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ANALYSIS OF CAUSALITY AND EXPORT-LED GROWTH HYPOTHESIS (ELGH) IN ETHIOPIA

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Table of Contents

Page

Acknowledgements ---- i
Table of Contents ---- ii
List of Tables, Figures and Appendices ---- iv
List of Abbreviations ---- v
Abstract ---- vi

CHAPTER ONE: INTRODUCTION

1.1. Background of the Study ---- 1
1.2. Statement of the Problem ---- 4
1.3. Objective of the Study ---- 7
1.4. Significance of the Study ---- 7
1.5. The Hypothesis ---- 8
1.6. Scopes and Limitation of the Study ---- 8
1.7. Methodology and data source ---- 8
1.8. Organization of the Paper ---- 9

CHAPTER TWO: HISTORICAL BACKGROUND OF ETHIOPIAN EXPORTS

2.1. Overiew of Economic system and GDP growth in the past ---- 11
2.2. Trends and role of the export sector in Ethiopia ---- 14
2.3. General structure of LDCs Exports ---- 16
2.4. Commodity and sectoral structure of the Ethiopian Export ---- 18
2.4.1. Commodity structure ---- 18
2.4.2. Geographic concentration ---- 23
2.5. Major problems in the Ethiopian Export Sector ---- 25
2.5.1. Demand Side Problems ---- 25
2.5.2. Supply Side Problems. ---- 25
2.6. Export Promotion Efforts in Ethiopia ---- 26

CHAPTER THREE: REVIEW OF RELATED LITERATURE

3.1. Theoretical Literature ---------- 29

3.1.1.Trade and growth ---------- 29

3.1.2.Export and growth nexus ---------- 32

3.1.3.Alternative Growth strategies of the past ---------- 35

3.1.3.1.Import substitution strategy ---------- 35

3.1.3.2.Export promotion strategy ---------- 37

3.2. Empirical Literature ---------- 38

3.2.1.Cross sectional studies ---------- 39

3.2.2.Time series studies ---------- 42

CHAPTER FOUR: ECONOMETRIC ANALYSIS AND ESTIMATION RESULTS

4.1. Model Specification ---------- 46

4.2. Data Description and Source ---------- 48

4.3. Stationary and Non-Stationary Series ---------- 49

4.4. Tests for Unit Roots ---------- 50

4.5. Cointegration and the Error-Correction Model (ECM) ---------- 51

4.6. Standard Granger Causality Test ---------- 54

4.7. Empirical Analysis and Results ---------- 58

4.7.1. Result of Unit Root Tests ---------- 58

47.2. Cointegration and estimation of the long run model ---------- 59

4.7.3. Estimation of the Short-run and Error Correction Model ---------- 64

CHAPTER FIVE: CONCLUSION AND POLICY IMPLICATIONS

5.1. Conclusion ---------- 68

5.2. Policy Implications ---------- 72

References ---------- 75

Appendices ---------- 80

List of Tables, Figures and Appendices

Tables

Page

2.1 Average growth rates of GDP, Exports and Imports ---------- 11
2.2 Share of Exports to Macro Aggregates (1960/61-2003/2004)14 ---------- 14
2.3 Leading export commodities of the LDCs ---------- 17
2.4 Average Annual Growth Rates of Selected Export Commodities ---------- 18
2.5 Sectoral Structure of Exports (% in share) ---------- 22
2.6 Percentage Share of Exports of Ethiopia by Major Destination ---------- 23
4.1 Summary results of causality tests using coefficient significances ---------- 55
4.2 Summary results of Causality tests using Error-correction modeling (ECM) ---------- 57
4.3 Results of Unit root Tests for Order of Integration of the variables ---------- 58
4.4 Results of tests for cointegrating vectors ---------- 60
4.5 Tests for Zero- restrictions on α –coefficients (weak exogeneity of variables.)---------- 61
4.6 Summary results for zero restriction on β- coefficients---------- 63
4.7 Result of the specific parsimonious Error-Correction Model (VECM) ---------- 65

Figures

2.1 Average Growth Rates of GDP, Exports and Imports ---------- 12
2.2 Real GDP, Exports and Import Levels ---------- 16

Appendices

A: Summary of Export –Led Growth studies ---------- 80
B: Estimated coefficients of the General parsimonious model ---------- 84
C: Graphic tests for Cointegration ---------- 85
D: Graphic analysis for actual and fitted values ---------- 86

LIST OF ABBREVIATIONS

AR	=	Auto Regressive
AAF	=	Africa's Alternative Framework
ACF	=	Auto Correlation Function
ADF	=	Augmented Dickey Fuller
ADLI	=	Agricultural Development Led- Industrialization
DF	=	Dickey and Fuller
ECA	=	Economic Commission for Africa
ECM	=	Error Correction Model
ELGH	=	Export-Led Growth Hypothesis
EG	=	Engle and Granger
EP	=	Export Promotion
EPRDF	=	Ethiopian People Revolutionary Democratic Front
FDI	=	Foreign Direct Investment
GDP	=	Gross Domestic Product
GLE	=	Growth -Led Export
GNP	=	Gross National Product
H-O-S	=	Heckscher-Ohlin-Stopler
IMF	=	International Monetary Fund
ISS	=	Import Substitution Strategy
LDCs	=	Less Developed Countries
MOFED	=	Ministry of Finance and Economic Development
MEDaC	=	Ministry of Economic Development and Cooperation
NBE	=	National Bank of Ethiopia
SAP	=	Structural Adjustment Program
TOT	=	Terms of Trade
UNCTAD	=	United Nation Center for Trade and Development
WB	=	World Bank
VAR	=	Vector Auto Regressive
VECM	=	Vector Error Correction Model

ABSTRACT

It is generally believed that for a developing country export performance plays a pivotal role in providing the much-needed impetus for economic growth. Export-led growth has been put forward as the efficient alternative to inward–orientation strategies of development. This is because it is believed to lead to higher total-factor-productivity growth and encourage foreign direct investment.

In spite of the presence of numerous studies on the relationship between exports and economic growth, empirical investigations to-date have produced mixed or contradictory results; while most cross-section studies have found a positive association between export and growth, a considerable number of time series methodologies found mixed results, either supporting or rejecting the export-led growth hypothesis.

This paper examines the Export-led growth hypothesis (ELGH) for Ethiopia for the period 1960-2004. It builds up on Feder's (1983) model to investigate empirically the relationship between exports and economic (GDP) growth using recent data from the National Bank of Ethiopia. The study finds that the ELGH is valid in this particular case but, only in the long run.

Although the results of the study suggest that exports have a positive effect on the overall rate of economic growth and could be considered an "engine of growth" as the ELGH advocates, their impact was not, however, statistically supported in the short-run. , Moreover, causality was found running from GDP to Export confirming uni-directional causality.

CHAPTER ONE

I.INTRODUCTION

1.1. Background of the Study

Economic growth can generally be defined as an overall and sustained increase in the quantity of goods and services in an economy over a significant period. Similarly, export is the sale of these items in a foreign market to earn foreign exchanges, which in turn are used to bring about the former.

In fact, economic growth is an extremely complex process, which depends on many variables like capital accumulation (both physical and human), trade, price fluctuations, political conditions and income distribution, and even more on geographical location. The export-led growth (ELG) hypothesis postulates that export growth is one of the key determinants of economic growth through its positive externalities on non-export sector (Feder, 1983). Moreover, it provides static and dynamic gains. The static (direct) gains refer to gains that result from specialization and resource allocation brought about by international competition, i.e. gains from comparative advantage. Dynamic (indirect) gains on the other hand, are those realized from the increased productivity stimulated by the static gains (Thirwall, 1977).

Despite all these theoretical rationale, trade in general and export in particular does not seem to back up the economic growth of many developing countries. In the 1970s, most developing and African countries faced a steady deterioration in their economic performance, characterized by drastic fall in real income and sluggish growth, declining investment and saving, deteriorating export performance and current account balance, mounting debt burden, declining net barter terms of trade. For example, the mean annual GDP growth for sub-Saharan Africa (SSA), excluding South Africa, was 4.8 percent, 2.8

percent, 2.6 percent, and 2.0 percent for the periods: 1965-73, 1974-84, 1985-89, and 1990-96, respectively (Fosu, 2000). The whole condition was further aggravated by the 1973-74 world oil price shocks, followed by the 1980s commodity price fall.

There is no single reason for Africa's poor economic performance. In relation to this, three contending views have tried to account for the crisis (Alemayehu 2002). First, the World Bank's agenda for action (1991), also called the "Berg Report'', asserts that the oil price shock of the 1970s, the fall of world demand for primary products in1978-80, the balance of payment problems caused by the decline in the volume of trade, under developed human resources, political fragility, population growth and inheritance of poorly shaped economies are the major causes for the crisis.

The second is Africa's alternative framework for structural adjustment program-AAF (ECA, 1989), which ascribed Africa's problem to deficiencies in basic economic and social infrastructure. The ECA sees the crisis resulting from lack of structural transformation, unfavorable physical and socio-political environment and excessive outward orientation and dependence that made it vulnerable to exogenous shocks.

The third is the Marxist view, which propounds the crisis as emanating from the continued process of polarization and economic dependence resulting from long-term secular effects of imperialism and world capitalist crisis. This is a critique to the previous two views.

Generally, the development paradigm that gave to the state a prominent role in the production and regulating economic activity is largely blamed for the sluggish growth.

To revitalize the economy of LDCs and spur growth, international trade in general and export in particular was viewed as an engine and was taken as a vehicle of transforming their economies towards improved positions. Accordingly, the East Asian countries, which once used to be called 'the Asian tigers' have achieved better performance and were referred as models and best practitioners of the outward oriented policies, albeit being called in later

years the 'Asian rats'.[1] Even the present modern economies of western countries (USA, UK, Canada) as well as the "four gangs" of East Asia (Taiwan, Singapore, Hong Kong and South Korea) are still referred as successful examples of export-led growth models of development.

Following the remarkable success of East Asians and the failure of the inward orientation (Import substitution strategy) by many LDCs in the 1950s and 1960s,compounded by the world bank's policy prescription of structural adjustment program (SAP) [2] in late 1970s and 80s, there was an urgent need to embark on policy measures that would rectify the problems that LDCs are faced with to bring sustainable economic growth. Accordingly, outward orientation (export promotion trade strategy) was given due attention.

Ethiopia, being a typical developing country, has adopted the inward-looking strategy in late 1960s and 70s with high protection of infant industries. But due to its undesirable outcomes, the country resorted to the outward looking strategy in later years. The rationale, behind the adoption of export promotion, was the belief that it would ease the foreign exchange constraint, enable LDCs adopt new technology and assist in specialization and greater efficiency which are deemed crucial in the growth and development process.

Since then, a number of studies have been carried out on LDCs and developed countries to ensure the efficacy of export promotion strategy in achieving economic growth (i.e the validity of ELG hypothesis). Nevertheless, empirical investigations to-date have produced mixed and even contradictory results due to differences in the level of development and economic structure. Thus, the empirical assessment of the export-led growth hypothesis in Ethiopia is of immense importance in formulating sound economic policies that guarantee sustainable economic growth.

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[1] This was mainly due to their economic failure caused by chronic capitalism.

[2] Earlier version of SAP has 3 dimensions: expenditure reducing, expenditure switching policies and institutional reforms. For detail understanding, see Alemayehu (2002).

1.2. Statement of the Problem

One of the major problems that most LDCs face is sluggish growth. The growth performance of the Ethiopian economy during the past four decades has been disappointing, showing average annual growth rate of 3.98 percent in the period 1960/61-1972/73, 2.29 percent in the year 1973/74-1989/90 and 3.17 percent in the year 1990/91-2003/2004. Moreover, by all economic and social standards, the country has been rendered backward and ranked 171st from 174 countries by the World Bank. GNP per capita is one of the lowest in the world (USD100 per annum); infant mortality is 114 per 1000 and life expectancy is 40 years; health service covers only 52 percent of the population; and malnutrition is also rampant. Its total population is 70.2 million, 80 percent of the urban and 15 percent of rural population with access to safe water (WB, 2003).

This dismal economic performance is mainly attributed to both internal factors such as persistent and prolonged war, weak governance, low productivity, high population growth and, external factors like the oil price shock of the 1973-74,the collapse of commodity price that drove the country's terms of trade (TOT) downward.

As stated above, the sluggish growth of the economy was partly due to the stagnation in the export sector that heavily depends on the agriculture sector. Over 85% of the population relies on this sector and it provides the bulk of export commodities. This has made the country vulnerable to a dynamic fluctuation of world price for primary commodities that gravitated the country's terms of trade downward continuously.

Chronic trade deficit has remained the dominant feature of Ethiopia's merchandise external trade sector for a long time. This feature has still continued even in the post-reform period as merchandise export earnings have still fallen short of covering even half of import bills. This is mainly due to unequal growth rate of exports and imports, the latter considerably exceeding the former.

Owing to this widening current account deficit and declining terms of trade, the country suffered from drastic fall in its export earnings or foreign exchange that is believed to be crucial element in financing imports and development projects.

In fact, export is not the only source of foreign exchange. Other two major sources include public transfers (external borrowing and assistances) and foreign direct investment, FDI. However, neither of these sources has been found to be effective as they were entangled by their inherent problems. The former is usually tied with vested political and economic interest of the lending and donating institutions and is beyond the country's control. The latter depends on the availability of natural endowments, political stability and the country's effort towards attracting FDI.

Due to these problems and the failure of the then command and controlled economic system with inward orientation, there is now a paradigm shift to build a market economy with outward orientation, in which export promotion has been accorded prime importance.

This was induced by the need to tap the badly needed foreign exchange that ensures sustainable economic growth. Accordingly, the transitional government of Ethiopia (TGE) launched an economic reform program in 1991/92, which involved massive adjustment to correct distortions in the external sector. The reform program was broad-based and multi-faceted, including devaluation of the exchange rate, abolition of government monopolies, market liberalization and rectification of export disincentives.

Following the economic reform program (ERP), the country's linkage with the rest of the world as signaled by the openness factor (measured by the ratio of imports plus exports to GDP) has shown increasing trend, from 22.9 percent on average during the imperial regime, to 26.1 percent and 36.1 percent during the Derg and the current government, respectively. Similarly, the contribution of the export sector to GDP has increased from 9.91 percent on average during the imperial regime (1960-1972/73), to 10.49 percent and 18.04 percent during the Derg (1973/74-1989/90) and the current government, respectively. Export

proceeds, which covered 88.8 percent of the import bill in the imperial regime, contributed 12 percent to GDP during the past four decades. In addition, 6.5 percent of the state revenue comes from export tax during the past four decades[3](see Table 2.2).

Despite these contributions to the overall economy, the performance of the export sector has been less than satisfactory. It is characterized by high concentration on few agricultural commodities like coffee, pulses and oil seeds, hides and skins, and chat. These commodities contributed on average 54.4 percent, 13.1 percent, 11.5 percent and 4.1 percent of the total export earnings during the last four decades. The share of non-agricultural products in total merchandise exports is almost insignificant. Moreover, Ethiopia's export is also characterized by narrow geographical concentration on destination, namely Germany, Japan, United States, Djibouti and Italy being the major five trading partners of the country and absorbing 73.3 percent of the country's export during the same period.

This high concentration on few commodities and trading partners resulted in high fluctuation in its primary export price and posed serious supply and demand constraints, explaining the poor performance of the sector as well as the economy. Thus, a closer look at the structural constraints, the various policy measures pursued by different government regimes to mitigate these problems as well as assessing the relative contribution of the export sector to economic growth are the main issues to be dealt with under this study.

The need to analyze the effect of export-promotion policies of Ethiopia arises because of the recent considerable importance the government has placed on this sector. Given the fact that Ethiopia has an overwhelming accumulation of debt, high poverty and inequality levels and sluggish growth, an analysis such as this would highlight by way of empirical evidence on whether further efforts in promoting exports are warranted.

[3] Data from MOFED and NBE annual Bulletins.

1.3. Objectives of the Study

In light of the stated problem, this study has the general objective of critically examining and analyzing the relationship between export expansion and economic growth, commonly called the export led growth (ELG) hypothesis. In addition, the study will specifically:

- review the export performance of the country, the major structural problems associated with the sector, and the various policy instruments pursued by different government regimes to remedy these impediments,
- empirically investigate the relationship between export expansion and economic growth, taking relatively longer time series data,
- determine the direction of causality and long-run as well as short-run relationship between these two variables using cointegration analysis and error-correction modeling, and finally
- suggest, on the basis of empirical evidence, policies and strategies that would assist in promoting economic growth.

1.4. Significance of the Study

Sound policy formulation with a view to improving the performance of an economy requires a detail understanding of how exports affect economic growth. This study is important in the sense that it gives helpful insight to the true nature of the Ethiopian export sector and the channels through which export expansion affects economic growth. Despite the existence of numerous studies on export-led growth hypothesis on developed as well as industrialized nations, empirical study on the country under consideration however is scanty. This study intends to contribute towards filling this gap. The outcome of the study may also shed light for policy makers and researchers in developing countries.

1.5. The Hypothesis

The hypothesis to be tested under this study is that export–led growth hypothesis (ELGH) holds true for Ethiopia, i.e growth in export can positively and significantly contribute to economic (GDP) growth in the country. This is based on the underlying theoretical premises that promoting export provides several beneficial aspects to the overall economic activity. Because it increases resource allocation efficiency; enhances capacity utilization; allows a country to reap advantage of scale economies; and promotes technical change and overall productivity through new techniques of production methods.

1.6. Scope and Limitations of the Study

This study mainly devotes itself to the assessment of export expansion and economic growth with co-integration (long run relationship) analysis in the context of Ethiopia. Owing to the inherent difficulties in measuring some variables, i.e. capital stock and labor, other equitable proxies like investment and population (active labor) are used. This may limit the testing and the conclusions drawn. Nevertheless, it is important to note that this approach has been widely used by researchers engaged in testing the ELG hypothesis for both cross- section and country case studies of developed and developing countries. Hence, the methodology does not pose serious limitations and shortcomings.

1.7. Methodology and Data Source

This study aims to undertake empirical analysis on the export-led growth hypothesis (ELGH) and causality tests using time series data. It also uses a descriptive analysis on the relationship between exports and economic growth with the help of such analytical tools as ratios, percentages, growth rates and graphs. The study also embodies an econometric analysis to asses whether exports contribute to economic growth or not, and determine the direction of causality between the two. OLS estimation method using Johansen procedure will be carried out using PC Fiml (version9) and PC GIVE econometric estimation software packages.

The sources of the data that will be used in this study are mainly secondary from National Bank of Ethiopia (NBE), Ministry of Economic Development and Cooperation (MEDaC), Ethiopian Economic Association (EEA), Ethiopian Customs Authority (ECUA),various annual publications of the International Monetary Fund and the World Bank.

1.8 Organization of the Paper

The rest of the study is organized as follows: The next chapter provides an overview of the historical background of the Ethiopian exports and the economic systems pursued in the past four decades. Chapter three deals with a literature review including theoretical and empirical evidence of the export–economic growth nexus. Chapter four is wholly devoted to the stastistical analysis for time series data based on the adopted methodology. It also presents the results obtained from the survey. The last chapter, chapter five, winds up the paper by forwarding conclusions drawn from the empirical econometric analysis and, recommendations.

CHAPTER TWO

II. HISTORICAL BACKGROUND OF ETHIOPIAN EXPORTS

Like most sub-Saharan African countries, Ethiopia is one of the poorest countries in the world with majority of its people living in absolute poverty and insufficient economic and social conditions. The country's economy has been based on rural agricultural sector in which the bulk of its exports are concentrated.

Generally export trade activities in Ethiopia is believed to have started long time ago. Some studies indicate that in the pre-Italian time the principal exports of the 19th century were mainly slaves, gold and ivory etc. slave trade was probably the largest part estimated to account 57 percent of the total exports (Pankrest, 1964).

During the second half of the last century, however, the relative significance of the export composition substantially changed. Coffee became the most important commodity export, followed by hides and skins, oil seeds and pulses in that order.

Latter on, many other export items like live animal, processed meat, chat, flower, fruits and vegetables were produced in Ethiopia. Nevertheless, these products did not show significant developments. As a result, the country is still unable to obtain maximum benefits from the export sector. This is mainly due to the weak economic condition in general and the poor performance of the export sector in particular.

The economic condition of the country in general has been affected by the adverse international economic environment and by the rules of different regimes, which followed different economic systems. The economic system that prevailed during the past four decades can generally be described as a transition from "capitalist" to "command" and then back to" more free market" economic system under Imperial, Derg and EPRDF regime respectively.

2.1.Overview of Economic Systems and GDP Growth Rates in the Past

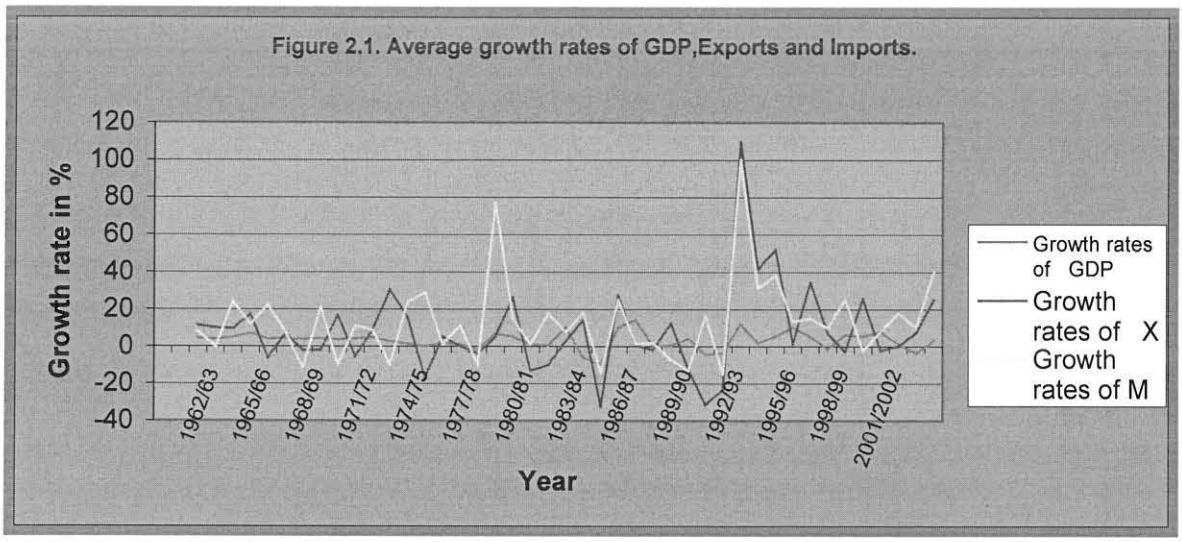
Under the imperial regime that lasted until 1974, the country was in landlord tenancy with capitalist economic system. During this period, the economy was in a period of relative political stability. The over all economic development was reasonably healthy vis-à-vis to the experience of subsequent years, although it was poor by global standards.

Table2.1. Average growth rates of GDP, Exports and Imports

Description	1960/61-1973/74	1974/75-1990/91	1991/92-2003/2004	1960/61-2003/2004 (Average)
Growth rate of real GDP	3.98	2.29	3.17	3.15
Growth rates of exports	8.43	0.15	17.37	8.65
Growth rates of imports.	8.03	9.99	21.88	13.30
Trade balance	299.85	-547.24	-6,691.14	-2,312.84

Source :Own computation-using data from MOFED and NBE various annual bulletins.

One can observe from table 2.1 that taking the period between 1960-1974; the economy (GDP) was growing at average annual rate of 3.9 percent. Export growth was relatively better than the post revolution with average annual growth of 8.4 percent. In this period, export goods generally covered the import needs and, in some years it registered even surplus compared to the subsequent years .The trade balance and the TOT was also very healthy showing positive figures.



When the military administration came to power in 1973/74, socialist system became the main ideology. As a result, the major production industries including those engaged in exporting were nationalized and replaced by government owned production and export corporations.

In the socialist period, even if the land reform was an important step in improving the economy, it was not accompanied by other important institutional changes. The state policy diverted large investment to the in efficient state farms and inefficient parastatals. The inefficient state policy combined with the drought and recurrent war led to a protracted decline in the economy's out put. During the period 1973/74-1990/91, real GDP rose on average by 2.29 percent annually. The export level, which was growing at average annual growth of 8.4 percent during the pre- revolution period, has drastically fallen to levels below 1 percent. On the other hand, the import level has shown a galloping trend (9.9 percent average annual growth) creating a huge trade deficit (over 547 million birr).

Despite the fact that agriculture remains the main stay of the economy, it was characterized by stagnant annual growth rates. This was mainly due to the pricing and marketing policies, which forced farmers to sell their products at minimum price. As a result, farmers were discouraged and were not wiling to boost production. Further more, the nationalization of most private companies inhibited private sector investment, which hampered total production and export levels.

Following the demise of the derge regime, the Ethiopian economy was in deep crisis. The macro and socio-economic realities of the last three years wreak the cumulative and unavoidable consequences of the previous regime's macro economic mismanagement and adverse externality. In 1990/91,the growth of the economy, which was in a pace with population growth before, stood at 0.6 percent. The inflation level, which does not exceed 6 and 7 percent in the monetary history, surged up to 20.9 percent level. External imbalance had become intractable with monthly debt arrears and growing foreign exchange misalignments. The budget deficit caused by declining revenue against the relatively rigid expenditure forced the government to recourse inflationary financing which stood at about 10 percent of GDP in 1990/91.

It was under such background that the new government, which assumed power in 1991, initiated the recent economic reform. The stated objective of the economic policy for transition period issued on November 1991 by TGE include establishing peace and security, encourage growth and reduce poverty. To this effect, the government aimed at replacing the previous centrally planned economy with a market-based economy through rationalizing the role of the state in the economy by encouraging private investment; mobilize external resource, and crafting macro economic and sectoral policies.

To achieve the stated objectives, agriculture was taken as the engine and the driving force of growth and development under the strategy of agricultural development led-industrialization (ADLI) in tandem with structural adjustment program policies (SAP). Following the economic reform program, some important and positive developments in the economy were registered. Accordingly, real GDP, which was at negative rates during the last periods of the Derg, grew on average by 3.17 percent annually. Similarly, real export growth, which was below 1 percent on average in the Derge regime, showed remarkable increase of 17 percent growth rate on average during the period 1991/92-2003/2004.

2.2 Trends and Role of the Export Sector in the Ethiopian Economy

The role of the export sector in achieving a higher and sustainable growth process is indispensable. Like in most sub-Sahara Africa and other developing countries, exports do play a significant role in the growth and development process of the country. This is evident from looking at figures of export contribution to GDP and other sectors of the economy from table 2.2.

Table 2.2. Share of Exports to Macro Aggregates (1960/61-2003/2004)

MACRO AGGREGATE	1960/61-1973/734 (IMPERIAL REGIME)	1974/75-1990/91 (DERGE REGIME)	1991/92-2003/2004 (EPRDFREGIME)	1960/61-2003/2004 (Average)
Average of Exports as % GDP	9.91	10.49	18.04	12.81
Average Exports as % Imports	88.63	48.26	30.11	55.67
Average Openness factor [(Expo. +Impo.)/GDP] in%	22.93	26.15	36.09	28.37

Source :Own computation based on data obtained from MOFED and NBE various annual bulletins

We have seen from table 2.1 that the value of goods and services exported during the past four decades has been growing at an average annual rate of 8.65 percent. We can also observe from table 2.2 that on average exports contributed about 12.81 percent to GDP during the period 1960/61-2003/04. The share of exports to GDP was 9.91 percent, 10.49 percent and 18.04 percent during the Imperial, Derg and EPRDF regime respectively. The higher share was recorded during the current government due to policy measures taken that are conducive to the sector, while the least share was during the Derg regime.

One can understand from the table that the contribution of exports to GDP was very minimal during the reference period. It didn't exceed more than 13 percent on average. A study by WB (1987) indicates that this figure, compared to 23 percent for developing countries, is still the least by global standards.

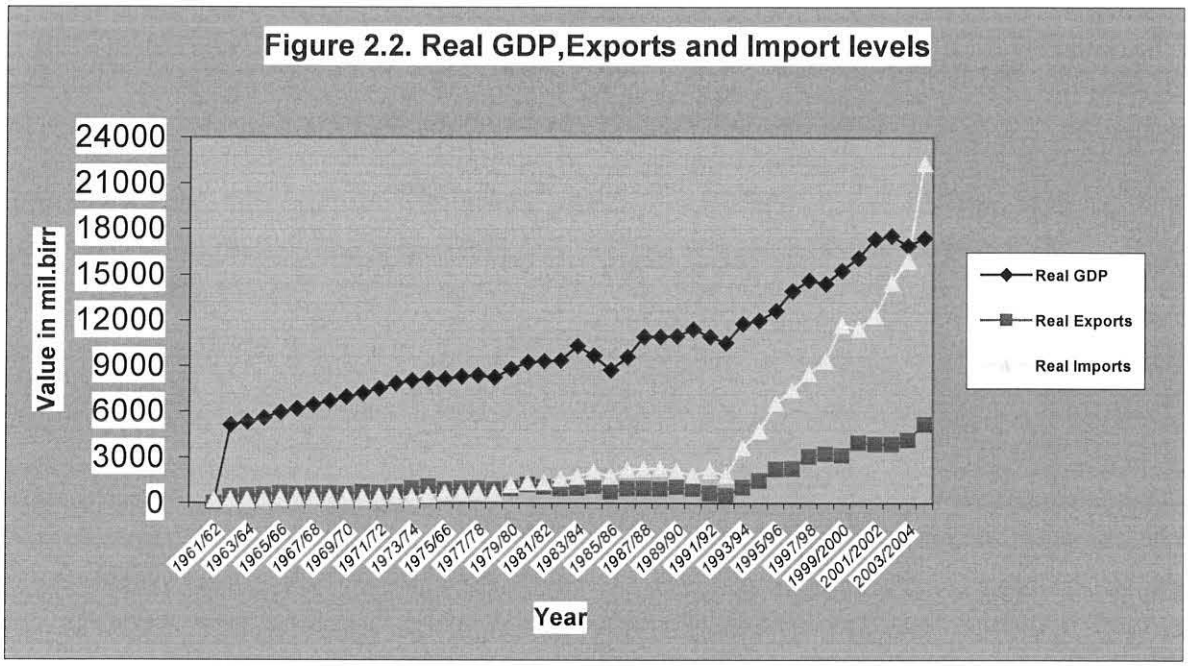
One potential benefit of the export sector is its positive externality effect on the non-export sector[4]. Apart from this, the sector can serve as a potential source of government revenue, which would make import of inputs possible that are crucial for development process.

Foreign trade tax constitutes a major part of the state budget. During the three regimes, total foreign trade tax accounted for more than 25.6 percent of the state revenue of which 12.6 percent comes from export tax.

It is apparent from table 2.2 that on average 55.67 percent the import cost is covered by export receipts in the year 1960/61-2003/2004. Before the 1974 revolution for example, export earnings financed about 88.6 percent of the import costs. There were also instances in the Imperial regime where export proceeds covered the total import bills, even showing surpluses in some years. Hence expanding exports enables the country reduce the foreign exchange constraint that acts as a bottleneck for the growth of the economy.

How ever, the export capacity of the country, which is also the importing potential, (measured in terms of financing the import requirements that are crucial for the growth and development process), showed ever declining trend. During the year 1974/75-1990/91, export receipts covered only 48.3 percent of the total import requirements. The figure further went down to 30.1 percent during the current government showing a drastic fall by about 193 percent from the level of the Imperial regime.

[4] For detail understanding, see Feder Gershon (1983).



Owing to the wide gap between import requirements and the export earnings, the trade balance (net of imports over exports) was characterized by widening deficit. The trade balance, which was birr 299.85 million (surplus) on average during the Imperial period, has become birr 547.24 and birr 6691.14 million deficit showing 82.5 percent and 1122 percent increase in deficit level during the Derge and the EPRDF regime respectively. This has an adverse effect on resource mobilization diverting developmental funds towards financing the deficit there by putting harnesses on growth. (See table 2.1).

2.3.General Structure of LDC's Exports

The general structure of LDCs is characterized and dominated by primary agricultural commodities. 32.5 percent of the total exports of the non-oil exporting developing countries and 65 percent of the total exports of all other LDCs is accounted by such products. (UNCTAD: 1994,146).

It has also been indicated that more than 50 percent of the value of all developing countries export is accounted by eight commodities (coffee, tea, tobacco, cotton, fruits, and nuts oil

seeds and live animals. Moreover, nearly half of the developing countries earn over 50 percent of their exports from a single primary commodity, manufactured commodities contributing about 30 percent (Ibid).

Table 2.3: Leading Exports Commodities of the LDCs

Selected commodities	No. of lead export items	Share of leading items from total exports	Leading export commodities
Central Africa	3	90%	Diamond, coffee, cotton
Republic of Ceylon	3	89%	Tea, rubber, coconut
Colombia	2	69%	Coffee, oil
Congo (Kinshasa)	4	74%	Coffee, tea, diamond, rubber
Congo (Brazzaville)	2	76%	Wood, diamond
Ecuador	3	84%	Banana, coffee, cocoa
Ethiopia	4	84%	Coffee, hides & skins cereals, oil seeds
Gabon	4	86%	Wood, manganese, oil cocoa
Iran	1	81%	Oil
Ivory cost	3	91%	Coffee cocoa, wood
Libya	1	99%	Oil
Mauritania	1	91%	Iron ore
Venezuela	2	98%	Oil, iron ore
Paraguay	6	77%	Meat, wood, cotton, tobacco, oil seeds

Source: WB, 2001

As can be seen from table 2.3,large proportions of LDC's export items are primary commodities, manufactured goods accounting for a small proportion of the export share. Moreover, over 75 percent of their export items are accounted by a single or two commodities. Since the price of primary products vary much more sharply from year to year than the prices of manufactured goods, this concentration on few primary commodities is usually taken as source of LDC's export instability.

2.4.COMMODITY AND SECTORAL STRUCTUER OF THE ETHIOPIAN EXPORT

2.4.1.Commodity Structure

Ethiopia being LDC with agrarian production nature, its export level is highly concentrated on few agricultural commodities, the share of manufactured products being minimal for the past four decades. For example primary agricultural commodities account about 80-90 percent of the total merchandise export earnings during the period 1960/61-2003/2004.

The value of goods and services exported has been growing at an average annual rate of 8.65 percent for the last four decades (1960/61-2000/04). During the period under consideration, the revenue from exports of pulses and oilseeds has been growing at an average annual rate of 63.4 percent followed by chat whose rate was 61.91 percent. The revenue from the export of hides and skins and coffee has been growing at similar average annual rate of 13.3 percent (See Table 2.4 below).

Table 2.4:Average Annual Growth Rates of Selected Export Commodities

Period	Growth Rates in Total and Major Components of Export				
	Total Export	Coffee	Hides& Skins	Pulses& Oilseeds	Chat
1960/61-1973/74	8.43	2.7	9.1	13.1	0.8
1974/75-1990/91	0.15	7.1	5.6	2.4	69.8
1991/92-2003/04	17.37	29.97	25.22	174.73	115.18
1960/61-2003/04	8.65	13.26	13.31	63.41	61.93

Source: Own computation-using data from MOFED and Customs Authority

We can see from table 2.4 that Prior to 1974 (the Imperial era), there has been a modest growth in the total value of export earning. The average annual growth rate of real value of exports was 8.4 percent. During the Derg regime (1974/75-1990/91), the growth rate declined to 0.2 percent. The decline can be largely attributed to the poor performance in the export of pulses and oilseeds. During this regime, export revenue from chat has demonstrated an average annual growth of 69.8 percent compared to 0.8 percent during the Imperial regime.

Under the period of Ethiopian Peoples' Revolutionary Democratic Front (EPDRF), that is 1991/92-2000/04, the growth rate in the real value of total exports has shown a significant increase. In real value, total exports grew by 17.4 percent. Owing to different policy measures undertaken by the government, revenue from the various export commodities has shown a remarkable increase.

Among the major export products of the country, coffee alone accounts for the lion's share of primary exports and of total merchandise exports as well. From 1970/71-2000/04, on average, coffee alone accounted for 56.4 percent of the total export proceeds[5]. The average percentage share of coffee in the total merchandise exports was 42.6, 61.5 and 64 percent for the imperial, Derge and the present government, respectively.

All these figures illustrate the fact that the Ethiopian merchandise export sub-sector is largely dependent on coffee export for its badly needed foreign exchange earning. However, Ethiopia's share of the world coffee market has been stable at less than 3 percent during the last twenty years and coffee exports have declined since 1997/98 along with the decline in the world prices (Debel, 2001).

In addition to the fluctuation in the international price of coffee (demand side constraint), there are supply side factors (government policies and Institutional problems) that inhibit the performance of the commodity's export. To mention some: first, in order to prevent undermining the reputation of Ethiopian coffee on the world market, all coffee is classified

[5] Data from MOFED

as export quality or as domestic quality. However, this has unintended consequences. When domestic prices are higher than international price, farmers are likely to illegally divert more of their production into the domestic market, which reduces the quantity of coffee exported.

Second, the auction system has a number of drawbacks: It prevents direct trading between processors and exporters and prevents vertical integration i.e. exporters involved in processing and washing activities cannot integrate these activities because they may not be able to re-acquire the coffee they supplied at an auction. In addition, it inhibits exporters from making long-term contracts with importers since they cannot be assured of buying at an auction the type of coffee they contracted to supply. More over, the inability of buyers to inspect and test coffee is another constraint that further reduces confidence in quality. The Ethiopian Coffee and Tea Authority assesses the coffee and issues grades before auction. However, exporters report cases where the certified coffee was later rejected as unfit for export when submitted for final inspection (World Bank, 2001). Hence, in order to reap the benefits of this single export commodity that the country heavily relies on, the institutional problems mentioned above need to be addressed and government regulations and polices should be revised.

Following coffee, oilseeds and pulses together rank second in their share in the total merchandise export contributing about 13.1 percent in the total export proceeds during the past four decades. Although affected by declining world market prices, oilseed exports surged in recent years. In 1999, Ethiopia ranked 25th among the top oilseed exporters, up from 84th place in1990 (Ibid).

Another component of Ethiopia's export, probably the third most important one is hides and skins. This export item has a long history in the country's export experience serving as a source of foreign exchange earning. A study conducted 120 years ago indicated that the commodity took the leading position during that time (pankurest, 1964). Since then, it doesn't show any significant change today being the second or third most important exportable commodity next to coffee. During the period 1960/61-2003/04, hides and skins accounted, on average, for about 14 percent of the total export proceeds.
Although the country is reputed for its cattle population growth standing 7th in the world and

first in Africa, this potential, how ever, is not fully being utilized. From the available amount qualified hides and skins for export, only 34 percent of hides and bout 10 percent of skin is exported. Moreover, it has lost market shares in recent years both in hides and skins and finished leather products. The country ranked 70th among the top leather and leather manufactures exporters, down from 49th and 48th place in 1980 and 1990, respectively (Ibid.).

According to WB (1987) the major reasons for this poor performance is carelessness in skinning and poor handling, considering hides and skins as by-products of livestock breeding and, lack of improved animal husbandry practices. This exposes animals for varieties of parasitic disease that has reduced the value of hides and skins by causing blemishes in the finished leather. In addition, the larger share of hides and skins is locally consumed. In relation to this UNCTAD (2001) has identified four major problems that hindered the full exploitation of the livestock potential in the country.

i. Lack of effective program to promote improved animal husbandry practices.
ii. Lack of proper collection system based on quality and incentive system for primary producers.
iii. Lack of proper animal slaughtering facilities
iv. Lack of reliable information on livestock up on which reliable sector policy guidelines and investment decision can be made.

In an effort to reap the full benefits of hides and skins, the government banned exports of raw hides and skins. The ban has benefited the tanneries, which are now the sole suppliers of semi-processed hides and skins to the international market. But live stock producers receive lower prices for their hides and skins because the tanneries are the only buyers. Domestically, the tanneries are also protected by high import tariffs. The rapid expansion of tanneries since the export ban likely reflects the opportunity to profit in protected market.

Generally, the top ten export commodities (Coffee, Oilseeds and Pulses, Hides and Skin, Chat, Gold, Petroleum, Fruit and vegetables Live animals Sugar and Molasses), on average,

account for more than 88 percent of the country's export earning. The rest 12 percent is distributed among meat and meat products, cotton, spices, textiles, natural gum and others. Furthermore, the commodity concentration index (Hirschman Concentration index)[6] for the first six products (coffee, hides and skins, chat, oilseeds and pulses, gold and petroleum products) during the past four decades averaged 62, which indicates heavy concentration of the export sector on few products.

Like the commodity structure, the sectoral structure of Ethiopia's export is very much concentrated on primary agricultural products. Despite the fact that there is an associated higher degree of risks and uncertainties with the export of primary agriculture products, the country heavily relies on these products on average for about 80 percent of its total export earnings. For the period 1991/92-2000/01, raw agricultural export products on average accounted for about 78.8 percent of the total merchandise exports. The rest 11.2, 8.6, and 1.4 percent on average came from manufacturing, mining and unspecified sectors, respectively (see table 2.5 below).

Table 2.5:Sectoral Structure of Exports (% in share)

SECTOR	1991/92	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01
Raw Agricultural Product Exports	54.7	69.7	71.5	81.5	81.0	71.9	90.9	87.6	72.3	83.6
Industrially Processed Exports	20.8	11.4	8.0	11.2	10.1	12.2	7.4	9.5	20.6	10.6
Mining Product Exports	17.3	18.9	19.6	7.0	4.9	12.4	0.2	2.2	6.6	5.5
Sector Unspecified Export	7.2	0.7	0.9	0.3	4.0	3.5	1.5	0.8	0.5	0.3

Source: MOFED

[6] An index of commodity concentration coefficient has been used as a proxy for export diversification in order to assess its impact on the country's export performance. It is customarily represented by Hirschman – Gini coefficient, given by $Cit = 100\sqrt{\left[\sum (X_{it} / X_t)^2\right]}$ Where Cit =commodity concentration coefficient for year t,Xit = export receipt of commodity i in year t and Xt = total export receipt. The indices range from 0 to 100, higher value reflecting export concentration.

This shows that the Ethiopian export sub-sector in particular and the whole economy in general is agriculture dominated which in turn is rainfall dependent and backward in technology utilization. Manufactured exports, which are used as an engine for a rapid structural transformation of production, are very weak in Ethiopia.

Generally, much is expected from the country to shift from predominantly primary agricultural exports to semi-processed and processed exports if structural transformation and economic growth is to be realized.

2.4.2. Geographic Concentration

Besides to commodity concentration, one salient feature of Ethiopia's export market is its dominance by high degree of geographic concentration. The most important markets for Ethiopia's exports are Germany, USA, Japan, Saudi Arabia, Italy and Djibouti. As can be seen from table 2.6,before the revolution period, USA was the leading absorbent of the country's export receiving about 30 percent. Next to USA, the most important market was Europe, especially Germany and Italy. Asia, Japan and Saudi Arabia are the other important markets for the country, while Djibouti being its major trade partner in Africa.

Table 2.6: Percentage Share of Exports of Ethiopia by Major Destination

Year	Djibouti	Germany	Italy	France	UK	USA	Japan	Saudi
1973	7.3	8.7	7.8	3.4	3	29.9	5.5	6.2
1974	6.9	11.4	6.7	3.2	3.2	19.5	9.1	8.9
1975	10.8	11.4	4.2	2.4	2.7	18.7	8.1	12.8
1976	8.5	6.0	6.9	3.5	3.1	32.6	6.9	7.4
1977	4.8	8.6	4.9	3.1	2.6	25.7	6.9	8.6
1978	1.3	11.8	5.9	2.5	2.3	31.0	5.8	11.2
1979	5.9	7.2	11.3	3.5	2.3	28.5	6.2	8.8
1980	11.4	8.5	1o.1	6.6	2.1	18.2	6.4	7.6
1981	5.1	10.4	7	6.6	3.2	20.6	7.4	9.0
1982	9.3	16	5.3	5.3	2	25.8	7.4	6.7
1983	7.8	16.5	7.5	7.6	1.6	20.4	7.5	5.8
1984	6.9	18	7.4	5.1	2.3	19.4	7.5	4.2
1985	3.6	18.5	7.7	3.8	3.2	10.5	10.3	3.7
1986	4.1	31.9	6.2	3.6	1.5	15.5	7.8	5.8

Year	Djibouti	Germany	Italy	France	UK	USA	Japan	Saudi
1987	8.5	16.7	8.2	3.4	3.6	17.8	10.5	7.7
1988	9.9	22.2	6.5	2.8	1.7	9.3	11.5	6.6
1989	5.7	24	6.6	4.9	1.8	1.4	10.6	6.6
1990	11.9	17.4	7.5	2.7	2.9	10.7	14.7	10.9
1991	4.4	28.6	6.8	6.8	3.2	4.9	22.9	8.4
1992	7.1	9.7	6.5	1.0	16.3	3.9	21.5	20.1
1993	12.1	19.6	7.5	3.6	4.6	9.1	19.0	9.8
1994	7.4	31.7	8.0	4.9	3.4	6.4	14.5	5.3
1995	9.1	29.1	8.6	5	3.6	6.4	12.9	10.0
1996	8.3	29.7	7.4	3.4	3.1	6.1	12	10.6
1997	7.6	20.6	7.8	3.2	2.9	11.4	11.2	8.5
1998	7.4	24.8	7.9	3.3	2.5	8.8	10.1	8.7
1999	10.2	7.12	8.35	3.49	8.67	4.45	10.84	8.93
2000	16.04	10.25	8.34	2.46	2.97	1.25	9.85	7.63
2001	7.4	11.33	10.14	2.88	3.62	4.29	7.63	5.94
2002	7.0	8.52	4.42	6.61	1.89	8.21	4.55	4.4

Source: NBE various annual bulletins

Since the first halves of the eightieth until now, these major markets remain unchanged. But, their relative share has significantly changed. For example in 1986 export to Germany was about 32 percent while to America declined to 15 percent in the same year, further declining to 2 percent in 1989. Currently America's share is below 10 percent, while Germany shows average annual share of 20 percent. Europe in general dominated the market. Japan and Saudi Arabia's share also account significant percentage of export from Ethiopia.

In general the figure indicates that Ethiopia's export was mainly directed to very narrow market or few countries during the past four decades. The concentration in such countries like European Economic Commission and Middle East may have some positive factor contributing to its historical development and geographic proximity. Nevertheless, the basic point behind the pattern of the country's export that concentrates on few markets is attributed to the country's inability to exploit new market opportunities.

2.5. MAJOR PROBLEMS IN THE ETHIOPIAN EXPORT SECTOR

The major constraints in the Ethiopian export sector can be looked from demand and supply perspectives.

2.5.1. Demand Side Problems

The demand side problems usually emanate from the nature of products that the country exports. These includes

i. Low level of demand for agricultural products due to very slow population growth rate in industrial countries.
ii. Very low income elasticity of demand for primary products.
iii. Production of synthetic products by industrialized countries.
iv. Restrictive trade policies followed by importing, such as protecting and heavily subsidizing the agricultural sector, which discouraged the import of agricultural products.

2.5.2. Supply Side Problems

Supply side problems are those associated with the nature of production technique and policy (institutional) instruments affecting export supplies. Such problems include:

i. Type of products produced and exported are mainly commodities for which the income elasticity of demand is very low.
ii. High reliance on one or two commodities which shows lack of diversification.
iii. Market concentration for Ethiopian exports is on few (finger counted) markets.
iv. The production of most export items are exposed to vagaries of nature
v. Poor domestic policies pursued by the previous governments such as price control, grain movement restrictions, over valued exchange rates, mariginalisation of the private sector from production of export items

2.6. Export Promotion Efforts in Ethiopia

The policy adopted in the pre-1991/92 period (both in the Imperial and Military government of Ethiopia) was characterized by strongly inward-oriented development strategy, which used a prolonged over valuation of the Birr, high tariff rates, extensive foreign exchange control and other non-tariff barriers as well as heavy taxation on exports. These polices are likely to have a detrimental impact on export by influencing directly or indirectly the profitability and competitiveness of exports.

Even though both previous governments of Ethiopia were commonly pursuing import substitution strategy and export sector was secondary for them in their economic development plans, it doesn't mean that they didn't make any effort to promote and diversify the country's exports. They made effort to promote exports and diversify the entire export commodities as shown in the three different five-year development plans of the Imperial Government of Ethiopia (IGE) and in the Derg's ten-year perspective plan.

The first five-year development plan (1957/58-1962/63) of the IGE gave priority to import-substitution industrial promotion and infrastructural facilities like road development while it gave minor attention for export promotion. The second five-year development plan stated the export sector to rely mainly on traditional export products such as coffee, hides and skins, oil seed and pulses and others. It also stipulated an important role to be played by new export products of industrial origins and mining products. This plan also set the share of agricultural exports to exhibit a decrease from 93.6 percent in 1962/63 of the total export to 72.3 percent in 1967/68 while the share of manufactured products was planed to increase from 5.2 to 24.2 percent during the same year. To implement this plan, incentives like profit/income tax holidays, export trade licensing simplification, restructuring and strengthening of chamber of commerce, and others were offered for investors who engage themselves in the production of non-traditional export items (IGE, 1952).

The third five-year development plan (1969/70-1973/74) gave a great deal of attention for foreign trade in general and for the export sub-sector development through diversifying variety of export items in particular. In this plan period, agricultural product exports were expected to decrease to75 percent in1973/74 from that of 86 percent in1967/68. Through the addition of new agricultural products in the export basket, the share of coffee was envisaged to fall from 55 to 40 percent at the end of the plan period. In sum, although attempts were made in all the three development plans of the Imperial Government of Ethiopia, this didn't bring the anticipated export promotion and diversification.

The military government who came to power in 1974/75 under took a ten-year perspective plan of 1985/86-1994/95. The main objective of the plan was to orient the country's export structure towards manufactured products from the already existing primary exports of agricultural product and expand substantially the country's foreign exchange earnings.

The plan stipulated the share of traditional exports to decrease from 73.5 percent in 1985/86 to 53.2 percent in 1994/95, while the share of other export products to rise from 26.5 to 46.8 percent in the plan period. In order to achieve its objectives, the government employed a multitude of strategies like provision of favorable tax, tariffs and foreign exchange rate measures, improving exports in terms of quality, quantity and variety and providing current information on World market prices and other factors in the international market to exporters and producers. In addition, to counter balance the negative effect of distortionary polices and hence to secure growth in export, the government introduced an export subsidy in 1983/84. However, the subsidy introduced was not sufficient in terms of coverage and amount to neutralize the prevailed anti-export bias incentive structure (TYPP, 1985).

To summarize, despite the measures taken by both the Imperial and the Derge regimes to diversify the export basket and promote exports, the Ethiopian export products remain undiversified and are still concentrated on very few primary products. This is because both regimes used overvalued exchange rate, high rate of tariffs and other trade restrictive commercial policies that developed strong anti-export bias, and strongly in-ward oriented trade policies favoring import substitution than export promotion.

In 1991 the transitional government of Ethiopia (TGE) undertook structural adjustment program (SAP) and liberalization under the auspicious of the IMF and the World Bank to address the internal and external imbalances of the economy. In particular, trade policy reform was undertaken which aimed at promoting exports through diversifying the country's commodity exports. The measures undertaken include devaluation of the Birr, tariff reduction, simplification of import and export licensing system, introduction of duty draw back and foreign exchange retention scheme, preferential interest rate for exporters and others. As a result of these trade policy reforms, a decrease in the anti-export-bias incentive structure and an increase in export volume and earning were realized.

engages in production and trading (exporting) activity in the commodity where it has comparative advantage (the commodity with the lowest relative cost of production) (B.Soderston, 1994,Salvator, 1990).

Since then, a number of trade theories with different models and continuous critiques as well as modifications on previous works have come to existence. This includes the factor abundance model of the Heckscher (1919), Ohlin (1933) and Samuel Son (1941,1948) [H-O-S model], which argues that a country should specialize in production and exporting in the commodity in which it uses relatively its abundant factor, i.e disparity in abundance factor is the driving motive behind trade between nations. Other new trade theories include the technological gap model of Posner (1961) and the product cycle theory of Vernon (1966), which put forward technology and technological gaps (differences) between countries as predominant factor for trading. In fact, Vernon put little credence to comparative costs and gave much emphasis to the timing of innovation, level of scale economies and the role of ignorance and uncertainty in influencing trade.

Although the theoretical links between trade and economic growth have been discussed for over two centuries, controversy still persists regarding their real effects. The results of different studies on export expansion and economic growth have broadly classified economists into those that support the hypothesis that export growth has a positive impact on economic growth (trade optimists) and those that doubt the existence of such relationship (trade pessimists).

Proponents of the former, based on classical economic theory, argue that trade can act as an engine of growth both to rich and poor countries through its direct and indirect gains, while the latter, based on the apparent failure of trade to act as engine of growth, contend that such gains are highly unlikely to be significant in most LDCs mainly due to the fact that their ability to exploit their comparative advantage in international trade is limited by the imperfections of the market mechanisms (Morton,1977).However, in the last decade, there has been a surprising and impressive resumption of activity in the economic growth literature, triggered by the endogenous growth theory, which has led to an extensive set of

models that stress the importance of trade in achieving a sustainable rate of economic growth. These models have focused on different variables, such as degree of openness, real exchange rate, tariffs, terms of trade and export performance, and most of them have verified the hypothesis that ''open economies grow more rapidly than those that are closed" (Edwards, 1993).

Augustine K.Fossu (2ooo) supports this general statement even blaming lack of openness as a cause for Africa's poor economic performance.

> *Though the findings in the studies regarding the importance of openness for Africa differ somewhat, the overall result is that openness has a positive effect on growth in African economies and the lack of openness, is by far the largest contributor to the dismal economic growth performance of sub-Saharan Africa* (pp3).

Although most models emphasize the nexus between trade and growth, they stress that trade is only one of the variables that enter the growth equation. However, advocates of the ELGH have stated that trade was in fact the main ``engine`` or a`` hand –maiden`` of growth in the so-called Four South-East Asian Tigers: Hong Kong (China), Taiwan, Singapore and the Republic of Korea enabling them to achieve high and sustained rates of economic growth since the early 1960s because of their free-market and outward-oriented economies.

The extensive literature concerning the relationship between trade and growth is also the consequence of the many changes that have taken place in the fields of development economics and international trade policy in the last two decades. An example of these changes is the tremendous modification from inward-oriented policies to export promotion (EP) strategy. By the early 1980s, export-led orientation and export promotion had already secured a wide consensus among researchers and policy makers, to such an extent that they have become "conventional wisdom" among most economists in the developing world (Balassa, 1985).

Advocates of the export-led strategy and free trade point out that most developing countries that followed inward-oriented policies or the import substitution strategy (ISS), mostly in Latin America, had recorded poor economic achievements. Some of them showed on average a complete lack of growth, while real income declined between 1960 and 1990.This was mainly due to over dependence on short-run capital inflows, in particular from private banks in order to maintain their levels of imports and consumption. These facts were partly responsible for the substantial change that occurred in trade literature in the 1980s.Thereafter, many LDCs were forced to stimulate their export-led orientation to encourage a free market. Consequently, by the mid-1980s, the economic literature concerning development economics, economic growth, adjustment and stabilization programs swiftly rejected the inward-oriented approach and placed due emphasis on export-led strategy of trade and growth (Ibid).

3.1.2 Export and Growth Nexus

Development policies in the developing world have seen, during the last three decades, a major shift in emphasis from what is (perhaps misleadingly) known as import substitution to export promotion. This move has been catalyzed by factors such as diminished official aid, unstable private capital inflows, widespread current account imbalances, and perhaps most importantly, an ideological shift towards policies sanctified by the" Washington consensus."[7]Many developing countries have focused their attention on reducing their dependence on primary commodity exports, and on increasing the volumes of their manufactured (or assembled) exports. One important reason underlying this focus is the perception that these products offer better prospects for export expansion without possible destabilizing effects on prices (Razmi &Blecker, 2004).

The rate of export growth may be viewed as a form of openness. However, export growth need not be synonymous with openness. According to Sachs and Warner (1995) [as cited in

[7] The term" Washington consensus", as cited in J.Felipe (2003), was coined by Williamson (1990). In its original formulation, the idea encompassed: fiscal discipline, reorientation of public expenditures, tax reform, interest rate liberalization, unified and competitive exchange rates, trade liberalization, openness to FDI, privatization, deregulation, and securing property rights.

Fosu, 2000] an economy is deemed open to trade if it satisfies five tests: (1) average tariff rates below 40 percent; (2) average quota and licensing coverage of imports of less than 40 percent; (3) a black market exchange rate premium of less than 20 percent; (4) no extreme controls (taxes, quotas, state monopolies) on exports; and (5) not considered a socialist country. Since the late 1960s, studies have been conducted to examine the role of export performance in the economic growth process.

Although the empirical literature on export and growth can be considered to be vast, the results thereof are clearly contradictory for both LDCs and industrialized economies. This is one scenario that could explain why this topic is still at the top of the agenda for many economists. According to the so-called new orthodoxy, promoting exports and achieving export expansion (ELG) are beneficial for both developed and LDCs for many reasons:(i) they generate a greater capacity utilization; (ii) they take advantage of economies of scale; (iii) they bring about technological progress; (iv) they create employment and increase labor productivity (v) they improve allocation of scarce resources throughout the economy; (vi) they relax the current account pressures for foreign capital goods by increasing the country's external earnings and attracting foreign investment; and (vii) they increase the total factor productivity(TFP)and consequently the well-being of the country (World Bank, 1993).

Although the above theoretical discussion implies the importance of export promotion strategies as a way of improving economic growth in LDCs, several studies have, however, questioned the reliability of the empirical underpinnings for such a prescription. One popular argument is the one developed by Raul Prebisch (1950) and Hans Singer (1959), popularly termed as "Prebisch–Singer thesis". They purported that LDC'S exports are mainly primary products, the TOT of which have been secularly declining over time. They further noted that the gains from international trade and foreign investment accrued mostly to developed counties (centers) rather than the developing nations (the peripheries) (Bhagwati 1998).

Morton (1977) explained these declining terms of trade and the resulting undesirable outcome on economic growth as resulting from supply and demand constraints and market imperfections. He further pointed out the rapid development of technology in industrialized

countries as a major impediment, through its synthetic product substitution to LDC'S primary products. In the words of Morton,

> *Exports of many processed agricultural goods and of labor- intensive manufactures –in which LDCs have a clear comparative advantage vis. á vis. developed countries are subject to various tariff and other restrictions imposed by such countries to protect their relatively uncompetitive domestic industries. Even raw materials for which demand is generally more buoyant, face competition from synthetic substitutes, while technological changes in developed countries have acted generally to reduce the importance of raw material inputs in a given product-and this trend is expected to continue. (pp, 22)*

Another serious critique from different angle, (as cited in J.Felipe (2003) is that of Palley Blecker (2003) and Kaplinisky (2000) who, based on the experience of some Asian countries, have recently begun questioning the advantage of ELG on grounds of "fallacy of composition" or "adding up constraints". These authors argued that if too many countries try, simultaneously, to rely on ELG strategy to stimulate growth under a given set of global demand condition, the market for LDC'S export is limited by the capacity of the industrialized nations, and this leads them to excess capacity and possibility of immiserizing growth[8]. A quote from Bhagwati (1998) seems to reinforce the argument.

> *...Can most developing countries become successful exporters simultaneously? Or focusing on the successful Asian Exporters, the question may be put: can the Asian export model be successfully exported to all? The suspicion still lingers that the success of a few was built on the failure of the many and that, if all had shifted to the export promotion (EP) strategy, none would have fared well (pp. 30).*

The argument has still continued to be one of the top agenda in literature. Such issues are further discussed in greater detail below.

[8] Bhagwati (1958) used the term to refer to the situation where a number of developing countries try to export their way out of underdevelopment by specializing in a range of similar products, most of them could end up losing from insufficient foreign demand and possibly depressed international prices which in turn would lead to declining of their TOT.

3.1.3 Alternative Growth Strategies of the Past

Since 1950s and 60s, most LDCs hoped to industrialize their economies. This is in view of the fact that all rich nations are industrial while most poor nations are primarily agrarian. In order to reap all the benefits of industrialization such as rising TOT, technical progress, better employment & payments etc, developing nations employ different growth (trade) strategies. These strategies can broadly be dichotomized in to export promotion and import substitution.

3.1.3.1 Import Substitution Strategy (ISS)

The initial adoption of ISS by LDCs in 1950s and 60s was a response to the decline in world market for their primary products and growing balance of payment deficit of their accounts. Under such arrangements it was believed that industrialization would be facilitated though a protectionist regime. Generally, the rationale behind the adoption of ISS is associated with a number of economic arguments: (Salvatore, 1990)

i. It generates domestic saving making a higher rate of investment possible.
ii. It brings about external economies and linkage.
iii. It makes foreign exchange saving possible through substitution of local production.
iv. It serves as principal source of public revenue to provide an adequate supply of public goods.

Advocates of the strategy attach three advantages. First, since the markets for industrial products already exists (as evidenced by imports of the commodity), risks are reduced in setting up on industries to replace imports, second, it is easier for developing nations to protect their domestic markets against foreign competition than to force nations to lower trade barriers against their manufactured exports and finally, firms are induced to establish the so called 'tariff factories' to overcome the tariff walls of developing nations.

The Import Substitution trade Strategy has three distinct stages (Meier, 1995). First, substitution of consumer goods sector, (textiles, shoes...), Which do not require high capital technology. At this stage it was believed that domestic production of these commodities generate external economies in the form of labor training, development of entrepreneurship and the spread of technology.

The next phase involves the replacement of the imports of intermediate goods: producer and consumer durables. In order to implement the strategy successfully, different instruments were designed of which the erection of Protective tariffs (taxes on imports or quotas) were the main technique to encourage all import substituting firms disregarding the competitive advantage and devaluation of exchange rates.

In spite of these arguments, the Import Substitution Strategy has been largely criticized. (Todaro, 1995) mentioned five undesirable outcomes of the strategy: First, due to protective tariff wars and immune from protective measures, many import-substituting industries were in efficient. Second, the main beneficiaries of the strategy were foreign firms that were able to locate behind tariff walls, and take advantage of liberal tax and investment incentives.

Third, most practitioners of the strategy were heavy and often government subsidized companies which create capital intensive industries that do not go with the consumption habits of the poor. Moreover, such industries worsen the balance of payment problem by increasing the need for imported capital good inputs and intermediate products. In addition, a good deal of the profit is remitted abroad in the form of private transfer payment. They also have minimal employment effect.

Fourth, to encourage local manufacturing through the importation of cheap capital and intermediate goods, exchange rates have often artificially overvalued. This has the effect of raising the price of exports and lowering the price of imports in terms of local currency.
Finally, Import Substitution Stratagy (ISS), which was conceived with the idea of stimulating infant industry growth and self-sustained industrialization, has often inhibited

the industrialization process. Many infants never grow up; content to hide behind protective tariff and government reluctant to force them to be more competitive by lowering tariffs.

3.1.3.2 Export Promotion Strategy (EP)

The unsuccessful stories of countries that retained ISS in 1950's and 1960's, and the successes of the East Asian tigers led many LDCs to adopt export promotion as alternative trade strategy. The strategy has considerable emphasis on export diversification, particularly towards manufacturing goods.

According to mainstream circles (e.g. Kruger 1977), EP is presented as the desirable growth strategy for it appears to be pursued in a context of 'laissez faire' (as opposed to protectionism under ISS). Thus, policies in pursuits of an export promotion strategy are seen as getting closer to an optimum in the sense that the international marginal rate of substitution equals the domestic marginal rate of transformation. According to mainstream orthodoxy five potential benefits are associated with EP with respect to ISS ((Meier, 1995).

(i) The domestic resource cost of earning a unit of foreign exchange tends to be less than the domestic resource cost of saving a unit of foreign exchange;
(ii) AS the ELG rests on exogenous world demand, a developing economy can overcome diseconomies of small size. And in general, technology-economic factors (e.g., minimum efficient size of plant, increasing returns to scale, indivisibilities in the production process) imply a superiority of development through export promotion;
(iii) Being exposed to world competition, firms in the country can increase technical efficiency (i.e., the forces that intensify motivation that result in lower cost curves for the firm);
(iv) A pro-trade strategy may attract foreign direct investment;
(v) ELG contributes more than does IS to employment creation and improvement in the distribution of income;

Palley (2002) as cited in J.Felipe (2003), on the other hand, has indicated that the emphasis on ELG has had a series of negative effects. First, it prevented the development of domestic market growth. Second, it put developing countries in a race to the bottom among themselves. Third, it put workers in developing countries in conflict with workers in developed countries. Fourth, there is a relationship between export-led growth and financial instability by creating over investment booms. Fifth, due to the emphasis placed on global goods and commodity markets, this model aggravates the long-trend deterioration in developing country terms of trade. Finally and most importantly, export-led growth reinforces the dependency of developing countries on the developed world, thus becoming vulnerable to slowdowns in the latter's markets. Export-oriented economies are dependent on foreign (mostly Western) demand. The problem is that recessions in Europe, Japan, or US translate into slow growth in the developing world.

3.2. Empirical Literature

The relationship between export and economic growth in developing countries has been adequately analyzed by a large number of empirical studies. However, empirical investigations to date have presented mixed or contradictory results. While most cross-section studies have found a positive association between export and growth, a considerable number of studies, applying a range of time series methodologies found mixed results, either supporting or rejecting the export-led growth hypothesis.

According to Moschos (1989), Greenway and Saps Ford (1994), the reason for this different observation is due to the "minimum development level hypothesis," which states that the relationship between export and growth depends on the level of development and economic structures. That is, for exports to effectively affect economic growth, a country should attain a minimum level of development with an outward-oriented policy stance.

Generally, the empirical literature on ELG can be separated into three groups. The first are those employing the correlation coefficients in cross-country study. The second groups constitute those regression applications, on cross-country predication (using Least Square

techniques). The third, most recent groups of works are those applying time series techniques to examine export-growth relationships. But for the sake of simplicity and making generalizations, I categorize this empirical evidence into two groups: cross-sectional study and time series analysis.

In the group of studies based on rank correlation coefficient of OLS regression between exports and output in a two variable context, a number of countries ranging from 7 to more than 100 and various time periods were investigated and several definitions of the ''export'' and "economic growth" variables were also adopted. The general conclusion from such studies was that high level of output growth was significantly associated with high levels of export growth.

Works by Emery (1967), Maizles (1968), Kravis (1970), Michaely (1997) on 41 LDCs for the period 1950-73, using spearman rank correlation and that of Balassa (1987) on 11 developing countries for the period 1960-73, whose result, lend support to ELG hypothesis, are classic examples. However, such rank correlation results were criticized on three grounds, namely such correlation coefficients ignored other determinants of growth, no attempt was made to distinguish between endogenous and exogenous variables, and such analysis were not based on firm theoretical grounds (Edwards, 1993).

3.2.1. Cross-Sectional Studies

Since the problem of spurious correlation grabbed the main attention of research works, later studies based on cross-country analysis tried to include other variables and apply linear regressions to mitigate the problem. In such studies, the export variable was framed in the model as independent while the growth variable with other determinants was treated as dependent. These studies largely concluded that the export led-growth hypothesis (ELG) was supported if the coefficient of exports variable was positive and statically significant.

An example of these studies was the one conducted by Ram (1985), using relatively larger sample of 73 LDCs. He regressed real output on capital, labor and exports in the same manner of production function for the period 1960-70 and 1970 -77 separately. His aim was to shed

light on the widely held view of ELG hypothesis for LDCs. In the light of this, he considered a greater proportion of low and middle-income countries for both periods.

Ram found that export performance does really seem important for economic growth, but the export impact for lower income countries seemed small over the period 1960-1970. However, this impact differential disappeared in 1970-1977, being quite larger and equal in both groups. He also reached at the same conclusion evidencing a strong positive impact of exports on economic growth in his latter investigation (1987) on 88 LDCS. The study was aimed at providing estimates of two models of the export-growth linkages applying cross section analysis for sub-periods of 1960-1972 and 1973-1982 using annual data. The fit of the models were good in most cases in which 70% of the (Countries) reported F-statistics with at least 10% level of significance.

Tayler (1981) and Feder (1983) carried out other cross-country studies. Feder analyzed the source of growth in the period 1964-1973 for a group of 31 semi-industrialized LDCs by adopting a supply-side description. His analysis allowed him to estimate the sectoral marginal productivities, indicating that the marginal factor productivities were significantly higher in the export sector than the non-export sector (He viewed the economy as if it consists of these two sectors). His regression result indicated that the coefficient of the export variable is about 0.42, which is significant at 5% level. This lent strong support to the ELG hypothesis, similar to Tayler's study.

Balassa (1985) examined the export-growth relationships during the period of external shocks (1973-78) for a group of 43 developing countries. The main objective of his study was to re-examine the existence of a positive impact of exports on economic growth under the condition of economic crisis and before the crisis (Pre-1973) period. Balassa adopted the same framework of his previous works but increased the sample size from 11 to 43, incorporating low-income countries. He confirmed that the rate of growth of exports significantly affected the rate of economic growth and the numerical measures of this effect increased, compared to the latter period. He further recommend to employ an outward oriented policy if low-income countries aspire accelerated economic growth. However, Balassa's (1985) finding was

criticized on grounds that even if his pre-post comparison was theoretically right, it could be misleading due to the heterogeneity of the samples considered, That is, his former study (1973) used pooled data while his post reform investigation was based on cross-section data. Conclusions drawn from such different data origins are therefore highly unrealistic due to his weak assumption of homogenous production functions.

Generally, it is possible to conclude that in the empirical assessment on export-led growth hypothesis, almost all cross-section investigations provide strong support to the significant contribution of export growth to economic growth with slight variations on the magnitude (see Appendix A).

But, conclusions drawn from cross-section or pooled data studies are severely criticized for their weak assumptions of homogeneity across samples. This is however, highly unlikely and unreliable because countries do differ at least in their degree and level of economic structures. Moreover, these methods provide no insight into the direction of causality, but merely measure an association between exports and economic growth. A positive correlation or coefficient of exports in the equation of economic growth can be equally compatible with causality from exports to growth (ELG), from growth to exports (also called GLE hypothesis) or bi-directional causality between the two variables (Woo S.Jung and J.Marshal, 1985), Chow (1987).

The improper assessment of the causal relationship in a static cross-section setting paved the way for the adoption of a more dynamic time series analysis of the experience of individual countries aimed at determining whether exports promote economic growth or the vice-versa and, theses time series studies are discussed below.

3.2.2. Time Series Studies

Among the country-specific studies, one was Rati (1987), who tested the export-growth relationship adopting two growth models for 88 LDCs (including Ethiopia) for the period of 1960-82 separately. This country specific result holds true for the export-growth relation- ship for majority (80%) of the countries under consideration and, nearly half of the positive coefficients of the export variable were statistically significant at least at 10% level.

A work by Afxentiou and Serletis (1991) was another time series analysis for 16 industrial countries for the period of 1950-1985, using vector auto regressive (VAR) and Granger-causality co-integration tests. The empirical evidence obtained indicated that the ELG hypothesis was only supported in one of the 16 countries (USA) but the GLE (growth-led export) hypothesis was valid for two countries (USA and Norway). The GLE hypothesis was also found valid in Canada and Japan but the authors discarded the result due to its excessive optimal lag length (10) and for it provided no policy implication.

Kugler (1991) carried out country specific studies in 6 countries (USA, Japan, Switzerland West Germany, UK and France) for the period 1970-1987. His result revealed that one or two co-integrating relationships were found significant with the exception of UK. He also found that in two countries (Germany and France) exports couldn't be excluded from cointegrating relationships. In conclusion, only weak evidence in favor of the export-led growth hypothesis was found.

Serletis (1992) re-examined the ELG hypothesis for Canada for the period 1870-1985 on annual data basis. This study differs from his earlier work in two respects. He tested the time series properties to ensure stationarity and causality tests with co- integration analysis. The Granger causality tests confirmed the existence of causality from export growth to GNP growth except for the period after the II world war. In addition, he found evidence supporting the export- led growth hypothesis in the year 1870-1985 and the 1870-1944 sub-samples in Canada and, concluded that an expansion of exports promote an expansion of national income.

Jin (1995) examined the export-led growth hypothesis for the "four little dragons" (Hong Kong, Singapore, South Korea and Taiwan) for the period 1973-1993, using quarterly data. He used a five variable VAR (vector autoregressive) model and the relationships between exports and economic growth was analyzed through variance decomposition and impulse response function and co-integration. His result confirmed the export- led growth hypothesis in those countries.

Henriques and Sadoresky (1996) investigated the ELG hypothesis for Canada for the period 1870-1991 employing VAR model to test Granger causality on annual data basis using three variables (exports, terms of trade & GDP). In his result, co-integration was found between three variables (using Johnson Method) implying a long-run relationship between them. But no evidence supporting export -led growth was found while the growth driven export hypothesis (GLE) was verified.

Work by Alyousif (1997), based on four Arab Gulf Oil-producing countries, namely Saudi Arabia, Kuwait, United Arab Emirates and Oman for the period 1973-1993, examined the relationship between exports and economic growth using two framework (production function type and sector analysis). The second frame reflects the "externality effect" of the export sector towards the non- export sector as used by Feder (1983).

The empirical results obtained by Alyousif indicated that exports have positive and significant impact on economic growth in the four Arab countries, and this coincides with a large body of previous research on both industrial and developing countries.

Begum and Shamsudin (1998) also investigated the effects of exports on economic growth in Bangladesh for the period 1961-1992 on annual data basis employing two sector growth models. Granger causality was tested using the maximum likelihood method, where support for ELG hypothesis was found with 2.5 % level of significance. But no feedback was found complementing the structural model.

Siddique and Seirvanathan (1999) carried out a test for ELG hypothesis on Malaysia for the period 1966-1996 using total exports and manufactured exports to test for causality. Their result however, did not support the widely held belief of export- led growth but supported the growth–led manufactured export (GLE).

Medina and Smith (2000) tested the ELG hypothesis for Costa Rica in the period 1950-1997 using the Cobb-Douglas production function. These authors found support for the ELG hypothesis not only for short-term change but also for long-term effects. But the long-term effects of exports on economic growth were smaller in comparison to the effects of the traditional factors of production (investment and labor).

Sharma and Theodore (2003) re-examined the ELG hypothesis for India for the period 1971-2001 using Granger causality, VAR and impulse response functions. They found strong evidence against ELG hypothesis. Their result has also confirmed that the variables considered were not co-integrated.

In the empirical investigation of the export- led economic growth, there are no sufficient studies undertaken on Ethiopian case. Among such works are Girma (1982), Rati (1987), Elias (1998) and Debel (2001). Girma (1982) regressed GDP and the export variable taking the former as dependant and the latter as the only explanatory variable and found that GDP and exports are highly correlated with correlation coefficients of 0.962 and the coefficient of determination (R^2) was 0.81 This approach however, contains a serious methodological weakness and was biased in the sense that it ignored other important variables that significantly determine economic growth.

In Rati's (1987) investigation for the period 1960-82 (discussed previously), the results of his assessment of ELG on Ethiopia shows that the coefficients of the export variables were not significant but with expected (+) signs. This weak statistical significance could be due to the short time series period (22 years) considered.

Elias Kedir (1998) estimated conventional and "Feder" type models for Eastern and Southern Africa countries including Ethiopia. His result provides support for positive and significant impact of exports on economic growth in both models for Ethiopia.

How ever, all these studies used export growth and GDP growth variables and, results from such estimation cast serious doubt on the efficacy of export promotion in fostering economic growth. Because exports are themselves components of output via the national income accounting identity and, export growth may itself be a function of the increase in output. This, according to Michaely (1977), Feder (1982), Afxentiou and Serletis (1991), Esfahani (1991), and Sheehey (1990), creates problems of simultaneity bias.

To remedy this simultaneity bias, various measures of the two (Export to GDP ratio, GDP net of exports, GDP percapita income, etc...) are usually employed in the estimation process. Hence, this study, by way of employing this technique and recent update data, provides better investigation on ELG hypothesis and causality between the two variables in the country over previous studies.

Generally, the empirical studies reviewed so far indicated that export-economic growth relationship is still an unsettled issue that provokes further investigation.

CHAPTER FOUR

IV. ECONOMETRIC ANALYSIS AND ESTIMATION RESULTS

4.1. Model Specification

The model that will be used in the assessment of the effects of export growth on economic growth is the modified version of the neo-classical aggregate production function used by Bela Balassa (1978), Gersho`n Feder (1983) and many others.

In most studies of the export-led growth hypothesis, export variable is often added to the neo-classical aggregate production function in addition to the "conventional" inputs, labor and capital.

In fact, the investigation of ELG hypothesis incorporates several important variables depending on the purpose the study is expected to serve. Following such arguments, openness factor [9] and war and instability (as designated by Dummy) are incorporated in this study together with the export variable to assess their impacts on the economic growth. .
Dummy variables are qualitative variables representing the presence or absence of a particular qualitative feature in a given data (Maddala, 1992). Accordingly, since the Imperial and the current EPRDF governments were relatively characterized by peace and stability[10], dummy 0 is given for them, while dummy 1 for the Derg regime to represent instability and war in the country. The modified version of the neo-classical aggregate production function model is thus represented as follows:

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[9] 0ppenees factor (the ratio of the sum of exports and imports to GDP) is introduced to see the hypothesis whether open economies do really grow more rapidly than closed ones in Ethiopian context. This is following Fossu's (2000) general statement on LDCs

[10] The ranking is based on relative comparison among the three regimes, it does not necessarily mean there was no war in the country, the Ethio- Eritrea conflict in 1998-1999 is a recent historical memory.

$Y_t = f(L_t, K_t, X_t\ OP_t, D)$----------(4.1)

Where Y_t is aggregate real output, L_t and K_t are the conventional labor and capital inputs respectively. X_t represents the unconventional real export input introduced additionally. OP_t and D are the openness factor and dummy variables incorporated in the model in addition to export respectively.

Using equation (4.1) and expressing the variables in natural logarithmic form, we attempt to look at the relative contributions (elasticities) of each variable to the growth process. The model to be estimated is specified as:

$LGDPt = \beta_0 + \beta_1 LLAB_t + \beta_2 LK_t + \beta_3 LEXP_t + \beta_4\ LOPP\ t + D + \varepsilon_t$ ---------- (4.2)

In equation (4.2) above,

LGDPt	=	the natural logarithm of real GDP at time t
LLABt	=	the natural logarithm of active labor input at time t [-, +]
LKt	=	the natural logarithm of real gross capital formation at time t [+]
LEXPt	=	the natural logarithm of export to GDP ratio at time t [+]
LOPPt	=	the natural logarithm of openness factor at time [+]
D	=	Dummy variable.

β_0, β_1, β_2, β_3 and β_4 are elasticities, and ε_t is the random disturbance term. The expected signs of each variable input is as shown in the bracket. All variables except active labor are expected to have positive signs. This is because the sign of active labor depends whether the country is labor abundant or not, being negative for the former due to the fact that most LDCs are highly characterized by high unemployment. (Esfahani,1991, Jung, and Marshall, 1985).

4.2. Data Description and Sources

The sources of the data used in this study are secondary data and are obtained from National Bank of Ethiopia (NBE), Ministry of Economic Development and Cooperation (MEDaC), Ethiopian Economic Association (EEA), various annual publications of the International Monetary Fund and the World Bank.

Since exports are components of GDP, there exists an inherent correlation problem between them. Many authors like Michaely (1977), Afxentiou and Serletis (1991), Tyler (1981) and Sheehey (1990) argued that if evidence is found in Support of the export-led growth hypothesis, this might be due to the built-in biasedness (correlation) between GDP and exports. Accordingly, alternative measures of these variables not subject to this bias should be used to test the desired relationship.

Following the argument of Tyler (1981) and Sheehey (1990), various measures of export and GDP (Export to GDP ratio, GDP net of exports, GDP percapita income, etc...) can be used as an alternative to export and GDP variables. Hence, share of export to GDP is used as a proxy for total export value in this study. Labor input is also proxied by active labor population (obtained from Ethiopian stastics Authority) in the range between 15 to 65 years old). In order to see the contribution of opening an economy to the rest world and the impact of war and instability on economic (GDP) growth, openness factor and dummy variables (0 representing its absence and 1 for its presence) have been added to the model. The capital input is also proxied by real capital stock accumulation obtained from NBE.

Data on Gross domestic product (GDP), values of exports and imports of goods and services, gross capital formation are taken from National Bank of Ethiopia and all these variables are basic from which various real and other variables are derived.

In order to estimate the specified model above, annual data (time series) covering over forty years (1960\61-2003\2004) has been used together with Johansen estimation procedure using PC Fiml version 9 estimation software packages. But time series analysis has several interesting features that need closer scrutiny, and this is discussed in the following section.

4.3. Stationary and Non-Stationary Series

Time series data have become so frequently and intensively used in empirical researches. However, most annual series are not stationary (have no constant mean and variance). Econometric estimation of models involving such data in classical linear regression is based on a set of assumptions, one of which is stationarity of the variables used in the model.

A series is said to be covariance (weakly) stationary if it exhibits the following three criteria:

i) if its mean reverts, i.e, has a long run constant mean,
ii) if it has a finite variance that is time invariant, and
iii) if it has a theoretical correlogram that diminishes as lag length increase. More over, the impact of stationery series is temporary while for unit roots is permanent.

On the other hand, a serious is non-stationary (unit root) if it has no long run mean to which the series reverts, has a variance that is time dependant and a slowly dying out sample correlograms (Enders, 1995). Thus, the first thing that one has to do before estimating time series data is ensuring whether the series is stationary or not. Because, estimation techniques applied to estimate the relationships between variables in the presence of unit roots result in regressions that are spurious.

Spurious regression is a situation in which results obtained from the regression model suggest that there are statistically significant relationships between the variables, but with out meaningful causal relations or contemporaneous correlations (Harris, 1995).

One possible solution of avoiding unit root problems is through a transformation of variables in the form of differencing to remove the non-stationery (stochastic trend). Accordingly, if the series is differenced once to induce stationery, it is often referred as integrated of order one I (1). How ever, if the series is stationery at levels, it is often described as integrated of order zero, I (0), Generally if the series is differenced d times to attain its stationarity, it is regarded as integrated of order d; I (d).

4.4.Test for Unit Roots

There are several mechanisms that aid in identification of unit root in series. One such tool is examining the properties /shape/ of correlograms or auto correlation graphs which dies out slowly in its presences, and cuts off in stationery series. A graphic method however, is imprecise. Because, a near unit root process will have the same shape of ACF as a unit root processes.[11]

Other tests include the Sargan-Bhargava (1983) CRDW- tests based on the usual Durbin - Watson stastics and non-parametric tests (based on Philips (1987) Z-tests. but the Dickey and fuller (1979,1981) tests using DF distribution is the popular one either because of its simplicity or their more general nature (Harris 1995, pp28).

The DF test is based on prior assumption that the data generating process (d.g.p) is a simple first-order auto regressive process AR (1) with a zero mean. It involves testing the null hypothesis that a series contains a unit root against its alternative of stationarity. Mathematically,

$\Delta Y_t = \rho y_t\text{-}1 + \varepsilon_t$ or, $Y_t = (1+\rho)\, y_{t-1} + \varepsilon_t$, where $\alpha = (1+\rho)$---------- 4.3)

The null hypothesis Ho: $\rho = 0$ or, [Yt is not I (0)]

The Alternative hypothesis H1: $\rho < 0$ or, [Yt is I (0)]

[11] What may appear as a unit root to one observer may appear as a stationery process to another in the graphic analysis. Harris (1995)

In simple AR (1), DF model may be a precise tool, but in higher order auto regressive process say AR (P), unit root tests based on DF test may not be applicable and the augmented Dickey fuller test (ADF) must be used. This is mainly due to the fact that the mean of the data generating process is non-zero and the error term may be auto correlated invalidating the use of DF distribution. The null hypothesis in ADF test is the same as that of DF test, the null being unit root (there is non-stationarity) against the Alternative; there is stationarity in the series.

4.5. Cointegration and the Error-Correction Model (ECM)

According to Engle and granger (1987) cointegration is defined as a situation where two or more series are linked to form an equilibrium relation ships over span of time. In other words, even if the individual time series data are non stationary, their linear combination could be stationary and they will move closely together over time to make their differences stable (stationery).

Lack of cointegration on the other hand suggests the absence of long-run link[12] between the two variables and this leads to the problem of "spurious correlations". More formally, if two variables say x_t and y_t are I (d) and the error term ε_t is I (0), then, the two series are said to be cointegrated of order I (1,1).

There are two common methods of testing for co-integration. These are the Engle and Granger (1987){henceforth called EG two–step procedure} and the Johansen (1988) Maximum Likelihood method.

In the EG two-step methodology, the residual from a long run model OLS regression is tested for unit roots based on ADF stastics. Next, order of integration is tested whether the error term εt ~ I (0) against its alternative εt ~ I (1) from the first OLS regression. The EG

[12] A failer to find cointegration does not necessarily mean that there is no long run relation ship but only suggests the absence of long run linear relation ships (Harris, 1995).

method is applicable only for single co-integrating vectors. Moreover, it pre-assumes that the variable in the right side is weakly exogenous (determined out side the model) while the left side (dependant variable) being endogenous. But in many instances there exists endogenity character among variables and, inferences made based on such pre-supposition, may some times be misleading (Harris, 1995).

The EG procedure, however, is criticized on grounds (Harris, 1995): i) tests for co-integration is likely to have lower power against alternative tests, ii) in finite samples, estimates of long-run relationships are potentially biased, iii) inferences cannot be drawn using standard t-stastics about the significance of the parameters of the long-run model. Because, since the procedure involves two–steps, errors committed in the first step are carried over to the next step (Enders, 1995)

By using the Johansen's (1988) Maximum Likelihood estimators, the above pitfalls of the EG test can be avoided. Johansen's test enables estimating and testing for the presence of multiple cointegration relationships, in a single step procedure. It is a multivariate generalization of the Dickey-Fuller test. The variables under consideration are vector auto regressive (VAR) of lag (p) represented by

$$Z_t = A_1 Z_{t-1} + A_2 Z_{t-2} + \ldots + A_p Z_{t-p} + \varepsilon_t \quad \text{----------(4.4)}$$

Where: Z_t is the (nx1) vector variables (Z_{1t}, Z_{2t}, Z_{nt}) and A_i is (nxn) matrix of parameters. The error term ε_t is an independently and identically distributed n-dimensional vector with zero mean and variance matrix (Ibid).

This model serves to estimate dynamic relationships among jointly endogenous variables with out imposing strong a priori restrictions (such as exogeneity of some variables). The system is in reduced form with each variable in Z_t regressed on only lagged values of both it self and all other variables in the system.

The vector error correction model (VECM) from the VAR model can thus be formulated as (Harris, 1995,Enders, 1995),

$$\Delta Z_t = \sum_{i=1}^{p-1} \Gamma_i \Delta Z_{t-1} + \Pi_j Z_{i-p} + \Phi D_t + \varepsilon_t \quad \text{----------(4.5)}$$

Where, $\Gamma i = -(I - \sum_{i=1}^{p} A_i)$, containing information on the short-run adjustments to changes in Z_t

$\Pi_j = -(I - \sum_{j=1}^{p} A_j)$, containing information on the long-run adjustments to changes in Z_t

The above VECM contains information both on the short-run and long-run adjustment to changes in Z_t through the estimates of Γ_i and Π_i respectively. Π can be represented by equation $\mathbf{\Pi = \alpha \beta'}$, where α represents the speed of adjustment to disequilibria, while β is a matrix of long-run coefficients such that the term $\beta' Z_{t-1}$ included in equation (4.5) represent up to (n-1) cointegration relation ship in the multivariate model which ensure that Z_t converge to their long-run steady state path (Harris, 1995).

The important feature in the above model is the rank of matrix Π.[13] If the rank (Π)=0, then the matrix is null and the model is the usual VAR in first differences. How ever if the rank (Π) = n, then the vector process is stationary.(i.e all variables are I(0). But if the rank (Π) =1, then there is a single cointegrating vector and the expression Z_{t-p} is the error correction factor.

On the other hand, if 1< rank (Π) < n, it implies that there are multiple cointegrating vectors. The latter situation where the rank (Π) ranges between 0 and n is usually termed as reduced rank (Harris, 1995,Enders, 1995). This implies that testing for cointegration requires finding the rank of (Π).

[13] A rank of matrices refers to the number of independent cointegrating vectors

4.6.The Standard Granger Causality Test

In the empirical analysis of ELG hypothesis, most studies provide no insight in to the direction of causality, but merely measure an association between exports and economic growth.

According to Granger (1969) causality approach, a variable Y say economic growth is Granger caused by X, say export, if Y can be predicted better from past values of Y and X than from past values of Y alone. Similarly, if past (lagged) values of X predict Y and at the same time lagged value of Y predicts X, then, there is a bi-directional causality between the two.

One should bear in mind that before running causality tests, cointegration between variables must be checked first. Once co-integration is ensured, there must exist causality in at least one direction. We can test the Granger causality test by estimating the following two equations independently using the standard F test.

$$\mathbf{Y_t} = \mu_1 + \sum_{j=1}^{P} \gamma_{11\,j}\, \mathbf{Y_{t-j}} + \sum_{j=1}^{P} \gamma_{12\,j}\, \mathbf{X_{t-j}} + \varepsilon_{1t} \text{----------} (4.6)$$

$$\mathbf{X_t} = \mu_2 + \sum_{j=1}^{P} \gamma_{21j} \mathbf{Xt\text{-}j} + \sum_{j=1}^{P} \gamma_{22\,j}\, \mathbf{Y_{t-j}} + \varepsilon_{2t} \text{----------} (4.7)$$

Where ε_{1t} and ε_{2t} are white noise processes and, the null hypothesis that γ_{12} and $\gamma_{22} = 0$ is tested against the alternatives γ_{12} and $\gamma_{22} \neq 0$ in equation 4.6 and 4.7 respectively.

According to the narrow definition of ELG, rejecting the null hypothesis for equation (4.6), but not (4.7), establishes evidence that support the ELG hypothesis i.e, the existence of uni-directional causality from X to Y. If however, both nulls are rejected, it implies the existence of bi-directional causality.

Alternatively, if the null hypothesis in equation (4.7), but not (4.6), is rejected, we conclude that causality is running from outputs (in this case Y) to exports (X) providing evidence for the validity of the GLE (Growth led-export) hypothesis. But if neither of the null hypothesis is rejected, it implies that there is no causality running between them and, the two variables are to be determined by other sets of variables.

By employing this formulation, the result (as can be seen from the following summary regression table) gives us evidence of failing to reject the null hypothesis in both equation cases using the usual thumb rule.

The coefficient of the lagged export variable (EXP_{-1}) in the regression of GDP (though positive in sign and high in value) is insignificant. According to Granger procedure, this situation implies that there is no evidence of causality running from exports to GDP.

Similarly, the coefficient of the lagged GDP variable (GDP_{-1}) is insignificant (failed to be rejected) showing again the absence of causality running from GDP to exports in the regression of the latter on the former.

Table 4.1 Summary results of causality tests using coefficient significances

Modeling GDP by OLS					
Variable	**Coefficient**	**Std. Error**	**t-value**	**t-prob**	**PartR^2**
Constant	-7.0645e+007	3.2162e+008	-0.220	0.8273	0.0013
GDP_1	1.0377	0.030644	33.864	0.0000	0.9687
EXP_1	0.10541	0.52763	0.200	0.8428	0.0011
Modeling EXP by OLS					
Constant	-2.2466e+008	1.4927e+008	-1.505	0.1408	0.05
ExP_1	0.92886	0.11696	7.942	0.0000	0.6303
GDP_1	0.036906	0.025221	1.463	0.1518	0.0547

Generally, The result implies that there is no causality running in either of the directions showing the fact that the two variables (Outputs and exports) to be determined by other sets of variables in the Ethiopian context, i.e no evidence was found supporting either ELG or GLE hypothesis using Engle and Granger methodology.

The use of error-correction modeling can provide an additional channel through which causality in Granger test is assessed. Cointegration is a signal that two or more variables reach a long-run equilibrium from which they may deviate in the short run. A class of models that embodies correction of this short-run deviation has been developed, and is referred to as Error-correction models (ECM). In general an ECM derived from the Johansen test can be expressed as follows. (Harris, 1995)

$$\Delta EXP_t = \alpha_o + \beta_o \mu_{t-1} + \sum_{i=1}^{M} \theta_{oi} \Delta EXP_{t-i} + \sum_{i=1}^{N} \delta_{oi} \Delta GDP_{t-i} + \varepsilon_t \text{ ----------(4.8)}$$

$$\Delta GDP_t = \alpha_1 + \beta_1 \mu'_{t-1} + \sum_{i=1}^{M} \theta_{1i} \Delta GDP_{t-i} + \sum_{i=1}^{N} \delta_{1i} \Delta EXP_{t-i} + \varepsilon'_t \text{ ---------- (4.9)}$$

Where μ_{t-1} and μ'_{t-1} are the lagged error correction terms obtained from co-integration equation i, ε_t and ε'_t are serially uncorrelated errors and, β_o and β_1 depict the speed of adjustment. By including these terms, it is possible to conclude that X Granger causes Y if β_s (coefficients of lagged residuals) are significant irrespective of the joint significance of δs, (Ibid)

Since the Johansen procedure is superior to Engle and Granger method as explained earlier; the Error- correction model from Johansen method is often taken as the reliable test for causality test (Rao,1994,Enders,1995,Harris, 1995). Accordingly, the result of the ECM (using equation 4.8 and 4.9) revealed the fact that the coefficient of the lagged error term ($ECMgdp_{-1}$) for GDP regression on exports is not significantly different from zero, showing that exports does not Granger cause GDP (economic growth) in the Ethiopian context.

However, in the estimation of the ECM for the regression of export variable on GDP variable, the coefficient of the lagged error term (ECM exp.$_1$) is significant (with t-value above two using the thumb rule). This provides us evidence of uni-directional causality running from GDP to exports, i.e support for Growth GLE. (See table 4.2 below).

Table 4.2 Summary results of Causality tests using Error-correction modeling (ECM)

Modeling DGDP by OLS					
Variable	**Coefficient**	**Std.Error**	**t-value**	**t-prob**	**PartR^2**
Constant	2.1548e+007	2.1989e+008	0.098	0.9225	0.0003
ECMgdp_1	-1.0344	0.63383	-1.632	0.1114	0.0689
DGDP_1	0.86861	0.64729	1.342	0.1880	0.0476
DEXP_1	0.45420	0.54214	0.838	0.4077	0.0191
Modeling DExP by OLS					
Constant	-8.0250e+006	4.6696e+007	-0.172	0.8645	0.0008
ECMexp_1	-0.99153	0.45435	-2.182	0.0357	0.1168
DExP_1	0.98557	0.43634	2.259	0.0301	0.1241
DGDP_1	0.045004	0.065753	0.684	0.4981	0.0128

On the basis of the above causality test results, it is possible to conclude that the Ethiopian economy is more characterized by Growth led export (GLE) rather than Export led growth. This shows that it was the growth of the economy, which led to the improved performance of exports in the past four decades. This finding is reinforced by the estimation result of the short- run model (ECM presented at the end of this chapter) that nullified the contribution of exports to the economic growth in the short run.

4.7. Empirical Analysis and Results

4.7.1. Result of Unit Root Tests

Before any meaningful regression is performed with the time series variables, it is essential to test the existence of unit roots in the variables and to establish their order of integration. The variables used in the analysis need to be stationary and or should be cointegrated in order to infer meaningful relationship from the regression.

Estimation of the cointegration relationship to be undertaken in the next section requires all the time series variables in the model to be integrated of order one I (1). The test results of the standard Augmented Dickey-Fuller (ADF) statistics for all time series variables used in the estimation are presented in table 4.3 below.

Table 4.3. Results of Unit root Tests For Order of Integration of the variables

Variables		Augmented Dickey-Fuller					
		With out drift and trend with		With drift only with		With drift and trend With	
		Lag 1	Lag 2	Lag 1	Lag 2	Lag 1	Lag 2
LGDPt		3.411	4.953	-0.004	0.397	-2.257	-1.055
LLABt		4.803	4.118	0.71349	0.79974	-1.905	-1.770
LKt		1.439	1.260	-0.18444	-0.390	-1.791	-2.191
LEXPt		-0.830	-0.868	-1.533	-1.277	-2.189	-1.946
LOPPt		4.803	4.118	0.713	0.799	-1.643	-2.050
DLGDPt		-4.175**	-1.884	-7.252**	-3.650**	-7.195**	-3.634*
DLLABt		0.803	-0.484	-4.162**	-3.345*	-4.244**	-3.443
DLKt		-4.190**	-4.045**	-4.409**	-4.389**	-4.480**	-4.503**
DLEXPt		-4.802**	-4.338**	-4.909**	-4.044**	-4.8559**	-4.4496**
DLOPPt		-3.576**	-3.770**	-3.766**	-4.068**	-3.8677*	-4.1949*
Critical Values	1%	-2.621		-3.602		-3.525	
	5%	-1.949		-2.936		-4.202	

** Denote rejection of the null at 1% significance * Denote rejection of the null at 5% significance level

From the above test result, it is evident that the variables are non-stationary at levels but are Stationary at their first difference. Hence, the variables are considered as I (1) processes. Moreover, it can be seen that all variables have deterministic trend becoming stationary at their first difference.

4.7.2. Cointegration and Estimation of the Long-run Model

The fact that the time-series variables under consideration are non-stationary at levels imply that the variables taken alone do not have the tendency to revert to their long run levels.

Since the variables are ensured to be non-stationary at levels, or, are I (1) in table 5.3, the next step is to check whether any linear combination of the variables is stationary or not i.e. determine how many cointegrating vectors exist. To do so, we adopt the Johansen's framework in which the variables $LGDP_t$, $LLAB_t$, LK_t, $LEXP_t$ and LOPPt can be represented as a vector auto regression as:

$$\begin{pmatrix} \Delta LnGDP_t \\ \Delta LnEXP_t \\ \Delta LnLAB_t \\ \Delta\ LnK_t \\ \Delta LnOPP_t \end{pmatrix} = \Gamma_i \begin{pmatrix} \Delta\ LnGDP_{t-i} \\ \Delta\ LnEXP_{t-i} \\ \Delta\ LLnAB_{t-i} \\ \Delta\ LnK_{t-i} \\ \Delta\ LnOPP_{t-i} \end{pmatrix} + \alpha\,\beta' \begin{pmatrix} LnGDP_{t-i} \\ LnEXP_{t-i} \\ LLnAB_{t-i} \\ L\ nK_{t-i} \\ LnOPP_{t-i} \end{pmatrix} \quad \text{----------(4.10)}$$

Under the above formulation, the rank of the matrix r determines the number of cointegrating vectors between the variables. The method used for determining the number of cointegrating vectors is the Johansen's (1988) technique based on Maximum likelihood approach. The approach is only available in Pc Fiml version 9 and cats version 4 software packages.

In Johansen procedure, the likelihood ratio (LR) [14]uses two test stastics: the maximal eigen values (λ_{max} stastics) and the trace stastics (λ_{trace}). These stastics are used to test the null hypothesis that there are at most r cointegrating vectors against the alternative that there are r+1 cointegrating vectors. (Enders, 1995,Rao, 1995).

The results of cointegration test based on Johansen's procedure for the variables under consideration using Pc Fiml v.9 package is presented in table 4.4.

Table 4.4. Results of tests for cointegrating vectors

Ho: rank = p	n-p	_T log (1-λr+1)	λ max 95%	_T\sumlog (1-λi)	λ trace 95%
P<=0	4	45.86**	37.5	107.3**	87.3
P<=1	3	24.3	31.5	61.46	63.0
P<=2	2	19.92	25.5	37.16	42.4
P<=3	1	9.896	19.0	17.24	25.3
P<=4	0	7.345	12.3	7.345	12.3

* Denote rejection of the null at 5% significance level
** Denote rejection of the null at 1% significance

As presented in table 4.4 the null of no cointegration is rejected at 1% level of significance while the alternative hypothesis that at least one cointegrating vector is not rejected by both λ_{max} and λ_{trace} stastics at lag length of 3. For the null hypothesis (no cointegrating vectors), the value of λ_{max} = 45.86 and λ_{trace} =107.3 are above from their respective critical values of 37.5 and 87.3 at 1% level of significance. This suggests that the null of no cointegrating vector is rejected; while a case of one co integrating vector is supported by both λ_{max} and λ_{trace} statistics. The graphic test also confirms this (See appendix C).

[14] The likelihood ratio (LR) test is used to test the significance of estimates of λi eigen values.

The result of the test of no cointegration showed the existence of at least one cointegrating vector. however, it does not show which vector is the cointegrating vector. Since lnGDP is assumed as endogenous variable in our model, we can take the first vector (the vector of lnGDP) as the cointegrating one. But we should confirm our assumption by performing weak exogeneity tests for the rest of the variables i.e the significance of α- coefficients. In this case, lnGDP to be our vector, the α–coefficients of it should statistically be insignificant (rejected) and while for the rest variables, we should fail to reject the weak exogeneity. If this condition is fulfilled, the associated VAR model can be written as :

$$\Pi_1 Z_{t-1} = \alpha_{11} \begin{pmatrix} \beta_{11} & \beta_{21} & \beta_{31} & \beta_{41} & \beta_{51} \end{pmatrix} \begin{bmatrix} \text{LnGDP} \\ \text{LnEXP} \\ \text{LnLAB} \\ \text{LnK} \\ \text{LnOPP} \end{bmatrix} \quad \text{---------- (4.11)}$$

Here α_{11} represents the speed of adjustment of the first cointegrating vector. Summary test result for the significance of α- coefficients (weak exogeneity of the explanatory variables) is given below.

Table 4.5: Tests for Zero- restrictions on α–coefficients (weak exogeneity of variables.)

** Denote rejection of the null at 1% significance

Variables	**LnGDP**	**LnEXP**	**LnLAB**	**LnK**	**LnOPP**
α –coefficients	-0.84519	0.30305	0.16260	1.0720	1.5804
LR test, chi^2 (1)	7.3243	0.050895	0.05196	0.90813	2.6432
P-value	[0.0068]**	[0.8215]	[0.8007]	[0.3406]	[0.1040]

* Denote rejection of the null at 5% significance level
** Denote rejection of the null at 1% significance

As can be seen from table 4.5,the zero restriction on alpha–coefficients is rejected for lnGDP alone while the restriction cannot be rejected for the rest of the variable at 1% and 5%level of significance implying the fact that lnGDP is endogenous while the rest variables being exogenous (to be determined by factors out side the model).

In accordance with the above result, the unrestricted dynamic model gives precise estimates of the long-run parameters and valid t-statistics about the significance of these parameters. The single equation model with estimates of the long- run coefficients (elasticities) is given by

LnGDP = 0.44293 LnEXP + 3.4470 LnLAB + 0.35129 LnK + 0.57240 LnOPP --(4.12)

It is worth mentioning about the sign and significance of α_{11}, which is the speed of adjustment with value -0.84519 (see Appendix B). It has the expected sign and it is statically significant. This implies that lnGDP would adjust towards the long run steady state path. Its magnitude 84.52 percent measures the speed at which lnGDP adjusts per year to its long run path, given a shock in the system in a given period.

Tests for the significance of individual variables and the overall significance of the above model are undertaken by imposing a zero restriction on each beta coefficients individually as well as simultaneously, respectively.

The result rejects the null hypothesis that the beta coefficients are jointly statistically insignificant at 1% level of significance implying the explanatory variables jointly explain variations in the dependant variable significantly.

Similarly, the significance of the coefficient of each β (explanatory variable) was tested by imposing zero-restrictions using LR statistics. The result showed that each β coefficient is statistically significant (the null hypothesis is rejected at 1% significance level except for openness). [See table 4.6 below.]

Table 4.6 Summary results for zero restriction on β- coefficients.

Variables	LnEXP	LnLAB	LnK	LnOPP
β –coefficients	0.44293	3.4470	0.57240	0.35129
LRtest, Chi^2(1)	11.431	18.098	15.607	5.5659
P-value	[0.0007]**	[0.0000]**	[0.0001]**	[0.0183]*

* Denote rejection of the null at 5% significance level ** Denote rejection of the null at 1% significance

It is evident from table 4.6 that the export variable, proxied by share of exports to GDP, is rejected for the null at 1% level of significance. This shows that over the past four decades, real export variable has significant contribution to the economic growth (measured by real GDP growth) in the long –run model.

Similarly, the population variable (as used in most literatures of ELGH), is proxied by active labor population in the range of 15-60 years of age, is rejected for zero restriction implying the fact that active labor, rather than the crude population, seemed to have contributed to the economic growth in Ethiopia in the long run equilibrating model.

Like wise, the capital input proxied by the real capital stock accumulation is rejected for the null hypothesis (zero restrictions). This again sheds light on the fact that capital accumulation has contributed to the long run economic growth process during the past four decades in the country. This is in line with the underlying theoretical premises that capital is one of the most important and crucial elements in the growth process for establishment of investments and facilitating infrastructural developments.

The zero restriction on the openness variable (the ratio of the sum of exports and imports to GDP) is rejected but, at 5% significance level showing the contribution of opening the economy to GDP growth in the long run. This is in harmony with Fossu's (2000) argument that open economies do really grow faster than closed economies, albeit the Ethiopian growth process seems somewhat sluggish. The theoretical argument behind this fact is opening enables to import the required capital inputs that are combined with labor input

employed in production function. it also paves the way for acquisition of foreign currency through exports.

It is important to note here that openness is likely to affect economic growth positively if and only if the imported goods and services (through opened economic system) is really useful in production function and significant amount of export is channeled. . If how ever, the imported goods and services are used for consumption rather than for production purpose, the outcome will be hampering, rather than augmenting, the economic growth process.

In the above long-run equilibrating model estimation, it is possible to conclude on the basis of the finding that all coefficients have the anticipated signs indicating that active labor; capital stock accumulation, export and openness factor positively and significantly contributed to the economic (GDP) growth in the country during the past four decades.

4.7.3. Estimation of the Short-Run and Error- Correction Model

So far we have determined the long run relation ship between the variables of interest. Having already obtained the long-run model and estimated the coefficients, the next step will be estimation of coefficients of the short-run dynamics that have important policy Implications. Hence, an error correction model (ECM) will be estimated that incorporates the short-term interactions and the speed of adjustment towards long run equilibrium. In the error correction model, the short-run disequilibria are approximated by the first lag of the estimated long-run linear combination.

The procedure adopted for estimation is the Hendry's approach of general to specific VEC modeling. In this approach, a large model is estimated first which includes as many explanatory variables and their lags as possible (see Appendix B). Then all insignificant explanatory variables are continuously dropped until a parsimonious model with few explanatory variables but acceptable in terms of significance, economic interpretation and diagnostic validity is obtained.

The error-correction model (ECM) has been estimated using the OLS technique and the results are summarized in Table 4.7 below.

Table 4.7. Result of the specific parsimonious Error-Correction Model (VECM)

URF Equation for DlnGDP				
Variable	**Coefficient**	**Std.Error**	**t-value**	**t-prob**
DLnExpt	0.11798	0.061837	1.908	0.0654
DLnkt	0.13872	0.034209	4.055	0.0003
DLnLAB_3	1.9014	0.28000	6.791	0.0000
DLnoppen	-0.23265	0.091930	-2.531	0.0165
Dummy	-0.029316	0.010328	-2.839	0.0078
ECM1_1	-0.40987	0.17948	-2.284	0.0292

Diagnostic tests

Tests on the significance of each variable

DLnEXP F (1, 32) = 3.6403 [0.0654]

DLnk F(1, 32) = 16.444 [0.0003] **

DLnLAB F(1, 32) = 46.112 [0.0000] **

DLnoppen F(1, 32) = 6.4046 [0.0165] *

Dummy F(1, 32) = 8.0576 [0.0078] **

ECM_{-1} F(1, 32) = 5.215 [0.0292] *

R^2 = 0.75269

DW = 2.25

AR 1- 2 F(2, 30) = 0.83255 [0.4447]

ARCH 1 F(1, 30) = 0.67462 [0.4179]

Normality Chi^2(2) = 2.6418 [0.2669]

Xi^2 F(13, 18) = 1.1804 [0.3646]

RESET F(1, 31) = 0.35004 [0.5584]

Number of lag used = 3

* Denote rejection of the null at 5% significance level

** Denote rejection of the null at 1% significance level

In estimating the error-correction model, Dummy for war and instability is introduced to capture the effect of war and policy change from the regression analysis.

The results of the various diagnostic tests are reported and the tests did not detect any problem of hetroscedasticity (ARCH-Autoregressive conditional Hetroschedasticity test), non-normality (Normality Chi^2(2) test,). Similarly, the RESET test also showed that there is no evidence of misspecification problem. We also observe from table 4.7 that there is no evidence of serial correlation problem detected by AR test.

The short-run dynamic model (Error- Correction-Model) is, therefore, given by:

$$\mathbf{DlnGDP = 0.118DlnExp + 0.139DLnk + 1.901DLnLAB_{3} - 0.233\ DlnOP - 0.0293\ Dum}$$

(s.e) (0.061837) (0.034209) (0.28000) (0.091930) (0.010328)

$$\mathbf{-0.409\ ECM_{1}} \quad \text{----------(4.13)}$$

(0.17948)

In the above model, the coefficient of the error-correction term is significant (at 5% level of significance) with expected sign but with fairly smaller magnitude (-0.40987). Its magnitude indicates that deviation from the long run equilibrium is adjusted fairly where 40.98% of the disequilibria are removed each period. It has a negative sign implying that any shock in the system in the short run will return back to its long run path.

The goodness of fit, also called the overall significance of the model measured by R^2,shows that about 75 % of the variations in the dependent variable (lnGDP) is explained by the explanatory variables. (See Appendix D)

Coefficients of the short run dynamics show that, active labor is statistically significant at 1% critical level. This shows that active labor has a positive and significant impact on the short run GDP (economic) growth. Similarly, the diagnostic test shows that capital

formation is significant at 1% critical level; implying its positive contribution to short run economic growth process in the country.

The openness variable, which previously affect GDP growth positively in the long run model, is significant at 5% but with negative sign. This shows that the openness factor does not seem to contribute positively to the short run economic growth process in the country, i.e., opening an economy during the past four decades resulted in adverse effect on economic growth in the short run.

Although the export variable has positive sign (impact), it is statistically insignificant (both at 1% and 5% significant level) in affecting the short run growth process. This leads us to conclude that Ethiopian Export had no positive contribution to short run economic (GDP) growth in the past four decades. i.e evidence was not found supporting the Export–led Growth Hypothesis (ELGH) in the dynamic model.

The negative and significant coefficient of dummy for war and instability (Dum) indicates that the prolonged war that prevailed during the Derg regime has negatively affected the growth of the economy.

CHAPTER FIVE

V. CONCLUSION AND POLICY IMPLICATIONS

5.1. Conclusion

The issue of accelerated economic growth is gaining much momentum by many development economists, especially for poor countries recently. It is generally believed that export performance plays a pivotal role in providing the much-needed impetus for economic growth.

Despite this theoretical rationale, trade in general and export in particular do not seem to back up the economic growth of many developing countries. This was due to the fact that export products of developing countries are largely primary agriculture and agriculture-related, which are highly exposed to international price fluctuation and declining terms of trade.

In the 1970s, most developing and African countries faced a steady deterioration and stagnation in their economic performance, characterized by drastic fall in real income, sluggish growth, and mounting debt burden. Three contending views have tried to account for the crisis. These are the "Berg report", the Africa's alternative framework for structural adjustment program-AAF and the Marxist view. According to these views, factors contributing to the dismal economic performance can be cited as high population growth, poorly shaped economic policies, lack of basic social and political environments, secular effect of imperialism (colonialism), the oil price shock of the 1973-74 and above all, the economic paradigm that gave to the state a prominent role in the production, distribution and consumption process. This led to closer scrutiny into the economic structure of these countries to identify factors determining the growth and hence help these countries achieve a sustained economic growth.

To revitalize the economy of LDCs and spur growth, international trade in general and export in particular was viewed as an engine and was taken as a vehicle of transforming their economies towards improved positions.

Following the remarkable success of East Asians and the failure of the inward orientation by many LDCs in the 1950s and 1960s, there was an urgent need to embark on policy measures that would rectify the problems that LDCs are faced with to bring sustainable economic growth. Accordingly, outward orientation (export promotion trade strategy) was given due attention.

Different arguments have been forwarded as to how growth of exports is associated with the growth of the economy. These are greater capacity utilization, exploitation of economies of scale, efficiency in resource allocation and higher total factor productivity. Regarding the contribution of trade to economic growth, two main views have been identified in the literature. These are trade optimists and trade pessimists.

Proponents of the former, based on classical economic theory, argue that trade can act as an engine of growth both to rich and poor countries through its direct and indirect gains, while the latter, based on the apparent failure of trade to act as engine of growth, contend that such gains are highly unlikely to be significant in most LDCs mainly due to the fact that their ability to exploit their comparative advantage in international trade is limited by the imperfections of the market mechanisms.

The controversy on the role of trade to economic growth led to the emergence of the import substitution (IS) and export promotion (EP) trade strategies. Failure of the IS strategy and success of developing countries that pursued the EP strategy, led many LDCs to pay more attention to the EP.

To substantiate this, a large number of empirical studies on the relationship between export and economic growth in developing countries, have been adequately analyzed. However, empirical investigations to-date have presented mixed or contradictory results. While most

cross-section studies have found a positive association between export and growth, a considerable number of studies, applying a range of time series methodologies found mixed results, either supporting or rejecting the export-led growth hypothesis. Although, the results from these studies are somewhat mixed, predominately a positive and significant relationship between exports and economic growth is observed.

In Ethiopia, owing to structural problems and policies pursued by different regimes, the performance of the export sector has been less than satisfactory .The nation's output and exports are highly concentrated in few agricultural commodities and export destination. Primary agricultural products accounted for about 80-90 percent of the merchandise export earnings of Ethiopia in the past four decades. The commodity concentration index for the five major export products averaged 57, confirming the heavy dependence of the country on few export commodities.

To mitigate all these problems, different trade policies have been designed and implemented by different government regimes that ruled the country for the last four decades. The policy adopted in the pre-1991/92 period (both in the imperial and military government of Ethiopia) was characterized by strongly inward oriented development strategy that had a depressing impact on export through influencing directly or indirectly the profitability and competitiveness of export.

The current government that assumed power in 1991/92 has undertaken trade policy reforms, which aimed at promoting exports through diversifying the country's commodity exports. Despite this policy attempt, there is still a bias against the export sector that calls for active government intervention to create conducive environment for an effective export performance.

This study attempted to examine the contribution of exports to economic growth in the context of Ethiopia using different econometric techniques. The main reason was to be able to see the export-economic growth relationship from a wider perspective and check the direction of causality between exports and economic growth.

To this end, an econometric model in the form of neoclassical production function is developed in which the export variable is used in addition to conventional inputs, labor and capital. Time series analysis and OLS estimation techniques using Johansen procedure were used to test and assess the export-economic growth relationship by employing data from different secondary sources, covering the period 1960/61-2000/04.

Pre-estimation tests of the statistical behavior of the variables (the ADF tests for unit root) showed that all the variables used in the analysis are integrated of order one (I (1)). The Johansen procedure was applied and the result of the co-integration test supported the existence of a single co-integrating vector. Then, the static long run equation was estimated and all variables have the expected signs, significantly affecting economic growth.

The error-correction model was then estimated using Hendry's general to specific approach in order to determine a parsimonious model. The regression result showed that active labor, capital formation, and openness factor do significantly affect the growth of the economy in the short run. Specifically, a one percent change in capital brings about 0.13 percent change in economic growth, whereas a one percent change in labor is related to more than one percent change in output growth (1.90 percent).

Although the export variable has a positive sign in the short-run model, stastical tests failed to support it, implying that the variable does not have a significant positive contribution to the short-run economic growth. This conclusion is confirmed by the ECM causality test result, which proved uni-directional causality running from GDP to exports.

Similarly, openness factor has been found negatively and significantly affecting the Ethiopian economic growth in the short-run. However, the long-run static model showed that all variables positively and significantly affect economic growth .In addition, although there is a direct contribution of exports to economic growth, exports indirectly can foster economic growth substantially by inducing public savings, attracting foreign capital and hence promoting investment. It is also found that there is a positive and significant output-

exports growth relationship i.e. the hypothesis that a growth in output can positively influence export growth is statistically supported in the long-run.

5.2. Policy Implications

The results from these empirical assessments revealed that regardless of the methodologies and specification of the export variable, exports are found to significantly affect the growth of the Ethiopian economy. Therefore, export expansion brings economic growth through alleviating import shortages; induces public investment from the revenue collected from the export tax; expands the limited domestic market; contributes to the economies of scale necessary for industrial developments, and generates positive externality to the rest of the economy. To this end, the following recommendations are made.

- The government should attempt to diversify (towards manufactured goods) and promote exports in order to exploit the benefits of the sector fully and achieve economic growth. In this regard, the policies towards export promotion are crucial.

- The government should also strengthen its economic (trade) ties especially, market integration both with developed and developing countries to curb the market access constraint.

- The tax burden on exports and imports of inputs should be lowered. Specifically, the duty draw back scheme should be very effective, which allows exporters get a refund of the tax and duty they pay on the inputs they use on export production. In addition, the current coffee tax needs to be lowered in order to increase the profitability of the export and reduce domestic consumption.

- Domestic exporters should be given an equal status with their foreign competitors by enabling them to work in undistorted market and policy environment. By increasing the competitiveness of exporters in the world market, the bias against exports can be greatly reduced. This can be achieved for instance by providing exporters an automatic access to foreign exchange for the purchase of their intermediate goods and also providing them a preferential interest rate on bank loans, which is much lower from the interest rate paid on non-export loans.

- In addition to reducing the biases against exports, supply (sector specific) constraints need to be addressed. Particularly, improvements in the coffee sector need to be made all along the production, marketing, transport and processing chain in order to increase exports adequately. In relation to this,

    - The auction system should be modified and coffee buyers should be allowed to inspect and test coffee before the auction and, facilities should be arranged to allow testing

    - With regard to the export of hides and skins, efforts should be made to control the parasitic disease, which has greatly reduced the quality and demand for the hides and skins and finished leather products in the international market. In addition, incentives should be provided for livestock producers to care for their animals and to increase the number and quality of hides and skins sold for processing.

    - Special attention need to be given to the export of chat whose share is enormously increasing during the past 10 years. Price regulation of chat export (giving due attention to its adverse health effect) need to be relaxed in order to obtain the greatest revenue possible from exports and reduce the incentive for smuggling.

- Finally, the high cost of transportation, which greatly hindered the competitiveness of the different export sectors need to be greatly reduced. Particularly, much emphasis should be given to the development of infrastructure facilities. Adequate supply of efficient transport networks in road, air and railways can greatly reduce transportation cost and increase the competitiveness of export sectors.

In sum, the above measures to be undertaken in order to reduce and eliminate the supply constraints deterring the performance of export sector are somewhat general. A closer look and detailed investigation into each sector is very important if export promotion and diversification schemes are to be successful. To this effect, research gaps in identifying the export niches and trading partners should be filled with a view to giving emphasis "which commodity to which trading partner".

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Appendix A

Summary of Export –Led Growth studies

Author	Sample of countries	Period of study	Data set	Econometric study (methodology)	Other variables	Conclusions.
Emery (1967)	50	1953–1963	Cross-section	OLS	Current account	EP but less sensitive to LDCs
Maizler(1968)	9	1950-1962	Cross-section	OLS		EP
Kravis (1970)	37	1835-1973	Cross-section	Spearman correlation		EP for LDCs with diversification of exports
Michaely (1977)	41	1950–1973	Cross-section	Spearman correlation		EP with treshhold effect
Balassa (1978)	11	1960–1973	Cross-section	Spearman rank correlation, OLS,	Labor force, domestic Investment and foreign Investment/output	EP
Wiliamson(1978)	22	1960-74	Cross-section	OLS	Dummy ,FDI ,and other foreiegn capital	EP
Fajana (1979)	1	1954–1974 Nigeria	Cross-section	OLS two gap model	Foreign capital	EP and suggests that it is due to changes in domesticinvestment resources.
Tyler (1981)	55 & 49	1960-67 Middle income countries	Cross-section	Spearman rank Correlation, OLS, production Function	Labor force growth, Investment growth	EP and Suggest the existence of an threshold effect.
Feder (1983)	32	1964-73	Cross-section	OLS, production Function	Labor force growth, Investment growth	EP
Kavoussi (1984)	73	1960–1978 Low and middle income countries	Cross-section	Spearman rank Correlation, OLS	Labor growth, capital growth Support for the hypothesis, however, the Effects tend to diminish according to the level	EP However, the Effects tend to diminish according to the level of development
Balassa (1985)	43	1973–1979 Semi industrialized Countries	Cross-section	OLS, production Function	Savings, labor GDP per capita, share of exports (Manufactured products)	EP and suggests that Outward trade orientation is beneficial.

Author	Sample of countries	Period of study	Data set	Econometric study (methodology)	Other variables	Conclusions.
Jung & Marshall (1985)	37 LDCs	1950–1981	Time series	OLS, Granger causality test	Lagged real export Growth	EPonly in 4 out of 37 (Indonesia, Egypt, Costa Rica and Ecuador).
Ram (1985)	73	1960–1970 1970–1977 Low- and Middle-income	Time series Two-sub periods	OLS, White test for Specification bias and Heteroskedastictui	Labour force growth and Investment growth	EP and suggests the existence of an threshold effect.
Chow (1987)	8	1960–1980 NICs	Time series	Sim's causality Test (1972), bivariate model		EP for reciprocal causality hypothesis Regarding export growth and industrial Development.
Darrat (1987)	4	1955–1982 Four-little Dragons	Time series	OLS, White test, Bivariate model		EP only in 1out f 4 case (Republic of Korea) on the basis of the Causality test.
Ram (1987)	88	1960–1972 1973–1982 Low- and middle-income	Cross-section two sub-periods	OLS, production function	Government size, GDI/GDP, labour growth	EP but asserts that the huge intercountry differences and diversity suggest caution when interpreting the results.
Moschos (1989)	71	1970–1980	Cross-section	OLS, production function	Labour growth, real domestic investment	EP and suggests the existence of an threshold effect. The rate of growth seems unaffected by labour because of its
Fosu (1990)	28	1960–1970 1970–1980 African	Pooled cross-sectional two periods	OLS, production function	Rate of growth of GDI, labour growth	EP
Kugler (1991)	6	1970(1)-1987(4) Industrial Countries	Time series	ADF unit roots, Johansen's procedure, VARs	Consumption (durable, nondurable and services), investment (business fixed)	EP in only 2cases ((France, West Germany)out of 6 with long run relation
Afxentiou & Serletis (1991)	16	1950–1985 Industrial countries	Time series	Phillips-Perron unit roots, EG procedure, Granger causality None		No systematic relationship between exports and GDP is verified. Only in 2 cases out of 16 was a bi-directional causality manifested (US and Norway).
Kuglerp(1991)	6	1970-1987	Cross-section	Error correction model using maximum likely hood estimation		Weak EP with one or two co integration.

Author	Sample of countries	Period of study	Data set	Econometric study (methodology)	Other variables	Conclusions.
Sengupta (1991)	5	1967–1986 South-East Asia (Republic of Korea)	Time series	OLS, production function	Labor growth and Capital growth	EP
Serletis (1992)	1	1870-1985 Canada	Time series	ADF unit roots, EG procedure, Granger causality	Imports	EP in the short run; however, no cointegration between the variables was found.
Khan & Saqib (1993)	1	1972–1988 Pakistan	Time series	3SLS, production function	Labour growth, capital growth, World GDP Index	EP
Lussier (1993)	24 & 19	1960–1990 African economies	Cross-section and panel data	Growth OLS, 4 versions of Production function	Labour growth, GDI/GDP, export share of GDP	EP in panel data but fails to find any positive association when using export growth as a share of GDP.
Sheehey (1993) GDP growth Real export	31& 65	1960–1970 Semiindustrialized countries	Cross-section	OLS, production function	Labour growth, GDI/GDP, export share of GDP	Inconsistent evidence of higher productivity in the export sector compared with the nonexport sector; thus, suggests caution when analysing empirical results.
Greenaway & Sapsford (1994)	19	1957–1985 1970–1985 1971–1985	Time series	OLS, 3 versions of production function	Labour growth, rate of growth of investment, dummy for liberalization episodes	Little support for EP hypothesis and for the positive liberalization effects on growth.
Jin (1995) Real GDP Real exports	4	1976(2)-1993(2) Four little tigers of Asia	Time series	F-tests, ADF, impulse response function, VARs, EG two-step procedure	Real exchange rate, foreign price shock, output shock	Bidirectional causality was found in the short run but no cointegration was detected; therefore, no long-run relationship is proved.
Henriques & Sadorsky (1996)	1	1870-1991 Canada	Time series	ADF unit roots, VARs, Johansen's procedure, Granger causality test	Terms of trade	No EP
Al-Yousif (1997)	4	1973–1993 Arab Gulf Countries	Time series	ADF unit roots tests, White test, production function	Labour force and GDI/GDP	EP in the short run; however, it fails to find any long-run relationship, i.e. does not find cointegration
Islam (1998)	15	1967–1991 NICs of Asia	Time series	ADF unit root tests, Granger causality test, error Correction model	Imports, government nondefence Expenditures, trade orientation, investment, instability in exports earnings.	EP in the short-run but only in 5 cases was a long-run Relation (no cointegration) found.

Author	Sample of countries	Period of study	Data set	Econometric study (methodology)	Other variables	Conclusions.
Shan & Sun (1998)	1	1978(5)–1996(5) China	Time series	Ad hoc production function, VAR	Labour force, investment and energy consumption	EP with bi directional causality between export and real out put.
Begum & Shamsuddin (1998)	1	1961–1992 Bangladesh	Time series	OLS, VAR production function, MLE estimation and arch	Labour force, GDI/GDP, dummy and trend	EP
Siddique, M.A.B. and Selvanathan, (1999)	1	1966-1996 Malaysia	Time serious	ADF and Engler granger causality		EP only with manufactured export
Medina-Smith, E.J(2000).	1	1950-1997 costarica	Time serious	ADF and Engler Granger causality		EP

Source:.Jung and Marshal(1985)
UNCTAD (2001) ITCD/ TAB/8
EP denotes a finding infavour of export led grouth (export promotion)

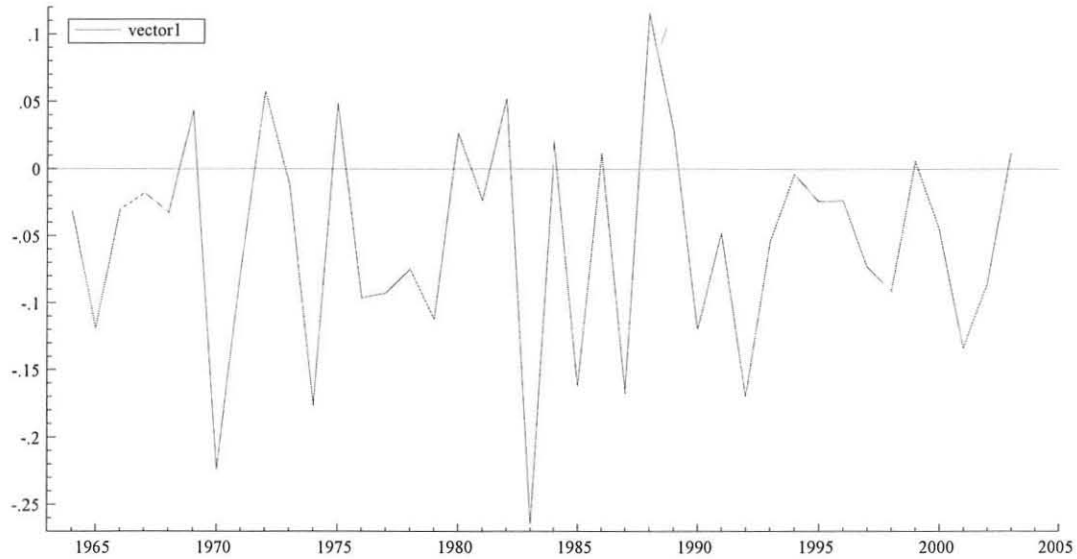
Appendix B

Estimated coefficients of the General parsimonious model (Including all insignificant variables: pc-give out put)

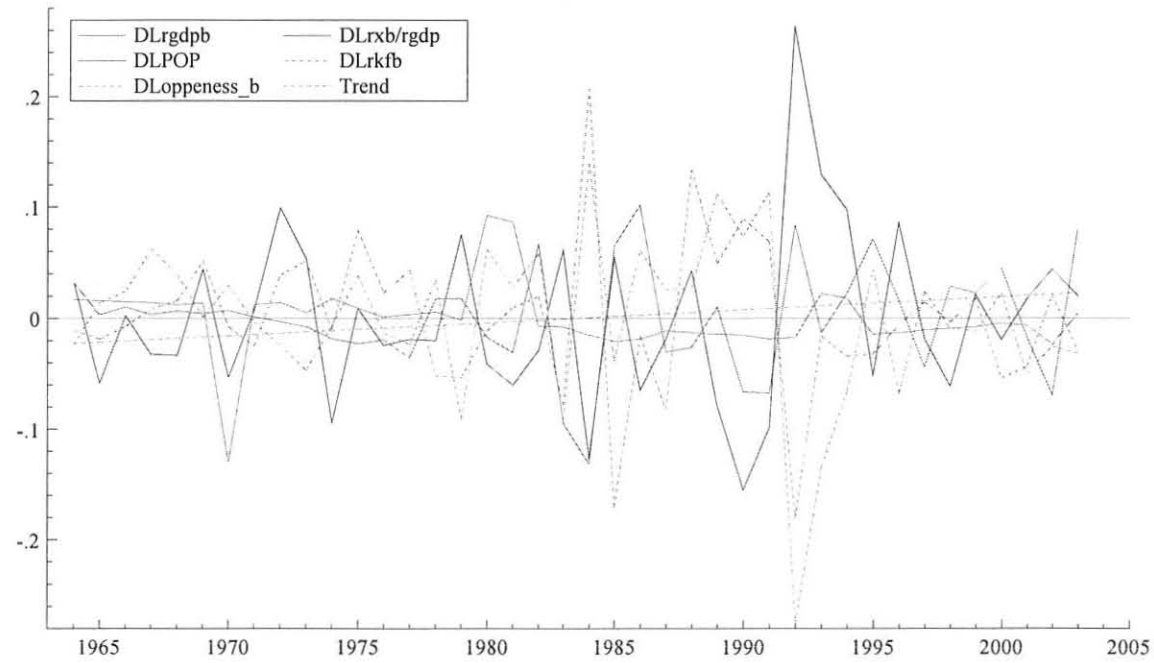
```
EQ( 2) Modeling DLrgdpb by OLS  (using data for ELHm2.xls)
The present sample is:  1965 to 2004

Variable         Coefficient     Std.Error  t-value  t-prob PartR^2
Constant           -0.011199      0.039840   -0.281  0.7827  0.0056
DLrgdpb_1            0.42690       0.32937    1.296  0.2159  0.1071
DLrgdpb_2           -0.34565       0.22785   -1.517  0.1515  0.1412
DLrgdpb_3            0.32297       0.32564    0.992  0.3381  0.0656
DLrxb/rgdp           0.22166       0.11926    1.859  0.0842  0.1979
DLrxb/rgdp_1       -0.066912       0.11170   -0.599  0.5587  0.0250
DLrxb/rgdp_2         0.054827      0.12348    0.444  0.6638  0.0139
DLrxb/rgdp_3         0.048205     0.098453    0.490  0.6320  0.0168
DLPOP                0.66966       0.62002    1.080  0.2984  0.0769
DLPOP_1             -0.46261       0.66757   -0.693  0.4997  0.0332
DLPOP_2             -0.10875       0.70514   -0.154  0.8796  0.0017
DLPOP_3               1.3433       0.60049    2.237  0.0421  0.2633
DLrkfb               0.19575      0.058460    3.348  0.0048  0.4447
DLrkfb_1            0.077562      0.066716    1.163  0.2644  0.0880
DLrkfb_2           -0.057014      0.079612   -0.716  0.4857  0.0353
DLrkfb_3            0.082969      0.071730    1.157  0.2668  0.0872
DLoppeness_b        -0.39012       0.16906   -2.308  0.0368  0.2756
DLoppeness_b_1       0.10438       0.16164    0.646  0.5289  0.0289
DLoppeness_b_2      0.065512       0.15253    0.429  0.6741  0.0130
DLoppeness_b_3      -0.18985       0.16210   -1.171  0.2611  0.0892
DUMMY              -0.055738      0.035700   -1.561  0.1408  0.1483
DUMMY_1             0.033093      0.047085    0.703  0.4937  0.0341
DUMMY_2             0.041577      0.057366    0.725  0.4805  0.0362
DUMMY_3            -0.050170      0.046098   -1.088  0.2948  0.0780
ECM_1                -1.0344       0.39157   -2.642  0.0193  0.3326

R^2 = 0.7948568  F(24,14) = 3.5411 [0.0086]  \sigma = 0.0301797
DW = 1.93  RSS = 0.01275137228 for 25 variables and 39observations
Lag lengt = 3
```

Appendix C

Graphic Tests of Cointegration (one co integrating vector)

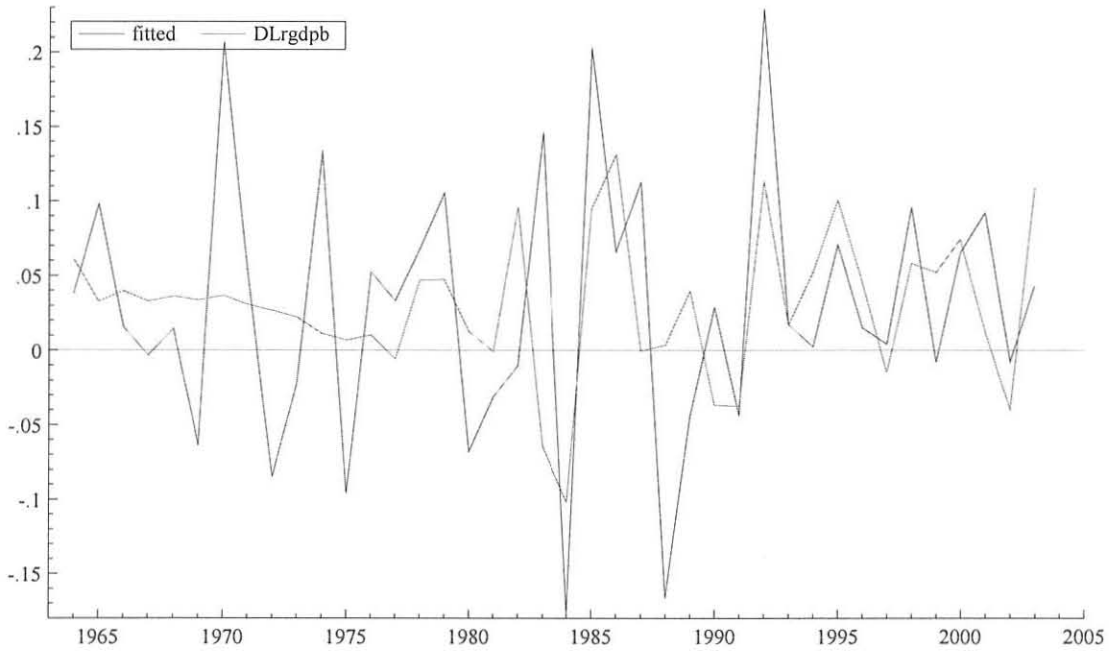


Cointegration between components



Appendix D

Actual and fitted value of the dependant variable (DLnGDP)



DECLARATION

I, the undersigned, declare that this thesis is my original work and, has not been presented for a degree in any other university. All the resources of materials used for the thesis have been duly acknowledged.

Declared by:

Name: Mohammed Adem

Signature: _____

Date: 26/06/2015

Confirmed by Advisor:

Name: Ato Getachew Yoseph

Signature: _____

Date: 26th June 2015

Place: Addis Ababa