the export coefficient b_3. In particular, will b_3 be smaller or larger for Ghana than for other LDCs? We shall expect b_3 to be smaller, given previous findings that countries with greater agricultural product contents of exports were likely to experience a less export impact (e.g., Syron and Walsh, 1968), together with the observation that LDCs in Africa exports are weighted toward these primary products relative to other LDCs. This notwithstanding, factors like cultural orientation and practices, as well as industrial organization and management that might affect transmission mechanisms of the beneficial impacts of exports in Ghana could influence

the magnitude of b_3. "It is not clear a *proiri*, then, whether these other factors will reduce or reinforce the export-content effect. Thus, the magnitude of b_3 for African countries relative to other LDCs remains an empirical question" (Fosu, 1990b).

4.3   Model Specification

A model is a mathematical representation of a reality, it is also a simplified view of reality designed to enable a researcher describe the essence and inter-relationship within the system or phenomenon it depicts (Yomere and Agbonifoh, 1999). This section looks at the model specification to help in achieving the objectives of the study. Based on the objectives of the study, two model specifications would be used.

1. The first model has Gross Domestic Product (GDP) as a function of exports and other variables.

2. The second model looks at the causality between exports and GDP growth.

Based on the aforementioned model, the study uses augmented production function expressed in the form:

$$GDP = b_0 + b_1 LAB + b_2 CAP + b_3 EXP + \mu \tag{5}$$

Where *GDP*, *LAB*, *CAP* and *EXP* represent gross domestic product, labour, capital and exports respectively. b_0 is the intercept; b_1, b_2 and b_3 are the parameters to be estimated, whiles μ is white noise error term. According to Cameron (1994) and Ehrlich (1996) a log-linear form is more likely to find evidence of a deterrent effect than a linear form, the augmented production function is therefore transformed into log-linearize equation as follows:

$$lnGDP = b_0 + b_1 lnLAB + b_2 lnCAP + b_3 lnEXP + \mu \tag{6}$$

The theoretical expectations of the above equation are as follows: $b_1 > 0, b_2 > 0, b_3 > 0$.

4.4　　Description of Variables and the Expected Signs of Their Coefficients

Capital (GCF): Gross Capital Formation (GCF) measured in real units is used as a proxy for capital investment. The "GCF consists of fixed assets of the economy as well as the net changes in the level of inventories" (Adu, 2011). All things being equal, rising investment levels in the economy lead to growth in output, thus a positive relationship between capital and growth (Young, 1995). Data on real GCF were obtained from the World Development Indicators.

Labour (LAB): "Labour force is the total labour force or currently active population, comprises all persons who fulfill the requirements for inclusion among the employed or unemployed during specified period" (Shim J.K. et al., 1995). Labour participation rate (i.e., actively employed labour) would be used as a proxy for the variable labour. The labour participation rate is defined as the proportion of ages from 15 to 64 years that is economically active. Thus, all people who supply labour for the production of goods and services during a specific period of time. Output is expected to grow when the labour force in the economy increases. Hence, a positive relationship between labour and output is expected (Young, 1995). Data on labour for this study was obtained from the Food and Agricutural Organisation.

Exports (EX): Exports comprise both traditional and non-traditional exports. Traditional exports of Ghana, mainly consist of cocoa beans, timber and minerals. Non-traditional exports are all other exports, except the commodities that form up the traditional exports (GEPA, 2013). This definition differs from country to country based on the export component of a particular country. Exports, measured in real units are expected to have a positive effect on output growth. Data on real exports were obtained from the World Development Indicators.

Output (GDP): There are many ways of measuring economic growth in a country. This study however uses gross domestic product (GDP) measured in real units as a proxy for output."It is the sum of gross value added by all resident producers in the economy in addition to any product taxes, minus any subsidies not included in that of the products" (Shim J.K. et al., 1995). Real GDP will be used because it captures the salient aspect of economic growth and it is often used to measure a nation's well-being. It is the dependent variable in the regression. This is because other researchers have used it in their work as dependent variable (Khan and Bashar, 2007 and Frimpong, J. M. and E. F. Abayie, 2006). Real GDP data for this study were obtained from the World Development Indicators.

4.5   Sources of Data

The data for this study are mainly from the Ghana statistical service (GSS), Ghana Export Promotion Authority (GPA), World Bank, Bank of Ghana, World Development

Indicators, Food and Agricultural Organization, Published theses and all other relevant sources. The data is made up of real exports (both traditional and non-traditional exports), real gross domestic products (a proxy for productivity) real gross capital formation (a proxy for capital investment) and labour participation rate (a proxy for labour).

4.6   Empirical Estimation

In this section, the study presents a description of the econometric techniques adopted in the work. Thus, a brief description of stationarity and unit root problems, cointegration techniques, causality tests as well as the Vector Error Correction Model (VECM) shall be discussed in this section.

4.6.1   Stationarity and Unit Root Problems

In order to check for stationarity of the variables used in the model, it is important to use the unit root test. That is the unit root test is used in order to ensure that all the variables have a constant mean and constant variance. The idea is to test whether if we can build a long-run relationship among variables that are non-stationary. Therefore, once the unit roots are confirmed for data series, the next step is to examine whether there exists a long-run equilibrium relationship among variables. This calls for cointegration analysis, which is significant so as to avoid the risk of spurious regression. The Phillip-Peron (PP) tests have been widely used in testing for unit roots since they are known to have decent power against stationarity alternative hypothesis. This notwithstanding, many researchers have been using the ADF tests too. Although the ADF tests are more or less correct under the null of a unit root, they are not very powerful (Lee and Mossi, 1996). Also, Diebold

and Rudebusch (1991) found the ADF tests to have quite low power in testing for unit roots. Balke and Fomby (1991) found the standard Dickey-Fuller critical values to result in too many rejections of the unit root null hypothesis. Therefore, the standard PP test is carried out in this study to test for stationarity of all the variables in the model. The null hypothesis of the test is that the series contain unit root (non-stationarity) whiles the alternative hypothesis is that the series has no unit root (stationarity).

If the results obtained provide strong evidence that all the time series in levels are non-stationary, then it implies they are integrated at an order of 0, i.e. I (0) at 5 percent significance level. Thus, it indicates that the null hypothesis cannot be rejected for any of the variables under scrutiny. If the variables are not stationary in levels we go ahead to take their first difference. If the test rejects the null hypothesis at the first difference of the variables, it implies that they are integrated at an order of 1, i.e. I (1) at 5 percent significance level, which means that they are stationary. Moreover, if the test fails to reject the null hypothesis in levels and first differences, but rejects it in second differences, then the series contains two unit roots and is of integrated order two, I (2) (Mencet et al, 2006).

4.6.2   Tests for Cointegration

Once the unit roots are confirmed for data series and also the variables are integrated of the same order, the next step is to examine whether there exists a long-run equilibrium relationship among the variables. This calls for cointegration analysis, which is significant so as to avoid the risk of spurious regression. The Johansen Maximum Likelihood technique of testing for cointegration will be applied here because it has

several distinct advantages. Firstly, it is an invariant test, which permits the existence of cointegration between the system variables without imposing bias on the estimates. Thus, it does not assume some what arbitrarily the direction of the regression, which may lead to different and misleading results. Secondly, it can identify whether more than one cointegrating vector really exists. Thirdly, it can also estimate the long run or cointegrating relationships between the non-stationary variables using a ML procedure. This third feature could be useful for comparing the estimates obtained with the ones obtained using, for instance, the unrestricted error correction model.

In the Johansen framework, the first step is the estimation of an unrestricted, closed p order VAR in k variables. The VAR model as considered in this study is:

$$Y_t = F_1 Y_{t-1} + F_2 Y_{t-2} + \ldots\ldots\ldots + F_P Y_{t-p} + DX_t + \mathcal{E}_t \tag{7}$$

Where F_t is a k-vector of non-stationary I(1) endogenous variables, X_t is a d-vector of exogenous deterministic variables, F_1,........, F_p and D are matrices of coefficients to be estimated, and $\mathcal{E}_t$ is a vector of innovations that may be contemporaneously correlated but are uncorrelated with their own lagged values and uncorrelated with all of the right-hand side variables. The Johansen approach to cointegration uses two test statistics. The first is called the maximum eigenvalue test ($\lambda_{\max}$) which teststhe null hypothesis that there are r + 1 cointegrating vectors versus the alternative hypothesis that there are r cointegrating vectors. The second, labeled the trace test, is employed to test the hypothesis that there are at most r cointegrating vectors.

4.6.2.1 Trace Test Statistic

The trace test statistic can be specified as:

$\tau_{trace} = -T \sum_{i=r+1}^{k} \log(-\lambda_i)$, where T is the number of observations and λ_i is the *ith* largest eigenvalue of matrix Π. In the trace test, the null hypothesis is that the number of distinct cointegrating vector(s) is less than or equal to the number of cointegration relations (r).

4.6.2.2 Maximum Eigenvalue Test

The maximum eigenvalue test examines the null hypothesis of exactly *r* cointegrating relations against the alternative of *r* + 1 cointegrating relations with the test statistic:

$\tau_{trace} = -T\log(1 - \lambda_{r+1})$, where λ_{r+1} is the $(r + 1)^{th}$ largest squared eigenvalue. In the trace test, the null hypothesis of *r* = 0 is tested against the alternative of *r* + 1 cointegrating vectors. It is well known that Johansen's cointegration test is very sensitive to the choice of lag length. So, at first a VAR model is fitted to the time series data in order to find an appropriate lag structure. The Akaike Information Criterion (AIC), Schwarz Criterion (SC) and the Likelihood Ratio (LR) test are used to select the number of lags required in the cointegration test.

4.6.3   Error Correction Model

The Error Correction Model (ECM) is another way to investigate the relationship among variables. The error correction term represents the long-run relationship between the variables. For example, ECM combines the short-run and the long-run relationships of the variables in one equation. It confirms the existence of the long-run relationship

among the variables, if one variable is causing the other variable. The causality test helps

to test if a causal relationship exists between two variables. If one variable is causing the

other variable, then the first variable contains some useful information about the latter

that enables us to predict its future values efficiently.

The Vector Error Correction Model (VECM) has cointegration relations built into the

specification in order for it to restrict the long-run behaviour of the endogenous variables

to converge on their cointegrating relationship while allowing for short-run adjustment

dynamics. The cointegration term is termed as the error correction term since the

deviation from long-run equilibrium is corrected gradually through a series of partial

short-run adjustments. The dynamic specification of the VECM creates the possibility of

the deletion of the insignificant variables of the model, while the error correction term is

retained. The size of the error correction coefficients indicates the speed of adjustment of

any disequilibrium towards a long-run equilibrium state. For the purposes of this study,

the ECM as suggested by Hendry (1995) has been used. The general form of the VECM

is specified as follows:

$$\Delta Y_t = \alpha_0 + \lambda_1 EC_{t-1}^p + \sum_{i=1}^{m} \alpha_i \, \Delta Y_{i=1} + \sum_{j=1}^{n} \alpha_j \, \Delta X_{t-j} + \mathcal{E}_{1t} \quad (8)$$

$$\Delta X_t = \beta_0 + \lambda_2 EC_{t-1}^q + \sum_{i=1}^{m} \beta_i \, \Delta X_{i=1} + \sum_{j=1}^{n} \beta_j \, \Delta Y_{t-j} + \mathcal{E}_{2t} \quad (9)$$

Where Δ is the difference operator; EC_{t-1}^p is the error correction term of equation (8)

lagged one period; EC_{t-1}^q is the error correction term of equation (9); λ is the short-run

coefficient of the error correction term (-1< λ < 0); and $\mathcal{E}$ is the white noise. The error

correction coefficient (λ) is very neccesary in this error correction estimation since greater coefficient implies higher speed of adjustment of the model from the short-run to the long-run.

A significant and negative coefficient of the error correction term indicates the presence of long-run causal relationship. If all the two coefficients of error correction terms in equations (8 & 9) are significant and negative, it implies bi-directional causality. If only λ_1 is significant and negative, it implies a unidirectional causality from X to Y (i.e., exports to GDP), implying that exports drives GDP towards long-run equilibrium, but not the other way around. Similarly, if λ_2 is significant and negative, this will suggest a unidirectional causality from Y to X (i.e., GDP to exports), meaning that GDP drives exports towards long-run equilibrium, but not the other way around.

On the other hand, the lagged terms of Y_t and X_t appeared as explanatory variables, indicating a short-run cause and effect relationship between the two variables. Thus, if the lagged coefficients of ΔY_t appear to be significant in the regression of ΔX_t, this will mean that Y (GDP) causes X (exports). Similarly, if the lagged coefficients of ΔX_t appear to be significant in the regression of ΔY_t, this will mean that X (exports) causes Y (GDP).

4.6.4 Causality Test

A number of arguments have been put forward by different studies concerning the potential contribution of exports to economic growth. Thus, though most trade theories support the Export-led Growth hypothesis, others too are in support of Growth led Export

hypothesis. If the direction of causation is running from economic growth to exports, then it would imply that higher level of economic activity is a prerequisite for developing countries to expand their exports, thus the GLEH. If a definite unidirectional causality running from export expansion to economic growth is found, then it will lend credence to the Export-led strategy. If the direction of causation is bi-directional in nature, then it would imply that exports and economic growth have a complex relationship characterized by feedback effects. Finally, if there is no causality between exports and economic growth, then alternative strategies rather than export promotion may be needed to structurally transform the economy.

To solve this complex issue, the study uses the methodology proposed by Granger (1969) and Sims (1972). Testing for causality between exports and economic growth in the Granger sense involves using F-test to test whether lagged information on economic growth provides any statistically significant information about export in the presence of lagged exports. If not, then economic growth does not Granger-cause exports. A simple Ganger causality test involving two variables, exports and GDP can therefore be specified as:

$$lGDP_t = \alpha_0 + \sum_{j=1}^{p} \alpha_j \, lGDP_{t-j} + \sum_{j=1}^{q} \beta_j lEX_{t-j} + \mathcal{E}_t \tag{10}$$

$$lEX_t = b_0 + \sum_{i=1}^{p} b_t \, lEX_{t-j} + \sum_{j=1}^{q} \lambda_t lGDP_{t-j} + V_t \tag{11}$$

73

Where, *lGDP* represents natural log of realgross domestic product (as a measure of economic growth) and *lEX* represents natural log of real exports. $\mathcal{E}_t$ and V_t are serially uncorrelated white noise error terms; the coefficients $\alpha, \beta, b, \lambda$ are expressing the short-run dynamics of the model's convergence to equilibrium; and p and q are lengths for each variable in each equation.

Two null hypotheses to be tested are:

$H_O: \alpha_j = 0, \ j = 1 \ ... \ q,$ Export growth does not cause GDP growth.

$H_1: b_t = 0, \ t = 1 \ ... \ q,$ GDP growth does not cause Export growth.

If the causality test does not reject all the hypotheses, it means that export growth does not cause GDP growth and GDP growth also does not cause exports growth. It suggests that the two variables are independent of each other. If the first hypothesis is rejected, it indicates that export growth causes GDP growth. Rejection of the second hypothesis means that the causality runs from GDP to exports. If the Granger causality test rejects all hypotheses, there is a bi-directional causality between exports and GDP growth.

CHAPTER FIVE

RESULTS AND FINDINGS

5.1   Introduction

This chapter presents the analysis of data and interpretation of the results of this study. The stationary properties of all the variables of interest are established using Phillip-Perron test. In addition, the Johansen cointegration method of estimation is being employed to examine the long-run relationship between exports and economic growth in Ghana over the period 1980 to 2013. The short-run and long-run relationships between the variables of interest of this study, as well as the causality between exports and gross domestic product (GDP) in Ghana shall be looked at in this chapter. Therefore, results and findings of stationarity test, cointegration test, and Granger causality test as well as Vector Error Correction Model of testing for short-run and long-run causality between exports and GDP shall be revealed in this chapter.

5.2   Results of Stationarity Test

To avoid spurious regression estimates as a result of the use of non-stationary variables, the variables in the study were tested for stationarity. The Philip-Perron (PP) test statistic were adopted to test for the presence of unit roots in the variables.

Tables 4 and **5** present the results of the PP unit root test. The null hypothesis is that, the series contains unit root (non-stationary) and the alternative hypothesis is that the series has no unit root (stationary). The results obtained provide strong evidence that the variables for the analysis were not stationary at both 1% and 5% significant levels in their

levels. Thus, this indicates that the null hypothesis cannot be rejected for any of the variables under scrutiny. Hence, we proceed to take the first differences and the test strongly rejects the null hypothesis, which means that the variables are stationary. This implies that all variables are integrated of order one, I (1). The PP test also determines whether the data series are integrated. Once the variables are integrated of the same order, we can carry out the cointegration tests (Saunders et al, 2001). From **Table 4**, LGDP, LEX, LGCF and LLA represent the logarithms of gross domestic products, exports, gross capital formation and labour respectively.

Table 4: Phillips-Perron (1988) unit root test in levels

Sample period: 1980-2013 (yearly)

Sample size: 34

Variables	Test statistics	Critical value 1%	Critical value 5%	Critical value 10%	P-Value
LGDP	-0.5238	-3.64634	-2.95402	-2.61582	0.8740
LEX	1.991165	-3.64634	-2.95402	-2.61582	0.9998
LGCF	0.539454	-3.64634	-2.95402	-2.61582	0.9856
LLA	-0.97122	-3.64634	-2.95402	-2.61582	0.7519

Source: Author's estimation from Eviews

Table 5: Phillips-Perron (1988) unit root test in first difference

Sample period: 1981-2013 (yearly)

Sample size: 33

Variables	Test statistics	Critical value 1%	Critical value 5%	Critical value 10%	P-Value
DLGDP	-3.88338	-3.65373	-2.95711	-2.61743	0.0056
DLEX	-4.91829	-3.65373	-2.95711	-2.61743	0.0004
DLGCF	-5.68592	-3.65373	-2.95711	-2.61743	0.0000
DLLA	-3.3022	-3.65373	-2.95711	-2.61743	0.0232

Source: Author's estimation from Eviews

5.3   Results of Cointegration Test

Having found stationarity at the first difference of the Phillip Perron (PP) unit root test, we proceed by finding the cointegration among the variables to establish long-run and short-run relationships between the variables. Vector Autoregressive (VAR) is used to estimate the optimal lag length for the Johanson cointegration test. From the VAR lag selection criterion results, all Akaike information criterion AIC, Schwarz information criterion (SC) and Hannan-Quinn information (HQ) criterion chose optimal lag length 2. Using the selected optimal lag length, the numbers of cointegrating vectors are obtained using the likelihood ratio test which depends on the maximum eigen values of the stochastic matrix of the Johanson (1991) procedure.

Table 6: Results of VAR Lag Order Selection Criteria

Sample period: 1980-2013 (yearly)

Included observations: 31

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-85.97755	NA	0.003901	5.805003	5.990034	5.865318
1	37.17981	206.5865	3.92e-06	-1.108375	-0.183222	-0.806798
2	189.4289	216.0954*	6.32e-10*	-9.898636*	-8.233361*	-9.355798*

* indicates lag order selected by the criterion
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Source: Author's own estimation from Eviews

Table 7 contains the results obtained by the application of the Johansen procedure to test for cointegration using a VAR at an order of 2. The results correspond to the entire time period (1980-2013). The null hypothesis of zero cointegrating vectors is rejected against the alternative of one cointegrating vector. Similarly the null hypothesis of at most 1 vector is also rejected against the alternative hypothesis. Therefore, it is concluded that there are two cointegrating vectors specified in the model. Hence, the variables of the model have long-run equilibrium relationship between them.

Table 7: Results of Johansen's Cointegration Test

Sample (adjusted): 1983-2013 (yearly)

Included observations: 31 after adjustments

Hypothesized Number of Cointegrating Equations	Eigen Value	Trace Statistics	Critical Value at 5% (p-value)	Maximum Eigen Statistics	Critical Value at 5% (p-value)
None*	0.609358	55.33411	0.0085	29.13891	0.0313
At Most 1	0.356122	26.19521	0.1230	13.64760	0.3946

*denotes equilibrium rejection of the hypothesis at the 0.05 level

Source: Author's own Calculation from Eviews

The Trace test statistics indicate the existence of onecointegrating equation at the 5 percent level of significance. This result is confirmed by the maximum Eigen value test. We therefore conclude that there is one cointegrating equation among the variables based on the maximum Eigen value test (Enders, 2004). Thus, the null hypotheses of no cointegration are rejected, implying long-run equilibrium relationships amongst the variables, when normalized for a unit coefficient on LGDP. But in the short-run, there may be deviations from this equilibrium, and it is required to verify whether such disequilibrium converges to the long-run equilibrium or not. Thus, a Vector Error Correction Model (VECM) is used to generate such short-run dynamics. The Error correction mechanism provides a means whereby a proportion of the disequilibrium is corrected in the next period. So that it reconciles the short-run and long-run behaviours among variables. The result in **Table 8** shows the long-run relationships among the

variables. All the variables turn out to be statistically significant and have their respective signs.

Table 8: Normalized cointegrating coefficients; Estimated Long-run Model (LGDP

is Dependent Variable)

Sample (adjusted): 1983-2013 (yearly)

Included observations: 31 after adjustments

Variables	Coefficients	Standard errors	T-Statistics
LEX	1.392345	0.86818	1.60375
LGCF	4.064241	0.74170	5.47960
LLA	-6.557653	1.07653	-6.09145

Source: Author's estimation from Eviews

The long-run equation can therefore be expressed as follows:

$$LGDP = -70.51763 + 1.392345LEX + 4.064241LGCF - 6.557653LLA \qquad (12)$$

LEX, LGCF and LLA in **Table 8** represent the logarithms of exports, gross capital formation and labour respectively. Exports and gross capital formation carried the expected sign, but labour did not carry the expected sign. From **Table 8**, the effect of export on real gross domestic product is positive and elastic. Thus, with a coefficient of 1.392345, it can be explained that a 1 percent increase in exports will lead to an approximately 1.4 percent increase in real gross domestic product. The coefficient of export is statistically significant at 5% significance level. This result is consistent with the

findings of Edoumiekumo et al. (2013), Usman et al. (2012) and Atoyebi et al. (2012) while contradictory to the findings of Akeem (2011).

As ealier reviewed in this study, Doraisami (1996) found a positive long-run relationship between export and economic growth for Malaysia. Jordaan (2007) also revealed that an export-led growth strategy through various incentives has a positive influence on economic growth in Namibia. Most relevant to present study, Enu et al. (2013) found that in the long-run export has a positive effect on economic growth of Ghana.

We may postulate that Ghana has gained from its comparative advantage in primary commodities as a source of economic growth. The positive role of the primary export sector in the economic growth process is thus comparable to that of Indonesia, Malaysia and Thailand. Bahmani-Oskooee et al. (1992) found positive relationship between exports and economic growth for Indonesia and Thailand. According to Azam (2009), the shift from trade restricted economy to trade liberalization is attributed to positive relationship that exists between export and economic growth.

The coefficient of the gross capital formation is positive as expected based on theory. It is also elastic and statistically significant at 5 percent significance level. Specifically, a 1 percent increase in gross capital formation results in about 4.1 percent increase in real gross domestic product. It can be inferred that gross capital formation has a positive impact on real GDP in Ghana, in general. This means that in the long-run, increases in gross capital formation is crucial to economic growth in Ghana. This result is in support of the theory and concurs with the result obtained by E. F. Oteng-Abayie, et al. (2006) and E. F. Millset al. (2012), who found it to be statistically significant at 1 percent

81

significance level. Adequate capital is one of the primary needs of economic growth in Ghana on theoretical and empirical grounds. Capital flows out of savings and savings out of income. More capital will ensure an increase in production and an increased production will lead to more output and hence, more growth. This is due to the fact that when savings rate is high, a larger percentage of output can be allocated for investment which may lead to faster rate of capital accumulation and output growth, all other things being equal.

Finally, the impact of labour on real gross domestic product in the long-run is also negative and elastic. With a negative coefficient of 6.557653, it is anticipated that a 1 percent increase in labour force will lead to approximately 6.6 percent decrease in real gross domestic product. The coefficient is statistically significant at 5% level of significance. This outcome is once again consistent with studies by Aryeetey and Fosu (2005). The negative relationship between labour and real GDP could be attributed to the following reasons: Firstly, growth in labourforce alone cannot contribute to growth in output; other factors of production must be combined in certain proportions to ensure adequate growth. The unavailability of the needed equipment to help fast track productivity is a major contributing factor.

Secondly, Ghana is characterized by increasing unemployment rate. The unemployment rate as a percentage of total labour force in Ghana increased from 4.19% to 4.59% in 2013 (WDI, 2014). In effect, an increase in labour force in Ghana does not necessarily mean all of them are employed. Hence, this huge number of active, but unemployed

labour does not add to productivity, but rather take away from productivity by way of burdening the limited resources of the country, thereby reducing the growth of the economy. Moreover, the few labourforce that gets fortunate to gain employment too underperform as far as adding to productivity is concerned because most of them lack the basic requisite skills, competence and technical knowhow to ensure adequate growth in output. Increases in employment without corresponding increases in productivity lead to production shortfall, which ultimately affects the growth of output in the Ghanaian economy. This is why some experts are now promoting the creation of quality and not quantity in labour market policies.

5.4   Vector Error Correction Model

The existence of cointegrating equations in the system calls for the use of the Vector Error Correction Model to estimate the long and short-run cointegrating coefficients. The error correction model provides knowledge on the speed of adjustment as a result of any possible deviation from the steady state.

5.4.1   Short-run Estimates for the Relationship between GDP and Exports

The results of the short-run estimates and the adjustment coefficients normalized on the growth of the variables are shown in **Table 9** below. The Error Correction Term (ECT) reflects the temporal status of the long-run relationships in the system. The sign and size of the estimated coefficient of the ECT in the equation reflect the direction and speed of adjustment from the short-run equilibrium to the long-run equilibrium state. A negative and significant ECT is a sufficient condition for the convergence of the variables at

equilibrium in the long-run. The result of the short-run dynamic relationship and the set

of short-run coefficients in the vector error correction model are shown in the **Table 9.**

Table 9: The Result of Error Correction Model for Short-run Dynamics (LGDP is the Dependent Variable)

	Coefficient	Std. Error	t-Statistic	Prob.
Error correction term	-0.834550	0.303180	-2.752652	0.0123
D (LY (-1))	0.348463	0.257311	1.354249	0.1908
D (LY (-2))	0.233541	0.284722	0.820242	0.4217
D (LEX (-1))	0.263881	0.422323	0.624832	0.5391
D (LEX (-2))	0.052222	0.289511	0.180380	0.8587
D (LGCF (-1))	0.800230	0.410378	1.949981	0.0653
D (LGCF (-2))	0.103557	0.283331	0.365498	0.7186
D (LLA (-1))	7.211363	14.39280	0.501040	0.6218
D (LLA (-2))	-7.688534	14.41302	-0.533444	0.5996
Constant	-0.202376	0.446328	-0.453424	0.6551
R-squared	0.534390	Mean dependent var		0.018383
Adjusted R-squared	0.324866	S.D. dependent var		0.284804
S.E. of regression	0.234014	Akaike info criterion		0.194328
Sum squared resid	1.095249	Schwarz criterion		0.661394
Log likelihood	7.085081	Hannan-Quinn criter.		0.343746
F-statistic	2.550490	Durbin-Watson stat		2.282995
Prob(F-statistic)	0.038953			

Source: Author's computation from Eviews

From **Table 9**, D (LY (-1)), D (LY (-2)), D (LEX (-1)), D (LEX (-2)), D (LGCF (-1)), D

(LGCF (-2)), D (LLA (-1)), and D (LLA (-2)), represents GDP lagged in first order,

GDP lagged in second order, export lagged in first order, export lagged in second order,

GCF lagged in the first order, GCF lagged in second order, labour lagged in first order

and labour lagged in second order respectively. An examination of the econometric

results shows that the overall fit is satisfactory with an R-squared of 0.534, thus 53.4% of

the systematic variation in the dependent variable is explained by the ECM. Also, the

probability value of the F-statistic (0.038953) is significant at 5% level. This justifies that the independent variables are jointly significant in explaining the short-run variations in GDP growth.

The long-run component of the model is given by the lagged Error Correction Term (ECT). From the results, the coefficient of the ECT is negative and significant at 5 percent significance level. A significant ECT coefficient means that all things being equal, whenever the actual value of GDP falls below the value consistent with its long-term equilibrium relationship, changes in the independent variables help bring it up to the long-term equilibrium values. The size of the coefficient indicates that the speed of adjustment to equilibrium whenever there is a shock is about 83.5%. This is a relatively high-speed of adjustment to long-run equilibrium. The coefficient of the ECT shows that should there be shocks that will cause disequilibrium in the economy, 83.5 percent of the errors emerging from such disequilibrium will be corrected. Thus, since the sign of the coefficient of the error correction term is negative and significant, we accept the results of the model and conclude that, there exists a significant relationship between real GDP, exports, gross capital formation and labour. Stated differently, there is a long-term causality running from the independent variables to the dependent variable.

From **Table 9**, both past time/lag periods of real gross domestic product growth impacted positively on the current real gross domestic product growth, though not statistically significant. The results also show that, in both the first time/lag and second time/lagperiods, growth in export is positively related to GDP growth but it is statistically

insignificant; suggesting that though positive, export growth does not have any influence on the GDP growth in both time/lag periods. The piece of evidence that the influence of both the two-year lagged export growth on GDP growth is insignificant explains the fact that, the influence of exports on GDP growth is not immediate. Thus a 1% increase in exports in the first and second time/lag periods will result in a respective approximately 0.3% and 0.1% increase in current GDP growth. This result is in line with the work done by Usman et al. (2012) and Enu et al (2013) who found a positive relationship between growth in exports and GDP growth.

The first and second time lag of the growth in real gross capital formation, also was found to have no significant effect on the GDP growth in the short-run. However, both past time/lag periods of real gross capital formation growth had a positive impact on real gross domestic product growth. This result supports the conclusions of the work done by Aryeetey and Fosu (2005), Danquah (2006), who found real gross capital formation to be positively related to GDP growth but statistically insignificant.

Furthermore, it can be seen from the results that, in the first time/lag period, the impact of growth rate in labour force on GDP growth is positive and statistically insignificant in the short-run. This result is consistent with economic theory and the findings of Danquah (2006) and Mills et al. (2012). The results further show that growth rate in labour force and GDP growth are negatively related in second time/lag period. This result also in line with the findings of Aryeetey and Fosu (2005).

Therefore, in the short run, the relation between the past two time/lag periods of growth rate in real gross domestic product, exports and gross capital formation and the current real gross domestic product growth is positive but not statistically significant in explaining the variation in real gross domestic product growth. The relation between the past two time/lag period and immediate past time/lag period of labour on current real GDP growth is however, negative and positive respectively. Labour is also not statistically significant in explaining the variations in real gross domestic product in the short-run.

5.4.1.1 Wald Test of Vector Error Correction Model

After going through the short-run dynamics, we proceed to perform the Wald coefficient test to know the causality of the independent variables (exports, gross capital formation and labour) on the dependent variable (GDP) in the short-run.

From **Table 9**, we use the Wald test to test the null hypothesis that all lagged values of the independent variables does not jointly cause GDP growth.

H_0: C4 = C5 = C6 = C7 = C8 = C9 = 0

As against the alternative hypothesis that

H_1: C4 = C5 = C6 = C7 = C8 = C9 $\neq$ 0

Where C4, C5, C6, C7, C8, and C9, represents export lagged in first order, export lagged in second order, GCF lagged in the first order, GCF lagged in second order, labour lagged in first order and labour lagged in second order respectively. The results of the Wald test are shown below in **Table 10;**

Table 10: Wald Test of VECM (GDP is the Dependent Variable)

Wald Test:

Equation: Untitled

Test Statistic	Value	Df	Probability
F-statistic	3.627771	(5, 20)	0.0169
Chi-square	18.13886	5	0.0028

Source: Author's computation from Eviews

From the results of the Wald test, we reject the null hypothesis that exports, gross capital formation and labour does not jointly cause gross domestic product growth in the short run. Thus, all lagged independent variables (i.e., C (4), C (5), C (6), C (7), C (8), C (9)) can jointly influence GDP growth. Hence, there is a causality running from exports, gross capital formation and labour to GDP growth in the short-run at 5% significance level.

5.5   Diagnostic Tests

The study has examined the adequacy of the specified models with various diagnostic tests (see **Appendix** J). These tests include test for serial correlation, heteroskedasticity, and normality of residuals. The null hypotheses of the tests are as follows:

(A) The residuals of the model are not serially correlated.

(B) There is no ARCH effect (heteroskedasticity).

(C) The residuals of the model are normally distributed.

The tests failed to reject none of the three null hypotheses (see **appendix** J) which imply that, there is no serial correlation of the model, there is no ARCH effect (heteroskedasticity) and also, the residuals of the model are normally distributed. Hence, the diagnostic tests show that the model is valid.

5.6   Granger Causality Test

Granger causality test is run in order to determine the causality and direction among the variables. This test tries to find whether or not past values of one variable lead to a change in the present values of another variable. The main interest for this study of causality, is to check if there is any Granger causality between exports and GDP. In principle, if changes in exports result in changes in GDP, then it can be said that, growth in exports Granger causes GDP growth. Thus, if past values of exports increase the prediction of GDP growth, then it is said that exports Granger causes GDP growth.

In testing for Granger causality between exports and GDP growth, two null hypotheses will be tested:

$H_O: \alpha_j = 0, \ j = 1 \dots \ q,$ Export growth does not cause GDP growth.

$H_O: b_t = 0, t = 1 \dots \ q,$ GDP growth does not cause Export growth.

The results of the Granger Causality test between exports and GDP are shown in **Table 10** below:

Table 11: Pairwise Granger Causality Test Results

Lags	Exports does not Granger cause GDP		GDP does not Granger cause Exports		Causal Inference
	F-Statistics	Probability	F-Statistics	Probability	
1	0.13326	0.7177	1.15890	0.2906	No causality
2	3.48092	0.0458	5.75432	0.0085	Bidirectional
3	2.71146	0.0685	3.39935	0.0349	Unidirectional

Source: Author's estimation from Eviews

The results indicate that causality exists at lag lengths 2 and 3 but no causality exists at lag length 1. Bi-directional causality and unidirectional causality exists between exports and GDP at lag lengths 2 and 3 respectively (**Table 10**). Thus, at lag 2, the hypothesis that export does not Granger causes GDP is rejected, while the hypothesis that GDP does not Granger causes an export is also rejected at 5% significance level. These results provide evidence of bi-directional causality between export and GDP. This implies that export growth Granger causes economic growth and economic growth also Granger causes exports in the same manner. At lag 3 however, GDP Granger cause exports, but exports does not Granger cause GDP.

From the lag selection criterion, SC, HQ as well as AIC selected lag 2. Based on this chosen lag, it can then be concluded that both GDP and exports Granger causes each

other. Hence, a mutual feedback effect between trade and output (Sharma et al, 1991). This upholds the bi-directional causality hypothesis in the Ghanaian economy.

This relationship, as discussed in the literature and background was justified by Helpman and Krugman, (1985) and Bhagwati, (1988). Bhagwati, (1988) argues that increased trade produces more income which leads to increased investment and subsequently growth in output. The growth in output, therefore will lead to more trade. Helpman and Krugman (1985) also hold that exports may increase when economies of scale are realized through productivity gains, with further implications for further cost reductions, and even more productivity gains.

5.7   Conclusion

This chapter has attempted to test for the dynamics of long-run and short-run relationship between all the variables of interest, as well as the causality between exports and GDP in Ghana for the period under review. The data properties were analyzed to determine the stationarity of time series using the standard Phillip-Perron unit root test. It was found that all the variables of interest: real gross domestic product, real exports, real gross capital formation and labour force were non-stationary at their levels but became stationary at their first differences. The results of cointegration tests based on Johansen's procedure indicate the existence of cointegration among all the variables. Thus, there exist long-run and short-run relationships among all the variables of interest. The study found that in the long-run export and gross capital formation had a positive effect on real gross domestic product. However, labour had negative effects on real gross domestic

product. Therefore, all the variables of the study have long-run equilibrium relationships among them, although they may be in disequilibrium in the short-run. In the short-run, export and gross capital formation were positively related to GDP growth. The growth rate of labour on the other hand was positively related to GDP growth in its immediate past time/lag period, but negatively related to GDP growth in its past two time/lag periods. The effects of all the variables, however, were statistically significant in the in the long-run model.

The vector error correction model based on VAR indicates that about 83.5 percent of disequilibrium is corrected every year. In addition, the negative and significant error correction term in ECM results supports the existence of a long-run equilibrium relationship between real GDP growth and and all the independent variables. The Granger causality test indicates that there is a bi-directional causality between exports and GDP growth.

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1   Introduction

The aim of this chapter is to summarize the findings of this study, present the major

conclusions, and draw recommendations for policy makers and future researchers.

6.2   Summary

The study has estimated the impact of exports on growth in Ghana using annual data

from 1980 to 2013. The long-run and the short-run relationship between exports and GDP

growth were examined. The Johanson cointegration analysis was used to detect the

existence of long-run relationships among gross domestic product, exports, gross capital

formation and labour. The results suggest that the variables are cointegrated and therefore

share a linear common trend, i.e., they move together in the long-run. Granger causality

tests were also used to explore pairwise causation. The Granger causality test indicated

that bi-directional causality exist between exports and GDP growth. Results of the Wald

test also confirmed that all independent variables jointly cause gross domestic product

growth in the short-run.

The study revealed that the short-run, the relation between the past two time/lag periods

of growth rate in real gross domestic product, exports and GCF and the current real gross

domestic product growth is positive but not statistically significant in explaining the

variation in real gross domestic product growth. The relation between the past two

time/lag periods and the immediate past time/lag period of labour on current real GDP

was however, negative and positive respectively. Labour was also not statistically significant in explaining the variations in real gross domestic product.

6.3   Conclusions

Trade liberalization is often considered to be conducive for economic growth. In addition to the comparative advantage argument of the classical economists, trade liberalization promotes large market, enhances competition, transfer of technology and hence efficiency in production (Asiedu, 2013). In the light of this, Ghana adopted the trade liberalization policy as part of structural reforms in 1986. This study therefore aimed at finding the impact of exports on the growth rate of real GDP of Ghana from 1980–2013. The empirical results of the study suggest that exports enhance real GDP growth in Ghana in both the long-run and short-run.

As expected, exports and GCF were found to have positive and significant impact on GDP in the long-run. Thus, a 1 percent increase in exports could lead to an approximately 1.4 percent increase in GDP. The coefficient of export is statistically significant at the 5% significance. Also, 1 percent increase in gross capital formation results in about 4.1 percent increase in GDP. Labour, on the other hand, was found to have a negative and significant influence on GDP in the long-run. Thus, a 1 percent increase in labour force might lead to approximately a 6.6 percent decrease in GDP. This rather unexpected outcome could be explained by the high unemployment rate and, as well, by the inefficiencies of the low skilled labour force in the Ghanaian economy. Labour was also found to be highly elastic in the long-run. This result is in line with literature that, the

94

longer the time period the higher the elasticity. None of the variables had significant impacts on GDP growth in the short-run. Their relative elasticities compared to that of the long-run were also smaller.

The error correction term (a measure of disequilibrium error), was found to be negative and significant. The size of the coefficient indicates that the speed of adjustment to equilibrium whenever there is a shock is about 83.5%. This is a relatively high-speed of adjustment to long-run equilibrium. This implies that short-run shocks or disturbances in the export sector would quickly move the economy towards the long-run equilibrium. The VECM estimates also revealed that there is a joint causal relationship running from exports, gross capital formation and labour to GDP in the short-run. The Granger causality test results confirmed a bi-directional causality between export and GDP growth. This implies that, a higher level of economic activity is a prerequisite for the economy to expand its exports, and that expansion of exports is also required to ensure growth in output of Ghana.

6.4   Recommendations

The following policy recommendations are made based on the findings: The study revealed a positive relationship between exports and GDP in the long-run. Therefore, policy makers and government should continue to encourage and promote exports since it significantly contributes to growth in the long-run. In an attempt to develop the export sector through various policies, policy makers should not lose sight of the fact that, the

sector is not immune to the same international trade regulations and irregularities that the traditional exports have been subjected to (Addo et al, 1999).

Increasing exports demands more than institutional planning and political rhetoric. Policies that provide a spatial balance in terms of export project development should be given attention as well as dealing with major constraints of exports. It was evident from the causality test that expansion in both exports and growth can cause each other to grow. Therefore, while efforts are being put in place to promote the export sector, efforts should also be made to promote output growth generally.

A stable macroeconomic environment serves to invariably promote export growth. Therefore, inflation targeting should be the main focus of the Bank of Ghana in order to maintain lower inflation rates and to ensure a stable macroeconomic environment. Maintaining inflation stability could ensure economic stability and, in turn, stimulate export growth. Finally, policy makers are advised of the need to train the labour force and to create more employment opportunities in order for labour to contribute gainfully to output growth.

6.5   Limitations and Areas for Further Research

The setbacks encountered in this study primarily involve data availability used for the analysis. There were not enough data points for all variables included in the study thereby limiting the sample period to 1980 - 2013. Even with this, the study could not obtain all the data from a single source, but had to extract it from different sources.

Furthermore, since the data is for one country, the results may not be applicable to other countries.

There is the need for micro-level studies that assess the importance of export composition, especially given the finding in the literature that manufacturing exports tend to have relatively high growth effects (e.g., Fosu, 1990a). Finally, this study has neglected exports in the service sector, which future researchers should consider as well.

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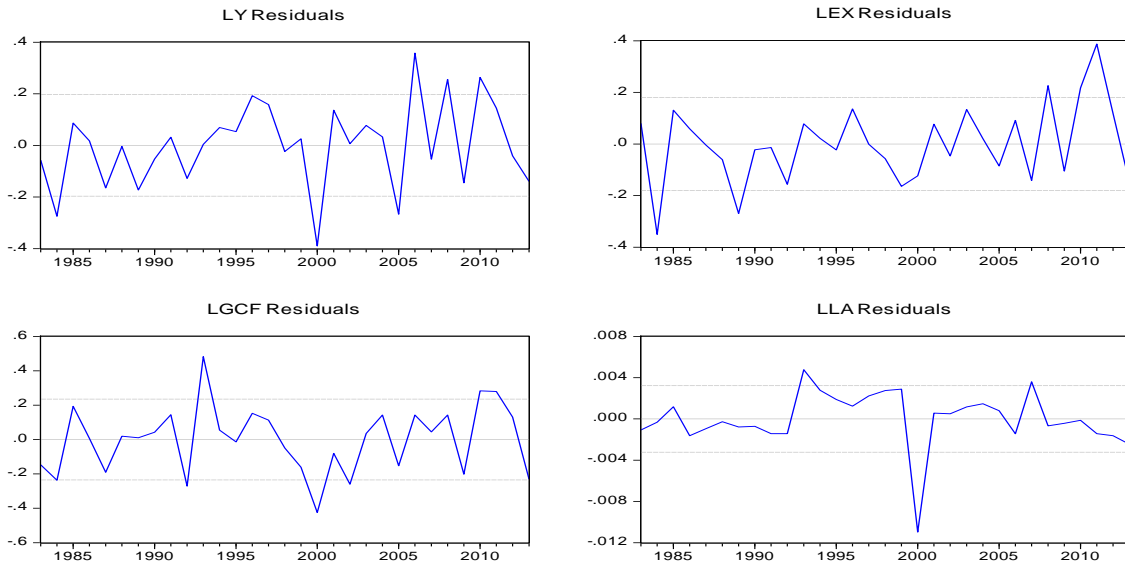
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APPENDICES

REGRESSION RESULTS FROM EVIEWS

Appendix A: Graph of Residuals of the Variables in levels

Appendix B: Descriptive Statistics of Level Variables

	LY	LEX	LGCF	LLA
Mean	23.10745	21.58122	21.25822	15.80752
Median	22.73847	21.52524	21.05004	15.81894
Maximum	24.59524	23.73163	23.28772	16.30789
Minimum	22.30331	20.22093	20.03612	15.29302
Std. Dev.	0.757746	0.974059	0.937492	0.306466
Skewness	0.673366	0.796656	0.742084	-0.031471
Kurtosis	1.837146	2.713867	2.486531	1.789963
Jarque-Bera	4.485050	3.712395	3.494073	2.079880
Probability	0.106190	0.156266	0.174290	0.353476
Sum	785.6533	733.7614	722.7796	537.4556
Sum Sq. Dev.	18.94790	31.31008	29.00342	3.099397
Observations	34	34	34	34

118

Appendix C: Pairwise Granger Causality Test Results
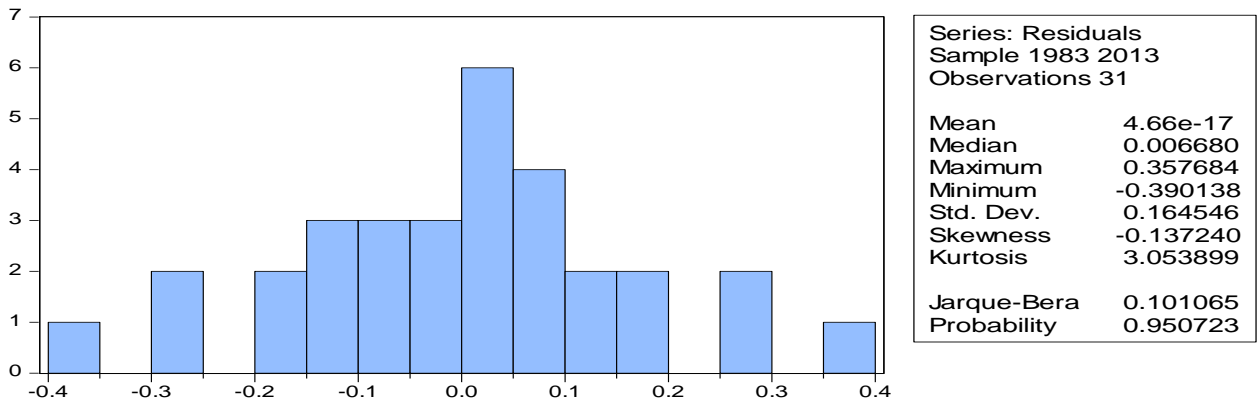
Pairwise Granger Causality Tests
Sample: 1980 2013
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
DLEX does not Granger Cause DLY	31	3.48092	0.0458
DLY does not Granger Cause DLEX		5.75432	0.0085
DLGCF does not Granger Cause DLY	31	3.55117	0.0433
DLY does not Granger Cause DLGCF		0.09972	0.9054
DLLA does not Granger Cause DLY	31	4.77567	0.0171
DLY does not Granger Cause DLLA		0.52836	0.5958
DLGCF does not Granger Cause DLEX	31	3.12906	0.0606
DLEX does not Granger Cause DLGCF		0.06988	0.9327
DLLA does not Granger Cause DLEX	31	3.47621	0.0459
DLEX does not Granger Cause DLLA		0.28113	0.7572
DLLA does not Granger Cause DLGCF	31	1.54504	0.2323
DLGCF does not Granger Cause DLLA		0.31550	0.7322

Appendix D: Diagnostic Test Results

Appendix D1: Results of Normality Test

Series: Residuals	
Sample 1983 2013	
Observations 31	
Mean	4.66e-17
Median	0.006680
Maximum	0.357684
Minimum	-0.390138
Std. Dev.	0.164546
Skewness	-0.137240
Kurtosis	3.053899
Jarque-Bera	0.101065
Probability	0.950723

119

Appendix D2: Results of Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.604454	Prob. F(2,19)	0.1001
Obs*R-squared	6.670112	Prob. Chi-Square(2)	0.0356

Test Equation:
Dependent Variable: RESID
Method: Least Squares
Sample: 1983 2013
Included observations: 31
Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.033907	0.078168	-0.433767	0.6693
C(2)	0.370066	0.296193	1.249406	0.2267
C(3)	-0.172333	0.200452	-0.859720	0.4007
C(4)	0.019411	0.285576	0.067972	0.9465
C(5)	-0.012462	0.240298	-0.051862	0.9592
C(6)	-0.045864	0.297483	-0.154172	0.8791
C(7)	-0.195685	0.251008	-0.779597	0.4452
C(8)	2.778342	16.63972	0.166970	0.8692
C(9)	0.578360	14.52060	0.039830	0.9686
C(10)	-0.085873	0.696916	-0.123219	0.9032
RESID(-1)	-0.572327	0.403437	-1.418627	0.1722
RESID(-2)	0.383374	0.427832	0.896086	0.3814

R-squared	0.215165	Mean dependent var	4.66E-17
Adjusted R-squared	-0.239213	S.D. dependent var	0.164546
S.E. of regression	0.183172	Akaike info criterion	-0.272136
Sum squared resid	0.637488	Schwarz criterion	0.282955
Log likelihood	16.21811	Hannan-Quinn criter.	-0.091190
F-statistic	0.473537	Durbin-Watson stat	1.774256
Prob(F-statistic)	0.897431		

Appendix D3: Results ofHeteroskedasticityTest

Heteroskedasticity Test: ARCH

F-statistic	0.112818	Prob. F(2,26)	0.8937
Obs*R-squared	0.249506	Prob. Chi-Square(2)	0.8827

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 06/26/15   Time: 13:02
Sample (adjusted): 1985 2013
Included observations: 29 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.028550	0.010514	2.715295	0.0116
RESID^2(-1)	-0.033311	0.190183	-0.175153	0.8623
RESID^2(-2)	-0.085888	0.190357	-0.451193	0.6556

R-squared	0.008604	Mean dependent var	0.025300
Adjusted R-squared	-0.067658	S.D. dependent var	0.038148
S.E. of regression	0.039417	Akaike info criterion	-3.531525
Sum squared resid	0.040397	Schwarz criterion	-3.390081
Log likelihood	54.20711	Hannan-Quinn criter.	-3.487226
F-statistic	0.112818	Durbin-Watson stat	1.953180
Prob(F-statistic)	0.893748		

121