

**ADDIS ABABA UNIVERSITY**  
**SCHOOL OF GRADUATE STUDIES**

**TRADE LIBERALIZATION AND ECONOMIC GROWTH**  
**IN ETHIOPIA: AN EMPIRICAL APPROACH**

**BY**

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## ACRONYMS AND ABBREVIATIONS

<b>ADLI</b>	Agricultural Development Led Industrialization
<b>AIC</b>	The Akaike's Information Criterion
<b>ARDL-ECM</b>	Auto Regressive Distributed Lag Error Correction Model
<b>CUSUM</b>	The Cumulative Sum
<b>CUSUMQ</b>	The Cumulative Sum of Squares
<b>DC</b>	Developed Country
<b>ELG</b>	Export Lead Growth
<b>EPRDF</b>	Ethiopian People Revolutionary Democratic Front
<b>FDI</b>	Foreign Direct Investment
<b>GATT</b>	General Agreement on Tariffs and Trade
<b>GDP</b>	Gross Domestic Product
<b>GNP</b>	Gross National Product
<b>ISI</b>	Import Substitution Industrialization
<b>LDC</b>	Least Developing Country
<b>LF</b>	Labour Force
<b>MoFED</b>	Ministry of Finance and Economic Development
<b>NBE</b>	National Bank of Ethiopia
<b>OLS</b>	Ordinary Least Squares
<b>OPEN</b>	Trade per real GDP
<b>PASDEP</b>	Plan for Accelerated and Sustained Development to End Poverty
<b>RER</b>	Real Exchange Rate
<b>RGDP</b>	Real GDP per Capita
<b>SAP</b>	The Structural Adjustment Program
<b>SBC</b>	The Schwarz Bayesian Criteria (SBC)
<b>UECM</b>	Unrestricted Error Correction Model
<b>VAR</b>	Vector Auto Regression
<b>VECM</b>	Vector Error Correction Model
<b>WTO</b>	The World Trade Organization

## ABSTRACT

The purpose of the study is to analyze the relationship between Ethiopia's economic growth (RGDP) and trade liberalization (OPEN), using the time series data during 1971/72-2003/04. In the estimation of the long run and the short run relationships among the variables, the newly developed ARDL-ECM bound test procedure (Pasaran, 2001) is employed. This approach is capable of testing for the existence of a long run relationship regardless of whether the underlying time series are individually  $I(0)$  or  $I(1)$  or whether the underlying time series are mutually  $I(1)$  or  $I(0)$ . This enhanced the stability and robustness of our results. Accordingly, the results indicate that there exist a long run relationship between real GDP per capita and openness (trade/GDP). The long run estimated coefficient suggests that the impact of trade liberalization on economic growth has positive and significant but others variables real exchange rates (RER) and labour force (LF) are insignificant impact on real GDP per capita. Further, the feedback coefficient indicate that a very high rate of adjustment towards long run equilibrium. The CUSUM and CUSUMQ stability test also indicate that the estimated long run coefficients remain stable over the period of the study. Since trade liberalization is the long run process, from the study we can suggests that in order to enhance growth the country should continuing liberalize their trade.

## **CHAPTER ONE: INTRODUCTION**

### **1.1 BACKGROUND**

After the Second World War, many Least Developing Countries (LDCs) followed the path of import substitution industrialization (ISI) and most of these countries including Ethiopia export primary commodities in general and agricultural goods in particular. In order to export these commodities the LDCs required increased imports of machines and technology, this demands for more foreign exchange than the growth in export earnings. Consequently, the LDCs began to face severe balance of payment deficit. To finance their deficit the LDCs becomes increasingly dependent on Developed Countries (DCs). In order to tide over their crises and experience a high rate of growth, the LDCs were advised to open up their economy that is liberalizing their trade (Serkar, 2005).

Since 1950, in the world economy, there has been a massive liberalization of world trade. Trade liberalization started in 1947 with the start of the General Agreement on Tariffs and Trade (GATT). The main purpose of the GATT was to lower trade barriers that were later replaced by the World Trade Organization (WTO) in 1994. Trade Liberalization is the main agenda for the WTO and most of the negotiations are based on removing domestic controls, including reduction of import tariff (mainly of manufactured goods) and export taxes. In late 1980s and 1990s many of the developing countries emphasized trade liberalization as a key objective for economic growth (Narayan and Prasad, 2006).

On the other hand, in the theoretical model, the impact of trade liberalization on economic growth is either absent or ambiguous (Mattoo, 2000).

Although “trade liberalization” and “trade openness” closely related, are not identical. The notion “trade liberalization”, which is often, entails a reduction in tariff and other trade impediment. In the literature, increased trade openness, is considered in the sense of an increase in size of the country’s traded sector in relation to total production as an acceptable proxy for trade liberalization (Serkar, 2005). Thus, the current study uses trade openness as proxy for trade liberalization.

During the imperial regime (1950-1974), in Ethiopia, there was supplying of the trappings of a more modern state. The country's trade policy program was characterized by the absence of qualitative and exchange restrictions. During this period the policies focused on the exports quality control and imports, particularly the capital and raw materials import was promote. As a result, during this period the performance of exports was in a better position in contrast with the African standards and, mainly, export revenue covered the import requirements of the country (Tura, 2001).

However, during Derg regime, there were a prolong civil war which resulted in complicated economic problems. Moreover a socialist strategy of development, movement towards central planning, which highly regulated, made free trade policy impossible, hence reduced growth. The government was strictly pursuing a policy of ISI and adopting policy

instruments like strict import licensing, tariff and quantitative restrictions. As a result, the foreign trade regime was then turned in to a policy that was more restrictive. Tariffs were as high as 230% on certain luxury consumer goods and many of intermediate and investment goods. On the contrast public sector enterprises were allowed to import goods at zero or low duties. The quantitative import restrictions on imports by private sector included direct import prohibition, quotas, strict licensing and foreign exchange rationing.

Unlike the Derg regime, the Ethiopian People Revolutionary Democratic Front (EPRDF) that came into power after the downfall of the Derg was committed to under take economic reform measures, such as financial and trade liberalization, price deregulation and devaluation, with the aim of encouraging export promotions and reducing import. Moreover, even-though the full potential of agricultural growth has not yet been realized, the government formulated a long-term economic development strategy i.e. Agricultural Development Led Industrialization (ADLI) program to achieve higher growth. This study, therefore, intended to study the linkage between trade liberalization and economic growth of Ethiopia.

## **1.2 STATEMENT OF THE PROBLEM**

The government of Ethiopia has recently placed emphasis on export promotion by undertaking the structural adjustment program with one of the integral part, trade reform. The reform programs focus both on the export and import sectors. In the literature, increased trade openness, is considered in the sense of an increase in size of the country's

traded sector in relation to total production as an acceptable proxy for trade liberalization. Openness has been considered as one of the main determinants of economic growth in developing countries. Most of the empirical research in this area has treated exports as the principal channel through which the liberalization process can affect the output level and eventually the rate of economic growth. Since the exports growth is itself a function of the production growth, taking export as an independent variable resulted in a biased estimate. As I have stated in some detail in the literature subsection, some of other studies used a binary indices of openness, indices of tariff and/or non tariff barriers, as the measure of trade liberalization. However, the long term data of such measures are not available. In order to remedy these problem and also trade openness includes imports, the current study uses Trade/GDP as index of trade openness. Nevertheless, the empirical support for this hypothesis is mixed. While over long period, most theoretical and empirical researches have found a strong and positive correlation between trade liberalization and economic growth, a considerable number of studies, applying a range of time series methodologies, found mixed results either supporting or rejecting the trade liberalization lead growth hypothesis.

In August 1993, the government embarked on the comprehensive trade reform program aimed at eliminating quantitative restrictions and gradually reducing the level and dispersion of tariff rates. Ethiopia's economic growth, over the past decade, with the exception of the year 2000-2002 remarkably, has been high. The average growth rate of GDP is about 5.5% over the period 1998-2003. However it has a structural trade deficit

which has consistently been increasing in the period 1993-2003, both in absolute and relative terms (Min.of Trade and Industry ,2005). Moreover, due to the existence of both external and internal factors the liberalization efforts may not bring the desired result.

According to David Ricardo, the main purpose of trade liberalization is to allow countries to export those goods and services that they can produce efficiently, and import the goods and services that they produce inefficiently. According to him, LDCs (Ethiopia) specialize in the production of primary commodities, therefore, the country produce and exports these commodities and remain that way. This would be against the objective of many countries to use trade as an instrument to achieve industrial development. The purpose of this strategy has been to make the agricultural sector the engine of growth for industrialization and the overall development process of the economy. The ADLI plans to increase the productivity and income of small farmers that will lead to an increase in the demand of manufactured goods and then the demand led industrialization process. In the process the country will produce and export industrial product, which is different from the assumption of David Ricardo. Moreover these countries produce and export primary commodities that have low income elasticity of demand and the products are substituted by synthetic products and also the developed countries reduce raw material needed through technical innovations. These lead to the deterioration of terms of trade of the countries. A poor harvest or a decrease in market demand for those products can also significantly reduce export revenues and seriously disrupt domestic income and employment levels.

Taking both side arguments in to account and also since Ethiopia is heavily dependent on tariff revenues for financing of its economic activities; there is a debate on the impact of liberalization on the government budget. Besides the reform program has encountered a problem of trade deficit and macroeconomic instability. On the other hand, the trade reforms undertaken by the government of Ethiopia has not brought the required result .Thus, it is reasonably important to find out whether trade liberalization has an impact on economic growth in the case of Ethiopia.

### **1.3 OBJECTIVE OF THE STUDY**

The overall objective of this study is to test empirically the impact of trade liberalization on growth Hypothesis for the Ethiopia using bound test approach for the period 1971-2003. The following are the specific objectives:

- i. To examine the long- run relationship between growth and trade liberalization and the stability of each parameter in the long run.
- ii. To examine the short run relationship between growth and trade liberalization.

### **1.4 SIGNIFICANCE OF THE STUDY**

Although the theoretical links between trade and economic growths have been discussed for over two centuries, controversy persists regarding their real effects. On the other hand, the relationship between trade liberalization and economic growth has been well documented in the economic literature.

The Ethiopian economy has registered encouraging results and the average real growth rate of 7.1 percent during the years 2001/02 to 2005/06, which is above the average of 5.8 percent realized in sub-Saharan countries (MoFED, 2006). However, the country encountered a problem of structural trade deficit and macroeconomic problem.

Besides due to the existence of both external and internal factors the liberalization effort may not bring the desired economic growth in the country. Thus, with the existence of such problems on contrast the economy of the country shows keeping growing, it is very crucial to have some tests of the relationship between the trade liberalization and economic growth.

There are many studies conducted for other countries regarding on the impact of trade on economic growth. However, in the case of Ethiopia a very few studies are carried out. Kagnev (2007) examined the causality between variables aggregate export, imports, capital and labor force and exchange rate using multivariate co-integration and error correction procedure. Since, the exports growth is itself a function of the production growth, his model tend to be skewed from the moment. The current study uses trade per GDP as index for openness and bound testing procedure to reduce the problems that arise from modeling. Thus, the study will contribute for policy makers to identify the nature of the tie between international trade and growth in the case of Ethiopia.

## **1.5. SCOPE AND LIMITATIONS OF THE STUDY**

The study uses annual data because of the lack of the availability of accurate quarter data. Even though the data availability is more than the data in use, the period (1971-2003) is selected based on the availability of consistent data. Even the available data lack accuracy, to remedy this problem the study includes some personal presumption, such as active population rate times total population used as a proxy for labour force (i.e. all population between active working ages are considered as employee). Further, the data in use is employed from various sources. Further more, the study used dummy variable, the value 1 after economic liberalization by the assumption that during EPRDF period the economy is liberalized and taking the value zero during the derg period.

## **1.6 ORGANIZATION OF THE STUDY**

The study comprises of six main chapters. The first chapter explore the introduction, the second chapter includes the theoretical framework and empirical literature, and the third chapter provides an overview of macroeconomic performance. The fourth chapter discusses the methodology that includes data source and definition and model specification. The estimation of the model and the analysis of the empirical results are considered in chapter five. The last chapter, chapter six includes conclusions and policy implication of the study.

## **CHAPTER TWO: REVIEW OF LITERATURE**

### **2.1 THEORETICAL FRAME WORK**

Adam Smith (cited in Afonso, 2001) first pointed out the positive effects of International trade on economic growth. This idea prevailed until the Second World War. As Afonso (2001) points out from Smith (1776), the interaction between international trade and economic growth, that international trade made it possible to overcome the reduced dimension of the market and then again, by increasing the extension of the market, the labour division improved and the productivity increased. The international trade would therefore comprises a dynamic force capable of increasing the ability and skills of workers, of encouraging technical innovations and the accumulation of capital, of making it possible to overcome technical indivisibilities.

With the support of Smith idea , their was the prevalence of school of thought that believe in "out ward-orientation", openness enhance growth through providing greater economies of scale due to increased market size, increasing specialization and raising efficiency and bringing more rapid technological change (Ram,1987; cited in Tura ,2001).Even if many economist questioned the successfulness of out ward oriented trade policies in promoting growth, different World Development Reports still tried to show that it is more successful than inward oriented trade policies ( Sarkar,2005).

From this classical tradition, to indicate a positive relation between international trade and economic growth, many study linked the gains from international trade only with static effects. Nevertheless, in a survey of empirical studies, Baldwin (1984) conclude, that the static effects were of little significance. In the last decades debate has widened toward stressing the dynamic effects of international trade. Consecutively, following Smith, Ricardo (1817) presented a 'dynamic model of economic growth' with three forces: saving, international trade and institutional element and two restrictions: law of decreasing incomes and Malthusian principle of population (Afonso, 2001).

In the Ricardian theories, which consider the increasing opportunity cost instead of constant costs, the changes introduced demonstrates the increase of welfare caused by international trade, but ignored eventual gains in the rate of economic growth. That is the theorist ignored the question of the foundations of comparative advantages and failed to find factors resulting from international trade that could raise the rate of economic growth.

These classical traditions, Smith and Ricardian theories, thought gave way to 'marginalism' from the 1870s on wards. This fact led to a 'new theory'(neo classical) in which the Heckscher (1919) and Ohlin (1933) models, including Samuelson contribution, appeared in the context of neoclassical general equilibrium. The model supports the opening of the countries to international trade and proposed that, although the analysis limited to the static gains of welfare, trade openness makes efficient, mutually beneficial and positive for

the entire world. However, the gains only for the higher levels of per capital income (Afonso, 2001).

After the end of the Second World War, the smith idea was questioning. The existed reaction between classical and neoclassical theories ends up, instead with some structural economist being put to practice the introverted and protectionist economic growth experiments. They argue that the international trade brought on negative consequences in the long term for the LDCs because developing countries exports and produces primary products, which is low income elasticity of demand, the products are substituted by synthetic products and because of the developed countries reduce raw material needed through technical innovations, the developing countries face a secular deterioration of terms of trade. Moreover, this specialization entailed significant economic and social cost of adoption to the evolution of the chain of international trade (Afonso, 2001).

From the 1960's, as a result of many studies based on the neoclassical theories of economic growth and international trade, the protectionist experiment failed and pointed out that the quick economic growth is due to the opening of international trade. However, there is a debate on the growth enhancing effect of trade liberalization .In the solow model of neo classical tradition, the model considers the accumulation of capital as the engine of growth and technology change is exogenous which is unaffected by a countries openness to trade. The countries that save more will be able to invest more and therefore grow more quickly than others. In these models, the liberalization of the foreign trade can

influence the economic growth indirectly, making the economy more efficient. The trade liberalization implies a faster growth that results in an increase of saving and investment. But some of the 'New' endogenous growth theories suggest that trade policy affects long run growth through its impact on technological change. The 'New' endogenous growth model brought important progress to the theory of growth that effectively consisted progression of productivity, which determined by an unexplained technical evolution, by an endogenous (dependent) process, determined by market strength. In this model, openness to trade provides access to imported inputs, which embody new technology, increase the size of the market faced by the domestic producers, which raises the returns to innovation, and facilitates a country's specialization in research-intensive production (Serkar, 2005).

As Yanikkaya (2003) pointed out (cited in Serkar,2005), the new endogenous growth models literatures have been diverse enough to provide a different range of models in which trade restrictions can decrease or increase the world wide rate of growth. Using new growth model, Grossman and Helpman (1995) also presume that the world integration has an influence on the private motivation to invest in the technology and on social repercussions. On the negative side, due to openness, firms in the domestic market faced higher competition than before, this could be big risk associated with investment in advanced technologies and then could discourage innovation by lowering expected profits. On the positive side, the integration widens the market and increases potential profit of a firm that succeeds in inventing a new product or a new process. In addition, a country that

integrates the world economy can often learn from abroad. Consequently, these models illustrate that international trade liberalization can stimulate innovation and growth in some countries and delay them in other countries.

In addition to the above ambiguity, there are debates on the benefit of trade to LDCs. Afonso (2001) reviewed as follows.

*Myrdal(1956,and1957) stated that the international trade had some positive effects of transmission on the LDCs , but in the long run the negative effects remained because it encouraged a production of primary goods subject to irregular prices and demand . Emmanuel (1969) decided on the existence of unequal trade biased against the LDCs. Lewis (1954 and 1969) decided on the deterioration of the trade terms of the LDCs. In short, the opening of international trade was remaining with the demand of the DCs markets and their technologies. Were as the LDCs due to their market size and sophistication, the weak capacity for technological innovation and the commercial intervention the LDCs were in a disadvantages situation.*

Considering the ambiguities in the theoretical literature, a number of empirical studies were undertaken to examine the relationship between trade liberalization and economic growth. The current study summarized some of the empirical literatures in the following sub section.

## 2.2 EMPIRICAL LITERATURE

Although there has been ample of debate on trade liberalization, the literature on it can be grouped into two groups. The first group examines export-growth, whereas the second examines the relationship between trade liberalization and growth .Further, due to the difficulty of measuring openness, different studies have used two measures of liberalization (or trade openness): One is the standard measure used in most of the ‘new’ growth theory literature of the ratio of total trade (exports + imports) to GDP. The second possible measures of trade liberalization constructed by Sachs and Warner (1995), a binary index of openness on: the average import tariff; an average index of non tariff barriers; an index of effective protection; an index of relative price distortions or exchange rate misalignment, and the average black market exchange rate premium. According to them define an economy as ‘open’ if all five of the following conditions are met: (i) an average tariff rate of less than 40 percent; (ii) average non-tariff barriers equivalent to a tariff rate of less than 40 percent, (iii) a black market exchange rate premium of less than 20 percent, (iv) no communistic government, and (v) no state monopoly of major exports. These criteria can be used for investigating the precise year (s) of trade openness for a country. Furthermore, various studies use either the cross-section data or time series data for their analysis. Most of the cross-sectional studies use GDP growth as a function of export, results in a biased estimate due to endogeneity problem. This leads to cross-country studies, which utilise different indicators of openness to examine the relationship between trade liberalisation and growth. These studies assume that all countries in a sample have the same model, with the same intercept and coefficient parameters linking exports and

growth. However, this is highly unlikely. It is proved in the time series studies for individual countries; it shows that there are differences in the parameter values between countries. However, in time series studies the relation between exports and growth is much weaker.

Among others some of the studies that examine the relationship between trade liberalization and growth are: Khan and Qayyum(2007),Sarkar(2005),Mamun and Nath(2004),Parikh(2004), Aaditya, Ran Deep and Arvind (2001), Narayan and Prasad(2006) and Robinson ,Vos ,Ganuza, and Pineiro(2004). Those studies assume export as the major determinate of growth that investigates the hypothesis of export-led growth, some of them are:Sharmaandpanagiotidis(2004),Hilmi and Safa(2005), Vamvoukas(2007), Lin(2000), M.Smith(2001), Ramesh and Boaz(2007) and Cuadros, Orts and Alguacil(2001).

Khan and Qayyum (2007) used the bound testing approach of co-integration developed by Pesaran, et.al (2001) to examine the impact of trade and financial liberalization on economic growth for Pakistan over the period 1961 - 2005. The result of the study suggests that trade openness has a positive impact on economic growth both in the long as well as in the short run. The study also found that financial liberalization has a positive impact on economic growth in the long term. However, in the short run financial liberalization exerted negative association with economic growth, but remain statistically

insignificant. Further, the study found that financial liberalization relatively higher impact on real GDP than trade liberalization in order to enhance economic growth.

Sarkar (2005) used indices of import per GDP, export per GDP and trade per GDP as a measure of trade liberalization. He examined the time series evidence to investigate the relationship between trade liberalization (Trade openness) and real growth rates in India and Korea. Using three indicators of liberalization and annual data for a period from 1956 to 1999 for India and from 1956 to 2000 for Korea and based on the application of ARDL approach to co-integration the study found that there is no positive long run relationship between Trade openness and growth for both countries.

Mamun and Nath (2004) examined the link between trade and economic growth for Bangladesh over the period 1959 - 2000 based on the VAR model using time series analysis. They utilized an index of trade per GDP as an indicator of trade openness. The result of the study suggests that there is no evidence of trade liberalization accelerating growth.

Aaditya, Ran Deep and Arvind (2001) analyzed the services trade liberalization impact on economic growth with econometric evidence over a period 1990 - 1999 for a sample of 60 countries. They used index of Sachs Warner (1995) as an indicator of openness. The study found that openness in services influences long run growth performance. However, it is

relatively strong for the financial sector and less strong for the telecommunication sector but statistically significant.

Parikh (2004) utilized Sachs -Warner (1995) trade liberalization measures in both panel and country data. The results indicate that a positive relationship between liberalization and growth in a sample of 42 developing countries. But the growth itself has negative effect on trade balance for a majority of countries.

Robinson, Ganuza, Morley and Pineiro (2004) used CGE model to determine the impact of the external Shocks and domestic policy response on output, employment, poverty and the distribution of income. The study found that trade liberalization increased out put in almost every country sample in study.

Narayan and Prasad (2006) performed a 10 percent reduction in the tariff rate, and conducted the simulation using the computable general equilibrium (CGE) model. They found that while trade liberalization boosts net exports and private consumption, it has a negative, albeit marginal, effect on economic growth and national welfare. Further, found that trade liberalization has contributed to economic growth in many of the developing countries.

Dimkpah.Y (2002) analyzed the impacts of export growth and the stage of economic development on economic growth. He applied multiple regression analysis to estimate the

relationship between export and economic growth at various stages of economic development. The result of the study suggests that the three variables have varying impacts on economic development at different stages of growth. Further, we find that export growth is a positive contributor to economic development of low income countries as well as middle-income countries. The impact is however stronger in middle-income countries than in low-income countries.

Sharma and Panagiotidis (2004) examined the relationship between exports and economic growth for the period 1971-2001 for India. By employing Breitung's (2002) non parametric co-integration test the study found that fail to support for hypothesis that exports Granger cause GDP, using two measures for GDP, GDP with export and GDP with out exports.

Hilmi and Safa (2005) used Sharma and Panagiotidis (2004) model to identify the nature of the tie between international trade and growth. Using annual data for the period 1970 - 2004 and to remedy the problem of model skewedness from the moment they used Sharma (2004) method followed by Feder (1982) according to him the economy can be divided in two sectors: export and non exports. They found support for the hypothesis that exports Granger cause GDP with exports and GDP with out exports, which contradict those gotten by Sharma on its analysis on the Indian economy.

Vamvoukas (2007) examined the export led growth hypothesis employing annual data from four European countries, Greece, Ireland, Portugal and Spain over the period of 1960-1999. The study uses econometric frame work of the Granger multivariate tests based on error correction modeling are examined for robustness using impulse response functions. They found evidence for the export-led growth hypothesis for Ireland but the hypothesis rejected for the other three countries.

Lin (2000) examined the relationship between trade and economic growth for China over the period of 1952 to 1997. The study used the theoretical framework of an aggregate production function in which capital, labor, government expenditures, and the level of technology are inputs. In addition, with the assumption of the level of foreign trade approximates the level of technology he found that the growth rate of exports, the growth rate of imports and the growth rate of the volume of trade are positively related to the growth rate of per capital GDP. He also found that the labour force growth was positively related to economic growth.

M.Smith (2001) investigates the hypothesis of the export led growth which postulates export growth is one of the key determinants of economic growth. By utilizing several procedures to test for co-integration, he examined empirically both the short run and the long run relationship. The study found that the export led growth hypothesis is valid.

Ramesh and Boaz (2007) analyzed the export led growth hypothesis for Kenya using ADRL bounds approach. In addition, they examine the Granger causality between exports and economic growth over the sample period and relationship between GDP growth and exports and it is unidirectional, running from exports to GDP growth.

Cuadros, Orts and Alguacil (2001) analyzed the extant and sources of international linkages between openness and economic performance. This study employed the VAR model to test the existence and natural of the causal relationship between put level, inward FDI and trade. They found that no evidence about the ELG hypothesis. However, the results suggest a significant impact of FDI on economic growth and trade.

A very few studies have examined the impact of liberalization on economic growth in the case of Ethiopia. Addis (2005) examine the effects of openness to international trade and foreign direct investment (FDI) on economic growth. He used fixed effect after testing for long run relationship using panel co-integration test on variables under consideration. The result of the study shows that openness to foreign direct investment (FDI) has positive and significant impact while openness to international trade is insignificant and often negatively affects growth of low income countries of sub-Saharan African. Further, indicate that openness benefits the higher income group than the low income group in sub-Saharan Africa.

Elias (1998) tested the relationship between exports and economic growth as well as to establish the direction of causality between them. Using Johansson's test he found that a positive and significant association between exports and growth. However, as I have mentioned on the methodology subsection, the Johansson's procedure has a problem of the order of integration.

Kagnew (2007) examined the causality between variables such as aggregate export, imports, capital and labour force and exchange rate, using multivariate co-integration error correction Johansen procedure and annual data. The results obtained from the regression indicate that export growth and output growth were found to be positively related and supporting the export-led growth hypothesis. Further, labour growth positively and significantly affects economic growth both in the short and long - term horizon. He also specified a model as GDP is a function of export. However, the result of the study involves a spurious correlation due to the fact that exports themselves being part of national product. In addition to these, he used total population as a proxy for labour force. However, as the researcher himself pointed out that the use of population in an empirical study could result in over estimating the contribution of labour as a factor of population to the rate of economic growth.

With the existence of these problems, therefore, it is some what difficult to believe the result of estimation and the policy conclusions drawn from them. Thus, the current study tackles these problems by at least using the bound test procedure that circumvents the

problem of order of integration associated with the Johansen approach and uses trade per GDP instead of export. Further, instead of total population the study uses active population as proxy of labour force.

## **CHAPTER THREE: MACROECONOMIC PERFORMANCE**

### **3.1 AN OVERVIEW OF ECONOMIC GROWTH OF ETHIOPIA**

This chapter tries to overview the economic growth in Ethiopia. Before embark on the discussion about economic growth of Ethiopia, it would be helpful to define what the economic growth is. Even if economic growths are not identical with economic development, they have close linkage. Unlike economic growth, which is concerned with annual increases in quantity of production, economic development deals more with the basic fabrics of society including cultural beliefs, institutions that govern the way an economy and society function.

According to Soubbotina and Sheram (2000, p. 96) define economic growth as:

"Quantitative change or expansion in a country's economy. Economic growth is conventionally measured as the percentage increase in gross domestic product (GDP) or gross national product (GNP) during one year. Economic growth comes in two forms: an economy can either grow "extensively" by using more resources (such as physical, human, or natural capital) or "intensively" by using the same amount of resources more efficiently (productively),"(Assefa, 2006).

In Ethiopia economic growth is the principal to achieve poverty reduction but this is not the only one. Although all sector, agricultural sector, industrial and service sector, contributed to the economic growth performance, the Ethiopian economy, like other sub-

Saharan African economies, is predominantly agrarian. The agricultural sector contribute almost half of the total GDP and creates employment opportunities for about 85% of the population and also it covers 90% of the total export earning(Samuel,2004). However, this dominant sector is characterised by traditional method of farming and rain fed agriculture. According to Belay( 2007) estimate next to agricultural sector service sector takes the largest share while the industrial sector contribute the least one ,which accounts for not more than 15% of GDP. With in industrial sector the large and medium scale manufacturing, electricity and water, and construction take the largest share.

During 1995/96-2000/01 real GDP grew at an annual averaged 5.72 percent, with sectoral growth agricultural accounted for 6.02 percent, industrial 5.97 percent and service sector 7.72 percent (see table 3.1).However, these sectoral growth are quite erratic .The erratic growth could be traced mainly to the performance in agricultural sector and the economy 's extreme dependence on rain fed agriculture .This could be shown, in 1995/96 and 2000/01 the highest positive real GDP growth and in 1997/98 the negative growth that are similar with the agricultural growth . Thus, the economic performance is largely determined by what happened in agricultural sector.

The major agricultural export crop is coffee, providing about 65% of Ethiopia's foreign exchange earnings. The 2006 estimates from wikipedia, coffee contributes 10% of the country's GDP. During 2000/01-2005/06 on average coffee accounting for 37.01% of the total export and Next to coffee oilseeds takes 13.83 % and chat 11.57% share, hides and

skin, pulses and live animals contribute small share (see table 3.2). As shown in the fig. 3.1, the trend of coffee share fluctuated within the range of 34.24 and 39.57 percent. The oilseeds exports share shows increasing trends but chat export share declined. In general agricultural exports suffer from terms of trade deterioration, which resulting in volatile export earning.

The country primarily imports capital goods covering 33.2 percent of total imports followed by consumer goods taking 29.2 percent of the total import share. Imports of semi finished goods account for 18.7 percent. As a result of increasing demand for import and deterioration of export, the balance of payments has shown a deficit.

**Table 3.1: Sectoral out put and Real GDP**

Indicator/sector	1995/96	1996/97	1997/98	1998/99	1999/2000	2000/01	AVERAGE
Agriculture	14.7	3.4	-0.8	3.8	1.9	13.1	6.02
Industry	5.3	7.0	0.9	6.9	5.1	10.6	5.97
services	7.0	7.1	10.4	8.5	8.0	5.3	7.72
Real GDP	10.6	5.2	-1.4	6.2	5.0	8.7	5.72

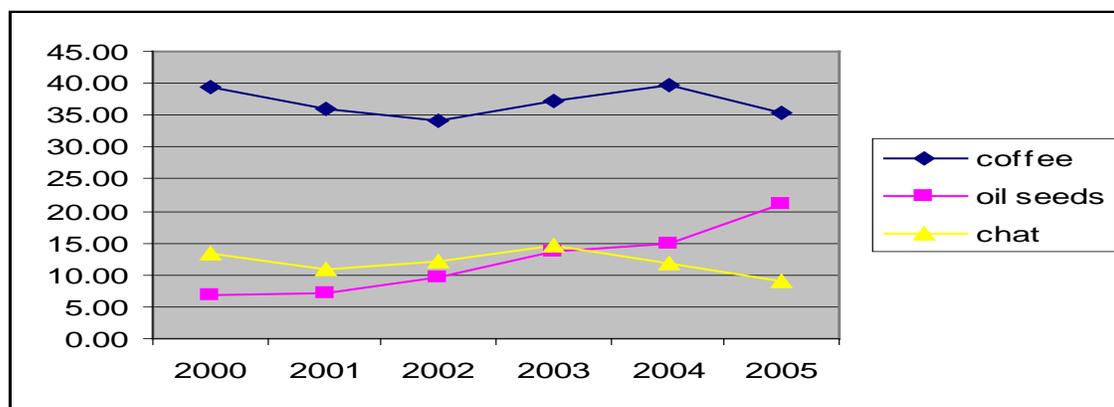
Source: Economic commission for Africa, Economic Report on Africa 2002: Tracking Performance and Progress

**Table 3.2: The share of Major Export**

commodity	2000	2001	2002	2003	2004	2005	Average
coffee	39.31	36.07	34.24	37.22	39.57	35.42	37.01
oil seeds	6.97	7.21	9.55	13.77	14.76	21.13	13.83
hids & skin	16.39	12.28	10.82	7.26	7.98	7.50	9.58
Pulses	1.88	7.28	4.13	3.76	4.18	3.70	4.08
Meat product	0.37	0.24	0.50	1.29	1.72	1.85	1.20
chat	13.20	10.83	12.02	14.66	11.82	8.90	11.57
Live animal	0.04	0.18	0.10	0.32	1.51	2.75	1.15
Other	21.83	25.90	28.64	21.73	18.44	18.74	21.58
Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: calculated from National bank of Ethiopia, Annual Report 2005/06, Addis Ababa, Ethiopia.

**Fig .3.1: The Share of Coffee, Oilseeds and Chat Export, 2000/01-2005/06**



According to the world Development Indicators 2007, the annual GDP growth rate at current price were 7.9, 11.4 and 13.3 billion in the years 2000, 2005, and 2006 respectively. More over, the GDP share to the world GDP was 0.03 % in 2006. This is a very small share even compared with other developing countries. However, compare to the previous

decades it shows progressive growth. Conversely, the inflation rate increases over the year, which was 11.6% in 2005.

This poor performance of growth could be caused by various factors, which can be classified as the internal and external factors. On the internal side among other factor political system, economic system and culture affect the economy directly or indirectly. Ethiopia experienced three political systems, feudal, socialist political systems and at present endeavouring to build democratic political system. The political system either facilitates production by practicing appropriate policies, assuring stability and continuity or discourages economic activity. Since economic success depends in part on political success, economic development, specifically economic growth is partly influenced by political system.

Due to various reasons, in the three successive periods, Ethiopia experienced different types of economic systems. To this regard the country economic systems in different era are summarised as follows: During the Imperial period, there was supplying of the trappings of a more modern state. As Abinet (2005) summarized during this period:

*The economy had been growing at a linear growth rate of 4.1 percent per annum while population and per capita income was growing by 2.3 percent and 1.8 percent per annum, respectively. Even though agriculture had a great share to GDP (i.e. 60.8 percent), it accounted only 31.2 percent of the growth of GDP. In the same period, the values added in the agricultural sector were growing by 2.1 percent while the other sectors were growing by more than 6.8 percent per annum.*

Like other socialist country the Ethiopian economic system during the Derg period was centrally planned command economy with the focus of building “self supporting socialist economy” to accomplish economy was increasing export products in volume, quality and type and to replace import commodities by domestic products as much as possible and adopted import substitution strategy. In addition to these inappropriate economic policy and management during the period, the country was facing civil war, recurrent drought and high population growth. As a result of this, the economic performance of the country was unsatisfactory.

The macro economic indicators show that compared with an average population growth of 2.8 percent per annum, the average GDP growth for the Derg period was 1.9 percent per year. This shows that during the period the per capita income had been declining (Alemayehu, 2002; Abinet, 2005).

After EPRDF government came into power since 1992, the country follows the free market oriented economic system. To achieve rapid economic development and poverty reduction within the framework of free market economy, the government designed development policies, strategies and programs with the support of the Bretton Wood institutions.

Because of agricultural sector, contribute a dominant role in the economy of the country in terms of employment creation, foreign exchange earning and supply of raw materials to industries and addressing the economic problems of the country, the government adopted a long term economic strategy which gives primary focus to rural and agricultural development. This economic strategy is known as Agricultural Development Led Industrialization (ADLI). The purpose of this strategy has been to make the agricultural sector the engine of growth for industrialization and the overall development process of the economy. The ADLI plans to increase the productivity and income of small farmers that will lead to an increase in the demand of manufactured goods and then the demand led industrialization process. The ADLI strategy notion further observed as follows:

*The Agricultural Development Led-Industrialization embraces the export-led development's strategy as an engine of growth, includes a parallel and co-coordinated development of agriculture and industry. The strategy has two layers, an outer layer, an export led growth and an inner core Agricultural development led-industrialization. The export contribution will come through the supply of commodities for direct export and through industrial value added. The inner core will come in two ways. First, by establishing a deliberate reliance of industry on domestic agriculture as inputs to agribusiness of various types. Second, it is intended to improve smallholder productivity thus reducing employment pressures and acting as an increased source of demand for local industrial goods (<http://www.ethiopianmission.ch/Economy.htm>).*

However, due to recurrent drought, war with Eritrea and other internal and external hindering factors the desired rapid economic growth was not achieved in the last decades. Because of this, some organizations and individuals have questioned the success of ADLI

and other economic policies to reduce poverty and bring development. In addition to these, the country's agricultural exports gains are limited and the terms of trade fluctuate intermittently. Further, comparing to the international price the country export price is high. Through the process the government aware the factors that hinder ADLI program practicability and developed the Plan for Accelerated and Sustained Development to End Poverty (PASDEP) that was Ethiopia's guiding strategic framework for the five year-period of 2005-2010, which helps for ADLI to be practical development strategy.

According to Befkadu and Birhanu (2000) as Abinet (2005) summarized, "on the average, the economy and per capita income have been growing by about 5.04 and 2.06 percent per annum respectively during 1991/92-2000/01. If there had not been frequent drought and the Eritrean regression of May 1998, the growth rate of GDP would have been expected to be higher". This is the indication that drought and war with Eritrean hinder the practicability of ADLI.

As holistic approach to development argued, economic growth is influenced by not only institutional and economic factors but also cultural factors. In Ethiopia there are many cultures among them that affect economic growth: people live communal, which has effect on hard work and saving, the religions, which have influenced not only the spiritual life of their followers but also their culture. This has an impact on the work culture of the people and household production. The Backbreaking expenses that associated with funeral, celebration of major holidays and weddings, affect the household saving and

distort the economic and social life of many persons. Besides this, there are cultures, which have significant impact on economic growth, high propensity towards having more children and lower propensity to educate them, which reduce the GDP per capita.

On the external side, among other factors, the economic and political relation to other countries has effect to economic growth. During Derg period, the economic and political relation with the Western countries was not in a good term. As a result to get low interest rate loans from international financial institutions such as World Bank and IMF was also not impressive. Besides the country's international trade, which focused on Eastern bloc, in some cases also involved barter system, as a result the economy suffered from lack of foreign exchange and necessary resources to replace worn-out or impaired capital goods and to increase its capital stock through new investments at required speed.

### **3.2 ETHIOPIA'S EXTERNAL TRADE POLICY**

Over the past half a century, Ethiopia has gone through three ideologically distinct political regimes: the monarchic regime during 1950-1974, the central planning regime (Derge regime) during 1974-1991, and the current regime that has been in power since the collapse of Derge regime in May 1991. In these three successive periods the Ethiopia external trade policy has moved from a 'free trade policy' to 'a highly regulated trade policy regime' and return to 'a free trade policy' one.

The country has embraced all dominant ideologies and associated economic policies since the mid-1950s. During monarchic regime (Haile Selassie period), Although the policy outcome did not meet the expectation and government aligned its development strategy along Prebisch-Singer's import substitution theory, the country's adopted its first Five Year Plan (1957-1961) that the country implemented colonial prescription of export promotion strategy with an elaborate incentive package to attract foreign direct investment. The program continued until the regime fall in 1974.

The five year development plan had three phases .The first phases implemented during 1957/58 up to 1961/62, which focuses on import substitution industrial promotion and infrastructure facilities like road development and diversification of the export structure by exploiting the large livestock population. During this period, the products of agro-processing industries to secure average annual export growth of 9% and 11% share of exports in national income. In the second phase during 1962/63-1966/67, the country gave priority to the Structural change and export diversification, new export products of industrial origins and mining products were supposed to play key role. As a result, the average annual export growth rate was expected to reach 11%, the share of agricultural exports to trim down to 72.3% in 1966/67 from 93.6% in 1962/63 and manufactured products to wind up to 24.2% from 5.2%. During this period the formation of government foreign trade corporations, revisions of existing customs tariff to protect domestic products and stimulate exports, directing credit and subsidy policies towards the production and promotion of exports, conclusion of a series of bi-lateral and multilateral

agreements and better participation at international trade fairs was under taken as policies reform. In the third phase of five-year development plan during 1968/69-1973/74, the country focused on Geographic diversification of traditional export produces (coffee, livestock products and oilseeds) and the development of non-agricultural exports (Kagnew, 2007).

In general, during Haile Selase period, the country's trade policy program characterized relatively by the absences of qualitative and exchange restrictions. In other words, the country's foreign trade policy was followed by the free trade doctrine with the main strategy of export promotion to achieve a better export quality. To facilitate trade the various institutions had established .These includes the establishment of the Chamber of Commerce, the establishment of various boards (Coffee Board, Grain Marketing Board and Office of National Standards). The policies focused on the imports, exports quality control, and the capital and raw materials import was promote which was free of duty while others were taxed and there had been exchange control (Alemayehu, 1999). However, during this period there were a major problem of lack of quality grades and standards including packing and shipment problems (Tura, 2001).

In contrast, during the Derge period the country's economic system was centrally planned command, highly regulated, which made the free trade policy dumped. Consequently, the overall fields of economic activity including external trade were under the grip of the bureaucratic control of the government. This could be evidenced by setting various

controlling system such as the government tries to control the participation of the private sector in the economic activities in order to strengthening the state's role both in export and import trade which was highly discouraged and hampered , closely monitors the price, quantity and distribution of goods. These measures were to be unsuccessful and resulted in no private participation ,an overwhelming increase in cost of production ,shortage of spare parts, accessories, raw materials, etc and shortage of exportable products and thus of foreign exchange earnings(Alemayehu,1999).

Nevertheless, government tries to give weight to the external trade sectors considerably, which are believed to be essential for economic growth as well as the trading of medical equipment and goods that ensure the health and security of the population. Further, it tries to diversify the type and destination of goods externally traded. This was through a ten-year perspective plan that were expected to be implemented during 1985/86-1994/95, with the aim of export orientation structures of the country towards high value added products and increasing the amount and composition of manufactured exports and expanding the foreign exchange earnings. However, particular attention was given to state owned export companies without regard to their inefficiency that would increases the socialization of the export sector and country's exports towards the socialist countries markets and neighbouring African countries. To do this, the government employed various measures such as provision of favourable tax, tariffs and foreign exchange rate measures, improving exports in terms of quality, quantity and variety and providing current information regarding world market prices and other factors in international

market to exporters and producers. In addition to these, the government made efforts on the introduction of the export subsidy scheme in 1983/84 and the directive issued to ban the export of raw hides and skins in 1989/90.

Since the government was following the ISI, consequently, implementing strict import licensing, tariff and quantitative restrictions, the foreign trade regime was then turned in to policy that is more restrictive. Tariffs were as high as 230% on certain luxury consumer goods and many of intermediate and investment goods imports to public sector enterprises were allowed at zero or low duties. The quantitative import restrictions on imports by private sector included direct import prohibition, quotas, strict licensing and foreign exchange rationing.

In 1992, the transitional government implemented many aspects of the Structural Adjustment Program (SAP), devalued its currency, and took measures to establish macroeconomic stability. This reform includes the foreign trade policies reforms, with the radical departure from the previous administration's. Trade liberalization comprises one of the key mechanisms of the on-going policy reforms in the country, which is characterized by export oriented and out ward looking policies that would result in increased foreign currency, increased productivity, promote growth and employment. The new reform foreign trade policies aim to promote private sector development, design and provide adequate incentives for exporters, replace quantitative restrictions with tariffs, encourage export diversification and minimize illegal trade, and restructure state-owned trading

enterprises. To realize the objectives the transitional government has designed and implemented various policies and institutional measures such as exchange rate has been liberalized using the auction system, simplify licensing procedures and tariff structure and foreign exchange retention scheme by issuing foreign exchange and import-export regulations. Besides the government designed supportive services to private exporters, including transport assistance, overseas market research, and training in marketing and packaging and left the foreign trade activities to private capitalists except those, which require special consideration, and those areas will be studied and defined by law but trade licensing is fully decentralized in order to facilitate the privatization process . Further, the government has issued a new investment proclamation, which made the formation of business organizations such as share companies, private limited companies, etc. Besides this, the transitional government has issued sales and excise tax proclamation to establish export trade duty incentive scheme to facilitate and promote the trade activities. The major economic policies during the successive regime are reported in appendix 1.

### **3.3 THE PERFORMANCE OF FOREIGN TRADE**

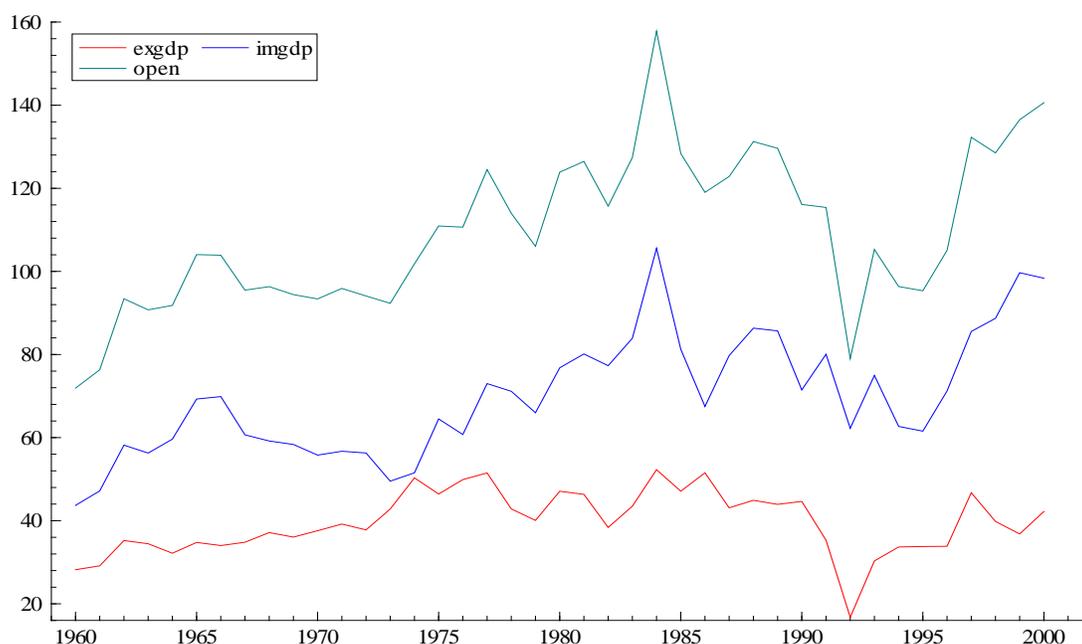
As represented diagrammatically in fig.3.2, the openness indices exhibit that the share of imports and exports in Ethiopia's GDP were 43.69 percent and 28.22 percent respectively in 1960. So the share of foreign trade in GDP, which is the effect of the sum of the imports and exports, was 71.91 percent. It started rising on import and export due to

structural change, export diversification and other policies reform, with the main focus on the manufactured products rather than agricultural exports.

During in 1967/68-1973/74 the share of foreign trade in GDP was declining. This is because the country focused on Geographic diversification of traditional export products that is the addition of new products in the export basket , planned to reduce the share of traditional exports and the development of non-agricultural exports conversely imposed heavy tax on export, which compensate one over the other and resulted in the slight increase in exports. However, the higher decrease in import due to the measures adopted include overvaluation of the exchange rate, high tariff rates, wide-ranging foreign exchange control and non-tariff barriers on some items thus the sum effect reflected on the foreign trade and resulted a decline trend . There after foreign trade started rising mainly the rise in import to GDP and with small increase export to GDP this is partly due to the Derg government employed favourable tax, tariffs and foreign exchange rate measures and the introduction of the export subsidy scheme in 1983/84. In 1984, the foreign trade become the highest that ever registered during 1960 to 2000, this is due to the highest import to GDP share which was 157.82 percent. Consumer goods contribute the highest share of import because of sever drought that the country faced at that time. In general during the Derg period on average import as proportion of GDP was 76.94 percent, which is higher than the Haile Selase period, 56.81 percent. The rise in import was mainly associated with the imports of weapons for war as a result of increased civil war.

In 1992/93 due to heightened civil war in the country, the exports become sever, which was the lowest figure ever registered during 1960/61 to 2006/2007. The export earning was only 16.77 percent of GDP and covered 42.16 percent of imports. The fruits of policy reforms that took place in 1991/92 were seen on export return after 2000's. Even after the substantial devaluation of the national currency in 1992/1993 the imports started rising mainly due to trade liberalization measures that the transitional government under taken, such measure includes devaluation, ease of foreign exchange control, the rationalization of tariffs and the removal of quantitative restriction.

**Fig.3.2: Trade Openness, 1960-2000**



\*exgdp indicates export per GDP  
imgdp indicates import per GDP  
Open indicates trade per GDP  
Source :( see appendix 2)

## **CHAPTER FOUR: THE DATA AND METHODOLOGY**

### **4.1 DATA SOURCES AND VARIABLES**

The major sources of the data for the analysis are the Penn World Data table, World Development Indicator CD-ROM, National Bank of Ethiopia (NBE) and Ministry of Finance and Economic Development (MoFED). For the current study, the paper uses annual real gross domestic product (RGDP) and openness indices (OPEN) expressed trade/GDP covering a 32-year period (1971-2003) to examine the relationship between trade liberalization and growth in the case of Ethiopia.

Since a bivariate model is likely to suffer from deficiencies arising from the omission of other relevant explanatory variables, the study suggests including two additional explanatory variables, which consider essential for explaining the growth in openness. One is real exchange rate (RER), the Labour force (LF) and the Dummy variables for economic liberalization (DUM).

### **4.2 MODEL SPECIFICATION**

Even if there has been debate on openness and its impact on growth, most of the theoretical and empirical research indicates a strong and positive correlation between trade liberalization and economic growth. As a result, an increasing openness is expected to have a positive impact on economic growth. It can be argued that through the openness

countries are able to benefit from information spillovers such as scientific advances and improvements. The expected signs of labour force and real exchange rate are positive. Thus, in this study based on these theoretical hypotheses and time series data the relationship between GDP and trade liberalization, can be specified as follows:

$$LRGDP = B_0 + B_1 LOPEN + B_2 LRER + B_3 LLF + B_4 DUM + \varepsilon_t \dots \dots \dots (1)$$

Where  $\varepsilon_t$  is the Gaussian error term and all variables are expressed into the natural logarithm and  $B_0, B_1, B_2, B_3$  and  $B_4$  are parameter to be estimated. L represents the natural logarithm. The natural log transformation can reduce the problem, such as heteroscedasticity because it compresses the scale in which the variables are measured, there by reducing a tenfold difference between two values to a two fold (Gujarati, 1995; cited in Far).

To examine the long-term relationship between economic growth and trade openness the study uses the bound testing approach to co-integration, which was developed by Pesaran, et al. (2001). He developed the model within the framework of Autoregressive Distributed Lag (ARDL) to examine the long run relationship between real GDP and trade liberalization. The bound testing procedure has many advantages, such as :( i) It is more appropriate for a small sample size or finite sample data (Pesaran et al, 2001;

Fosu, 2006). (ii) It avoids the pre-testing of unit roots. (iii) The long run and short run parameters of the model are estimated simultaneously. (iv) All the variables are assumed to be endogenous. The procedure generally provides unbiased estimates of the long run

model and valid t-statistics even the regressors are endogenous (Mavrotas and Ouattara, 2006). Inder and Pesaran cited in Mavrotas and Ouattara (2006) have shown that the inclusion of the dynamics may help correct the endogeneity bias; and (v) the method does not require that the variables in a time series regression equation are integrated of order one. This implies that bound test could be implemented regardless of whether the underlying regressors are I (0), I (1), or fractionally integrated. This is different from the general bivariate, multivariate co-integration frameworks, which require that time series in the system should be non-stationary in their levels, and that all time series in the co-integrating equation should have the same order of integration. In other words, the ARDL methodology circumvents the problem of the order of integration associated with the Johansen likelihood approach.

In this regard, the current study employs the bound test approach for co-integration, as it possesses the aforementioned advantages over the Johansen maximum likelihood procedure. The bound test procedure is given as follows.

Following Pesaran, et al. (2001), we apply the bound test procedure as he modelled the long run equation (1) as a general vector auto regression (VAR) of order p (VAR (p)).

$$Z_t = \mu + \alpha t + \sum_{i=1}^p \beta_i Z_{t-i} + \varepsilon_t \dots\dots\dots (2), t=1, 2,3,\dots, T$$

Where  $Z_t$  is the vector of both  $X_t$  and  $Y_t$ , where  $Y_t$  is the dependent variable (RGDP) and  $X_t$  is the vector matrix represents a set of explanatory variables (OPEN, RER ,LF and DUM).

$\mu = [\mu_y, \mu_x]'$ ,  $t$  is a time or trend variable, and  $\beta_i$  is a matrix of VAR parameters for lag  $i$ . According to Pesaran, et al. (2001), the dependent variable must be I (1) variable, but the explanatory variables can be either I (0) or I (1).

Pesaran et al (2001) further derived a Vector Error Correction Model (VECM) corresponding to (2) as follows:

$$\Delta Z_t = \mu + \alpha t + \lambda Z_{t-1} + \sum_{i=1}^{p-1} \gamma_i \Delta Y_{t-i} + \sum_{j=1}^{p-1} \gamma_j \Delta X_{t-j} + \varepsilon_t \dots\dots\dots (3)$$

Where  $\Delta=1-L$  and,  $\alpha = [\alpha_y, \alpha_x]$ . The long-run multiplier matrix,  $\lambda$  partition as follows:

$$\lambda = \begin{bmatrix} \bar{\lambda}_{YY} & \lambda_{YX} \\ \lambda_{XY} & \lambda_{XX} \end{bmatrix}$$

The diagonal elements of the matrix are unrestricted, so the selected series can be either I(0) or I(1). If  $\lambda_{YY} = 0$ , then Y is I(1). In contrast, if  $0 < \lambda_{YY}$ , then Y is I(0).

The VECM procedures described above are important in testing of at most, one co-integrating vector between dependent variable  $Y_t$  and a set of regressors  $X_t$ . Following the assumptions made (unrestricted intercepts and no trends) and restrictions imposed ( $\lambda_{XY}=0$ ,  $\mu \neq 0$  and  $\alpha=0$ ) by Pesaran, et al. (2001), Choong (2006) re-formulate Equation (3) to derive the following Unrestricted Error Correction Model (UECM) to examine the long run relationship between real GDP and openness.

$$\Delta \text{LRGDP}_t = \beta_0 + \beta_1 \text{LRGDP}_{t-1} + \beta_2 \text{LOPEN}_{t-1} + \beta_3 \text{LRER}_{t-1} + \beta_4 \text{LLF}_{t-1} + \sum_{i=1}^p \gamma_i \Delta \text{LRGDP}_{t-i} + \sum_{i=1}^p \delta_i \Delta \text{LOPEN}_{t-i} + \sum_{i=1}^p \eta_i \Delta \text{LRER}_{t-i} + \sum_{i=1}^p \theta_i \Delta \text{LLF}_{t-i} + \alpha \text{DUM} + u_t \dots\dots\dots (4)$$

Where  $u_t$  is the white noise error term;  $\beta_0$  is the drift;  $\beta_1$ ,  $\beta_2$ ,  $\beta_3$  and  $\beta_4$  are the long run multipliers;  $\Delta$  is the first difference operator; and  $p$  is lag structure, which is determined by minimizing either the Akaike's Information Criterion (AIC) or the Schwarz Bayesian Criteria (SBC). Pesaran et al.(cited in Wilson,2005),argued that the SBC should be used in the preference to other model specification criteria because it tends to define more parsimonious specifications. Thus, the current study uses the SBC for lag selection.

There are two steps in testing the co-integration relationship between economic growth and its explanatory variables. The first step is to estimate Equation (4) by ordinary least squares (OLS) technique in order to examine the long run relationship by imposing the restriction that all estimated coefficients of lagged one level variable equal to zero. That is, the null hypothesis  $H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$  is against its alternative hypothesis  $H_1: \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq 0$ . In order to test the above hypotheses, following Pesaran, et al. (2001), the study apply either standard Wald test or F-statistic, which has a non-standard distribution that depends on few factors such as sample size, the inclusion of intercept and trend variable in the estimation, and number of regressors.

Two asymptotic critical value bounds provide a test for co-integration when the independent variables are  $I(d)$  with  $0 \leq d \leq 1$ . The lower bound assumes that all the regressors are  $I(0)$ , and the upper bound assumes that they are  $I(1)$ . If the computed F-statistic lies above the upper level of the band, the null is rejected; indicating co-integration i.e. there is steady state long run equilibrium between the variables under study. If the computed F-statistic lies below the lower level band, the null cannot be rejected, supporting the absence of co-integration. If the statistics fall within the band, inference would be inconclusive and the stationarity of the series must be examined and investigated.

Even though this technique does not require the pre-testing of the variables for unit roots unlike other techniques such as the Johansen approach, the study attempts to test for unit roots to eliminate the possibility of  $I(2)$  variables. In the presence of such variables the computed F-statistics provided by Pesaran et al. (2001) are no more valid because they are based on the assumption that the variables are either  $I(0)$  or  $I(1)$ . Consequently, the implementation of unit root tests in the ARDL procedure is necessary to ensure that none of the variables is integrated of order 2 or beyond.

Narayan (2005) argues that the use of Pesaran, et al.'s (2001) critical values for small sample study may produce misleading results because the critical values calculated are generally lower than those generated by Narayan who used similar GAUSS code used by Pesaran, et al. (2001). Narayan (2005) has generated a new set of critical values ranging from 30 to 80

observations. Since the sample size in our study is small (that is, 36 observations) and as the critical values provided by Pesaran, et al. (2001) are calculated on the basis of large sample sizes of 500 and 1000 observations and 2000 and 40000 replications respectively, we intend to use the critical values provided by Narayan (2005).

In the second step, once the variables are found to be co-integrated, the conditional ARDL long run model for  $RGDP_t$  can be estimated as:

$$\Delta LRGDP_t = \beta_0 + \sum_{i=1}^p \beta_1 \Delta LRGDP_{t-i} + \sum_{i=0}^p \beta_2 \Delta LOPEN_{t-i} + \sum_{i=0}^p \beta_3 \Delta LRER_{t-i} + \sum_{i=0}^p \beta_4 \Delta LLLF_{t-i} + B_5 DUM + u_t \quad ..(5)$$

In the third and final step is to use the error-correction model to estimate the short-run dynamic causality relationship. Equation (3) can now be constructed into a vector error-correction model (VECM) in order to capture both short- and long -run impact of the vector. Defining  $z_t$  as the vector of the potentially endogenous variables, we can model  $z_t$  as an unrestricted vector auto regression (VAR) model with lag-length up to 3:

$$Z_t = A_1 Z_{t-1} + A_2 Z_{t-2} + A_3 Z_{t-3} + U_t \quad \dots\dots\dots (6), \text{ where } U_t \sim IN(0, \sigma^2)$$

Where  $z_t$  is (4 x 1) vector consists of RGDP, OPEN, RER and LF. Each of the  $A_i$  is (4 x 4) matrix of parameters. The 4-VAR model as stated in Equation (6) will be used if there is no long run relationship to be found in the bound testing approach. However, if there is a co-integration relationship, then the following vector error correction will be applied to examine the long- and short -run causality between variables.

$$\Delta Z_t = \Gamma_1 \Delta Z_{t-1} + \Gamma_2 \Delta Z_{t-2} + \Pi \Delta Z_{t-3} + U_t, \dots \quad (7)$$

Where  $\Delta z_t = [RGDP, OPEN, RER \text{ and } LF]'$ ,  $\Gamma_1 = - (I - A_1)$ ,  $\Gamma_2 = - (I - A_1 - A_2)$  and  $\Pi = - (I - A_1 - A_2 - A_3)$ .  $\Gamma_j$  measures the short-run effect of the changes in  $z_t$ . The (4x4) matrix of  $\Pi (= \alpha\beta)$ , contains both speed of adjustment to disequilibrium ( $\alpha$ ) and the long-run information ( $\beta$ ) such that the term  $\beta'z_{t-3}$  embedded in Equation (7) represents the (n-1) co-integrating vector in the model. Following Choong et al (2006) Equation (7) can be restated as:

$$\begin{bmatrix} \Delta LRGDP_t \\ \Delta LOPEN_t \\ \Delta LRER_t \\ \Delta LLF_t \end{bmatrix} = \Gamma_1 \begin{bmatrix} \Delta LRGDP_{t-1} \\ \Delta LOPEN_{t-1} \\ \Delta LRER_{t-1} \\ \Delta LLF_{t-1} \end{bmatrix} + \Gamma_2 \begin{bmatrix} \Delta LRGDP_{t-2} \\ \Delta LOPEN_{t-2} \\ \Delta LRER_{t-2} \\ \Delta LLF_{t-2} \end{bmatrix} + \begin{bmatrix} \alpha_{11} & \alpha_{12} & \alpha_{13} \\ \alpha_{21} & \alpha_{22} & \alpha_{23} \\ \alpha_{31} & \alpha_{32} & \alpha_{33} \\ \alpha_{41} & \alpha_{42} & \alpha_{43} \end{bmatrix} * \begin{bmatrix} \beta_{11} & \beta_{21} & \beta_{31} & \beta_{41} \\ \beta_{12} & \beta_{22} & \beta_{32} & \beta_{42} \\ \beta_{13} & \beta_{23} & \beta_{33} & \beta_{43} \end{bmatrix} * \begin{bmatrix} LRGDP_{t-3} \\ LOPEN_{t-3} \\ LRER_{t-3} \\ LLF_{t-3} \end{bmatrix} \dots \quad (8)$$

There are two steps involved in the estimation of error-correction model (ECM). First, identify the unique long-run relationship based on theory that represents the economic relationship underlying the long run model among real GDP, openness, real exchange rate and labour force. Secondly, estimate the short-run model within the VECM to find out the short run causal relationship. The short run model is of interest since we can study the

behaviour of each variable in the estimated system in response to the residual from the co-integrating equation (error-correction term - ECT). The ECT measures the speed of adjustment of each variable in response to a deviation from the steady state equilibrium relationship. Since the objective of the study is to examine the causality relationship between economic growth and openness, the two equations are derived from Equation (8) as follows:

$$\Delta LRGDP_t = \mu_1 + \beta_1 ECT_{t-1} + \sum_{j=1}^k \pi_j \Delta LRGDP_{t-j} + \sum_{j=1}^k \tau_j \Delta LOPEN_{t-j} + \sum_{j=1}^k \lambda_j \Delta LY_{t-j} + u_{1t} \dots \dots \dots (9)$$

$$\Delta LOPEN_t = \mu_2 + \beta_2 ECT_{t-1} + \sum_{j=1}^k \phi_j \Delta LRGDP_{t-j} + \sum_{j=1}^k \delta_j \Delta LOPEN_{t-j} + \sum_{j=1}^k \eta_j \Delta LY_{t-j} + u_{2t} \dots \dots \dots (10)$$

Where,  $ECT_{t-1}$  is the one-period lagged error correction term,  $Y_t$  is the vector comprising RER and LF and  $u_{1t}$  and  $u_{2t}$  are white noise error terms. In these two equations, the series real GDP and openness are co-integrated when at least one of the coefficients  $\beta_1$  or  $\beta_2$  is not zero. In that case, two series will display long-run relationship. If  $\beta_1 \neq 0$  and  $\beta_2 = 0$ , we conclude that openness Granger causes RGDP in the long run. On the other hand, if  $\beta_1 = 0$  and  $\beta_2 \neq 0$ , RGDP will Granger cause openness. If both  $\beta_1$  and  $\beta_2$  are nonzero, the conclusion then is that there exists a feedback relationship between economic growth and openness.

The short-run relationships between growth and openness are showed by the coefficients  $\tau_j$ 's and  $\phi_j$ 's. If  $\tau_j$ 's are not all zero, movements in openness will cause growth in the

short-run. If  $\phi_j$ 's are not all zero, movements in growth will cause openness in the short-run. The short-run as well as long run dynamic causality relationships between growth and openness can be assessed by forming hypotheses and testing them on the estimated coefficients in the Equations (9) and (10). In general, six possible testable hypotheses concerning the short-run and long run influence of openness on growth ( $OPEN_t \rightarrow RGDP_t$ ) and growth on openness ( $RGDP_t \rightarrow OPEN_t$ ) can be formulated. These can be described and summarized in Table 4.1.

Table 4.1 Six Possible Testable Hypotheses between openness on Growth

Granger Causality Test	Testable Hypotheses	Description
$H^{ST} OPEN \rightarrow RGDP$ (No ST linkage)	$\tau_j = 0$ ( $j=1,2,\dots,k$ )	OPEN doesn't Granger Cause RGDP in the short-term
$H^{LT} OPEN \rightarrow RGDP$ (No LT linkage)	$\beta_1 = 0$	OPEN doesn't Granger Cause RGDP in the long-term
$H^{NO} OPEN \rightarrow RGDP$ (No ST or LT linkage)	$\beta_1 = 0, \tau_j = 0$ ( $j=1,2,\dots,k$ )	OPEN does not Granger Cause RGDP in the short-term and long-term
$H^{ST} RGDP \rightarrow OPEN$ (No ST linkage)	$\phi_j = 0$ ( $j=1,2,\dots,k$ )	RGDP doesn't Granger Cause OPEN in the short-term
$H^{LT} RGDP \rightarrow OPEN$ (No LT linkage)	$\beta_2 = 0$	RGDP does not Granger Cause OPEN in the long-term
$H^{NO} RGDP \rightarrow OPEN$ (No ST or LT linkage)	$\beta_2 = 0, \phi_j = 0$ ( $j=1,2,\dots,k$ )	RGDP doesn't Granger Cause OPEN in the short-term and long-term

These individual hypotheses can be tested using standard F- test on the estimated coefficients of the error-correction model.

## 5. ANALYSIS OF EMPIRICAL RESULTS

### 5.1 STATIONARY TEST

To avoid spurious regression, we first conduct a stationary test using the ADF and Phillips-perron test for all variables. The bound test procedure is based on the assumption that the variables are  $I(1)$  or  $I(0)$ , in the presence of  $I(2)$  variables the computed F-statistics developed by Pesaran et.al (2001) are not valid (Fosu,2006).The unit root test is performed on both levels and first differences of the variables, with intercept only and intercept and trend. The unit root test results are presented in table 5.1. In order to avoid the problem of autocorrelation, the number of lag is set equal to one that is to ensure the error terms are uncorrelated and enhance the robustness of the result. The results indicate that the null hypothesis of unit root in level, except for real exchange rate, is not rejected (i.e. the real exchange variable is stationary at level, which is  $I(0)$ ). However, in the first difference with intercept only we rejected the null hypothesis of unit root. In other words, under the unit root tests  $I(1)$  and  $I(0)$  are co-existing. Therefore, a bias will inevitably occur if we use Johansen co-integration test. This implies that the series are integrated of the first order and the conditions for applying the ARDL bound test approach are satisfied and solve the inconsistency of co-integration in  $I(1)$  and  $I(0)$ . We can also test the unit root in other schematic dimension, which support the above analysis (see appendix 3).From the graph we can see that the variables RGDP,OPEN and LF under their logarithm shows some what increasing trend. However, real exchange rate curve shows irregular and no trend form, this confirm that the absence of unit root that is the real

exchange rate is  $I(0)$ . The graphical analysis of the first difference of the variables reveal the absence of unit root that is the variables are  $I(1)$ .

**Table.5.1 ADF and PP Unit root Test on Variables**

Variable	Intercept only				Intercept and trend			
	ADF		PP		ADF		PP	
	Level	1st difference	Level	1st difference	Level	1st difference	Level	1st difference
LRGDP	-0.6829	-3.9003*	-1.3797	-7.8686*	-1.3672	-3.9683**	-1.9934	-8.0404*
LOPEN	-1.0050	-3.1691**	-1.5287	-6.4717*	-1.0278	-3.1664	-1.5639	-6.4480*
LRER	-3.7148*	-4.8220*	-2.6162	-4.1927*	-3.6703	-4.7814*	-2.5833	-4.1391**
LLF	-0.4869	-4.0720*	-0.4445	-5.7172*	-2.1475	-4.0365**	-2.2516	-5.6444*
Critical Value at 1 %	-3.6576	-3.6661	-3.6496	-3.6576	-4.2826	-4.2949	-4.2712	-4.2826

\* and \*\* indicate the variables are significant at 1 % and 5% level of significance respectively.

## 5.2 BOUND TEST FOR COINTEGRATION

Once we tested for the absence of the second order integrated variables, we started by testing the long run relationship among the variables by estimating Equation (4) by Ordinary Least Squares method and then test for the joint significance of the parameters of the lagged level variables.

**Table 5.2: Bound Test for Co-integration Analysis Based on Equation (4)**

Dependant variable	Computed F-statistics	Outcome
LRGDP	8.33	Co-integration
LOPEN	0.95	No co-integration
LRER	5.68	Inconclusive
LLF	2.20	No co-integration

Table 5.2 shows the results of the calculated F-statistics when each variable is considered as a dependent variable. The result indicates that in the equation with real GDP per capita as dependant variable we find the null hypotheses of no long run relationship are rejected at 1 percent level of significance. Using critical values obtained from both Narayan (2005) and Pesaran et al. (2001) the computed F-statistics of the real GDP per capita (8.33) is higher than the upper bound critical value at 1 percent level of significance. While the openness (0.95) and the labour force (2.20) are smaller than the lower critical value. The real exchange rate variable test statistics (5.68) is falls in between the lower and upper critical value, we interpret the results as being inconclusive at the given significance level using the critical values of Narayan (2005) (see table 5.3).Kremers et al (cited in Wilson et al., 2005) argued that in such an inconclusive case an efficient way of establishing co-integration is by applying the ECM version of the ARDL model. Further more, Pesaran (cited in Fosu, 2006) argue that the ARDL-OLS regression in first differences are of no direct interest to the bound test co-integration test.

**Table 5.3: The Critical Value of the Upper and Lower Bound**

Critical Value	Pesaran et al.(2001)		Narayan(2005)	
	Lower Bound Value	Upper Bound Value	Lower Bound Value	Upper Bound Value
1 percent	3.74	5.06	4.59	6.37
5 percent	2.86	4.01	3.28	4.63
10 percent	2.45	3.52	2.70	3.90

Source: The critical values of both Pesaran (2001) and Narayan (2005), Case III: unrestricted intercept and no trend, are obtained from Choong(2006).

Given the existence of a long run relationship, in the next step we estimate the long run coefficients of Equation (5), when real GDP per capita in natural logarithm is the dependant variable, using the following ARDL (1, 1, 0, 1) specification. The long run coefficients of the variables under investigations are shown in the following tables.

**Table 5.4: Estimated Long run Coefficients Using ARDL Approach.**

Regressor	Coefficient	Standard Error	T-ratio	T-Probability
B <sub>0</sub>	5.2171	2.1435	2.4339	0.0221
LOPEN	0.0927	0.0495	1.8727	0.0724
LLF	-0.1064	0.0687	-1.5492	0.1334
LRER	0.0896	0.1134	0.7902	0.4366
DUM	0.2342	0.0915	2.5594	0.0166

Thus, as reported in Table 5.4 we found that all variables except for labour force have expected positive sign. The variables openness and the dummy variable for economic

liberalization on GDP growth are positive and significant. While real exchange rate and labour force are insignificant.

The impact of trade openness on economic growth has significance at 10 percent level of significance in the long run. A 1 percent increase in trade openness will lead to approximately 0.09 percent increase in economic growth. The impact of labour force on economic growth has insignificant and has not the expected positive sign. According to Aryeetey and Fosu (cited in Fosu, 2006) studied in Ghana the negative sign of labour force coefficient is indicative of the growing unemployment problem and the lower productivity of labour. Further, as Fosu (2006) argued this may depend on the economic structure, and since the Ethiopia economy is agrarian and it is based on land intensive agriculture, which has limited employment and income generation benefits for the country.

The impact of RER on real GDP per capita has the expected positive sign and insignificant result. The result also showed that the dummy variable for economic liberalization on GDP growth is positive and a very significant result at 5 percent level of significance. By taking the value 1 after economic liberalization and zero other wise, the coefficient of the dummy variables shows that the economic liberalization has helped to open up the economy and raise economic growth. A 1 percent increase in economic liberalization leads to 0.23 percent increase in economic growth, all things being equal.

The estimated equation (5), with figures in parenthesis representing calculated "t" values is as follows:

$$\text{LRGDP} = 5.22 + 0.09 \cdot \text{LOPEN} + 0.09 \cdot \text{LRER} - 0.11 \cdot \text{LLF} + 0.23 \cdot \text{DUM}$$

(2.44)      (1.87)                      (0.79)                      (-1.55)                      (2.56)

After estimating the long-term coefficients, we proceed to obtain the error correction representation of equation (5) as:

$$\text{ECM}_t = \log(\text{RGDP}) - 5.23 \cdot c(1) - 0.09 \cdot \text{LOPEN} - 0.09 \cdot \text{LRER} + 0.11 \cdot \text{LLF} - 0.23 \cdot \text{DUM}$$

**Table 5.5: Short run Error Correction Elasticity Estimates**

ECM ARDL : Dependent Variable DLRGDP				
Variables	Coefficient	Standard Error	T-ratio	T-probability
B <sub>0</sub>	-25.7129	6.6934	-3.8415	0.0007
LOPEN	0.1303	0.0718	1.8145	0.0816
LRER	0.0676	0.1033	0.6544	0.5188
LLF	1.4759	1.1685	1.2630	0.2182
ECM(-1)	-1.1671	0.3042	-3.8363	0.0008

Table 5.5 shows that the results of short run dynamic along with the long run relationships obtained from the ECM version of the ARDL model equation 9 .The error correction term indicates the speed of adjustment to restore equilibrium in the dynamic model. Its coefficient shows how quickly variables converge to equilibrium and it should have statistically significant coefficient with the negative sign. According to Bannerjee et

al., (cited in Wilson, 2005) the highly significant error correction term further confirms the existence of a stable long run relationship.

Table 5.5 shows that the short run coefficients of all variables have the expected positive sign. The test statistics of LOPEN is significant at 10 percent level of significance while others variables are insignificant in the short run. The labour force (LLF) coefficient has the expected positive sign that is different from the long run. The ECM (-1) has the expected negative sign and statistically significant at 1 percent level of significance when LRGDP is a dependant variable, but statistically insignificant when the openness is as dependent variable<sup>1</sup>. To examine the causality relationship between RGDP and openness, the t-statistics (-3.8363) of the error correction term, LRGDP as a dependant variable, confirm that the existence of the co-integration relationship between economic growth and trade openness. In other words, this implies that there should be causality relationship at least in one direction in the long run. The Granger Causality test results and estimated coefficients reported in table 5.5 indicate that there is only unidirectional relationship that is openness Granger causes RGDP in the long run. The coefficient of ECM (-1) is equal to (1.17) and implying that the deviation from the long-term growth rate in real GDP per capita is corrected by (117) percent by the coming year.

<sup>1</sup> Openness as a dependent variable results are available up on request

The significant result of the coefficient of openness in the short run indicates that the movements in trade openness will cause economic growth in short run. In other words, the direction of causality runs from openness to real GDP per capita growth. However, the coefficient of LRGDP is insignificant, which indicate that LRGDP is not Granger causes trade openness.

### **5.3 THE STABILITY AND DIAGANOSTIC TEST**

In order to check the model is correctly specified, we test for the significance of the variables and also implement diagnostic test, for instance, testing functional form misspecification (RESET), serial correlation (Breusch-Pagan LM), heteroskedasticity (ARCH) and normality test (Jargue-Bera). Finally, we tests for structural stability of the model.

The long run ARDL equation fit very well at 84 percent, which imply that around 84 percent of the variation in real GDP per capita is explained by the regressors and since the critical value of 11.34 exceeds the calculated Breush-Godfrey LM test statistic of 10.63, we are unable to reject the null hypothesis of no serial correlation at 1 percent level of significance. The calculated F statistics of the Ramsey Reset test(3.54)is less than the F critical value (4.22) at 5 percent level of significance, which implies that we are fail to reject the null hypothesis then the result suggest that the true specification is linear that is the equation passes the Ramsey Reset test. Further, the calculated Jargue-Bera test statistics

(5.46) is less than the chi-square with 2 degree of freedom (5.99) at 5 percent level of significance this suggests that we accept the null hypothesis that the residuals are normally distributed but the sample size of 32 observations may not large enough for Jargue-Bera test. Further more, The critical value of the chi-square with 1 df at 5 percent level of significance exceeds the calculated heteroskedasticity (ARCH) test statistics, we accept the null hypothesis that there is no ARCH up to order 1 in the residuals (table 5.6). Thus, the equation passes the diagnostic test against serial correlation, functional form, heteroskedasticity and also normality test. Hence, the test results show that the equation is correctly specified.

In order to analyse the stability of the long run coefficients together with the short run dynamics we applied the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMQ). The plots of the (CUSUM) and the (CUSUMQ) of the residuals are with in the boundaries of the 5 percent significance level (see fig.5.1). This confirms that the stability of the long run coefficients of the real GDP per capita over the sample period.

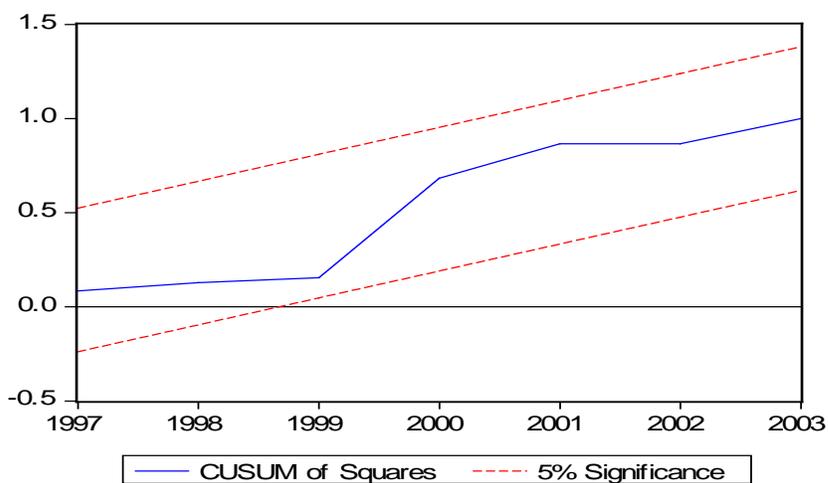
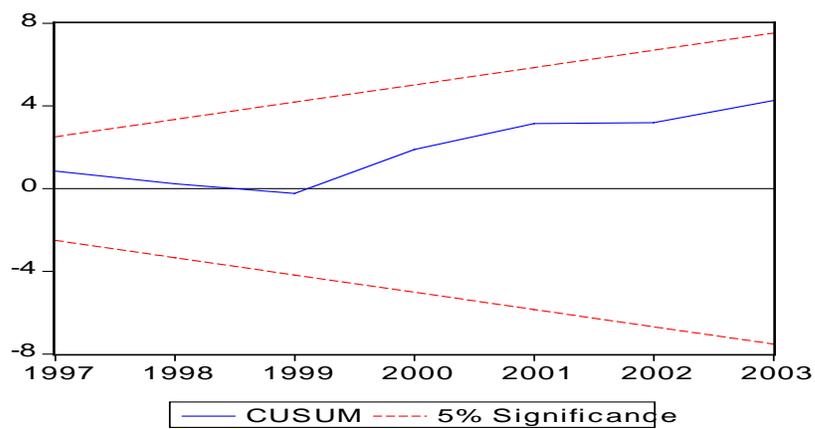
**Table 5.6 Diagnostic Tests Results**

	calculated value
Adjusted R-squared	0.84
<b>LM Test statistics</b>	
-Serial Correlation	$\chi^2 = 10.63(11.34)$
-Normality	$\chi^2 = 5.46(5.99)$
-Functional Form	F =3.54(4.22)
-Heteroscedasticity	$\chi^2 = 0.00025(0.6703)$

-Figures in parenthesis indicates the critical values

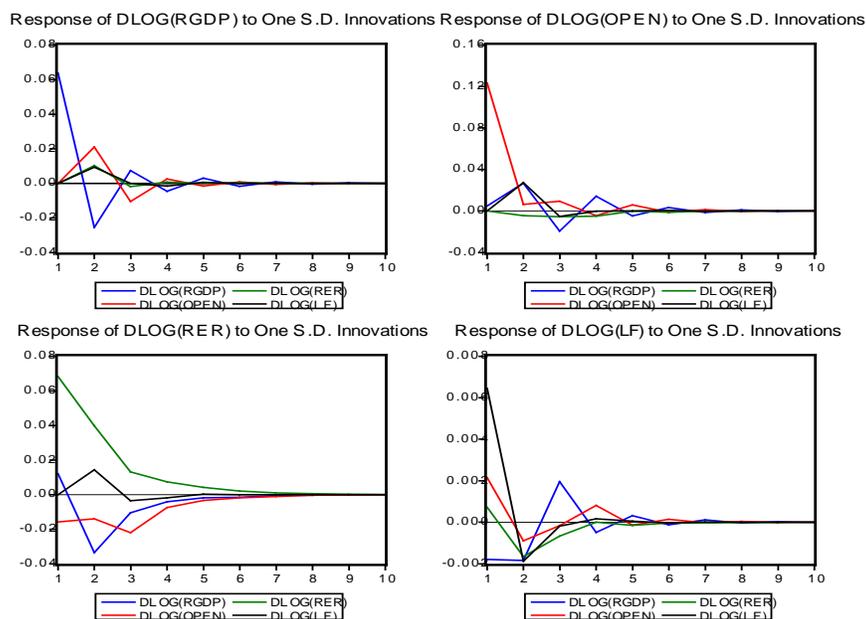
Fig.5.1. Plots of Cusum and Cusumq for Coefficients Stability for ECM

Model



For further inferences we apply an impulse response functions (IRF), which trace the directional responses of a variable to a one standard deviation shock of another variable. This means that we can observe the direction, magnitude and persistence of real GDP to variation in trade openness, real exchange rate and labour forces.

**Fig.5.2. Graphical representation of an impulse response functions**



If we see the shocks forced by a rise in openness, real exchange rate and labour force on the real GDP dynamism the most influential is trade openness and its effect disappears after 4 and half periods. Both the labour force and real exchange rate goes the same direction, their initial effects are less than trade openness variable and their effects disappear after period 3(see fig.5.2).

## CHAPTER SIX: CONCLUSION AND POLICY IMPLICATIONS

### 6.1 CONCLUSION

Controversy still exists on the real effects of trade liberalization on economic growth. In this sphere, the current study examines the relationship between Ethiopia's economic growth, real exchange rate, trade liberalization and labour force over the period 1971/72-2003/04. Unlike other Ethiopia's studies the current study utilized bound test approach of co-integration developed by pesaran, et al (2001).

Given the instability inherent in low-income countries time series data, this technique allows testing for the existence of the long run relationship between trade openness and real GDP growth without having to specify whether the two series are individually  $I(0)$  or  $I(1)$ . This represents an improvement over the standard co-integration analysis and Johansen approach, which requires the assumption that the two series must both be  $I(1)$ . To our knowledge, this ARDL-approach has not been employed previously in the impact of trade liberalization on economic growth for the case of Ethiopia.

The empirical results reveal that the existence of co-integration relationship between economic growth and openness. In the long run, except for labour force, all others variables exerted positive impact on real GDP per capita but the variables real exchange rate, and labour force have insignificant impact on real GDP. While the variable openness

remains statistically significant both in the long run and the short run and also dummy variable highly significant in the long run. However, the labour force has expected positive sign in the short run.

From the result we also found that both in the long run and short run the direction of causality runs from openness to real GDP per capita growth not the other way round. The feed back coefficient has the expected negative sign and significant, which supports the co-integration between the variables real GDP per capita and trade liberalization and also its coefficient suggests that a fast rate of adjustment towards the long run equilibrium. In other words, the coefficients of error correction term (1.17) indicate that a deviation from the long run growth rate in real GDP per capita is corrected by 117 percent in the following years. The plots of CUSUM and CUSUMSQ statistic is well within the the 5 percent critical bounds implying that all the coefficients in the estimated model are stable.

## **6.2 POLICY IMPLICATIONS**

In some literatures economists pointed out that for most of LDCs, openings their markets to the international markets were in a disadvantages situation. They argue that the LDCs were in disadvantage condition due to their market size and sophistication, the weak capacity for technological innovation and the commercial intervention. However, from a policy perspective, the results of the current study suggest that the country could enjoy economic prosperity by strengthening their trade policy geared towards opening up the

economy. In other words, the country should continue to liberalize their trade in order to enhance growth.

Further, we recommend that in order to get more benefits from trade liberalization and attain sustainable growth:

- i) The country must be allocated their resources according to the country's comparative advantage that is expanding the production of the commodity in which the country has a comparative advantage.
- ii) The trade sector activities should be linked to domestic activity.
- iii) Strengthen export capacity and promote diversification by designing export promotion strategies, identifying and creating conducive macroeconomic and institutional environment.
- iv) Lowering tax burden on exports and imports of inputs and adopting credit policies for export promotion.
- v) Sustain the reformulation of import and export regulations with strong commitment.
- vi) Applies others adjustment policies that enable to bridge the technological and organizational gaps.

Since 1991/92 Ethiopia undertake trade liberalization with aim of primarily on export promotion and now the country decided to become a member of the WTO .The main objective of WTO is trade liberalization that encouraged the domestic industries development with the real comparative advantage. In contrast, the liberalization effect will

eliminate the inefficient industries. In this way, the economy is prepared to face global competition that is if the country competent to the international market, the country gains its comparative advantage otherwise the country may loss its advantage. In other words, the proper timing /phasing of trade efforts must be done in order to maximize the gains and minimize the threats of globalization.

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## Appendix 1

Meron, Shahidur and Gezahegn(2006) summarized the broad economic policies during the successive regime as follows:

### MONARCHIC REGIME

- *Export promotion in the 1950s with elaborate incentive package including tax holidays to attract FDI;*
- *Import substitutions in the 1960s with prohibitive taxes; import tax rates (ad-valorem) range from 5% -100%;*

### DERGE REGIME

- *Aligned with the Soviet; and adopted central planning policies;*
- *In 1987, the nation officially became peoples' democratic republic of Ethiopia (PDRE). A new constitution provided civilian participation in the government, but the Derg leadership maintained control;*
- *Tightly controlled foreign exchange and the difference between official and black market rate reached as high as 250 percent;*
- *Import tax rates (ad-valorem) range from 5% to 200%.*

### CURRENT REGIME

- *Agricultural Development Led Industrialization (ADLI) was announced in 1992;*
- *Decentralization in 1992;*
- *The currency was devaluated by more than 100 percent in 1993 (2.5 to 5.5 ETB / US\$) and further devaluation in 1996 (6.50 ETB/US\$);*
- *Ethiopia became member of the COMESA in 1994;*
- *Harmonization of tariffs in line with COMESA agreements in 2002;*
- *In 2002, Sustainable Poverty Reduction Strategy (PRSP) was introduced.*

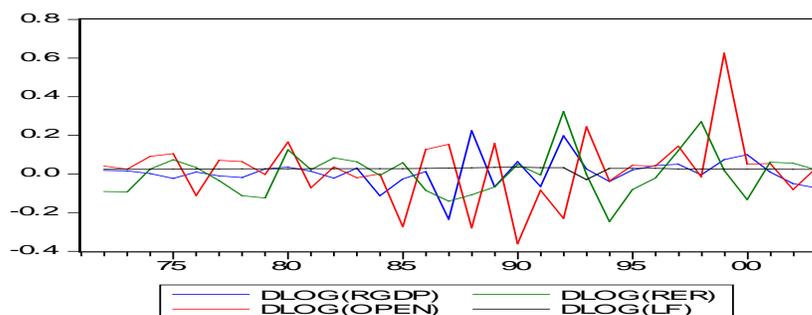
## Appendix .2 Trade openness series, 1960-2000

year	export/gdp	import/gdp	trade/gdp	export/import
1960	28.22	43.69	71.91	64.58
1961	29.14	47.17	76.32	61.78
1962	35.22	58.18	93.40	60.54
1963	34.46	56.28	90.74	61.23
1964	32.18	59.62	91.80	53.98
1965	34.76	69.29	104.05	50.17
1966	34.02	69.88	103.90	48.68
1967	34.82	60.67	95.48	57.39
1968	37.14	59.19	96.33	62.74
1969	36.06	58.35	94.41	61.79
1970	37.58	55.79	93.38	67.36
1971	39.19	56.71	95.90	69.09
1972	37.79	56.30	94.09	67.11
1973	42.81	49.51	92.33	86.47
1974	50.30	51.53	101.83	97.63
<b>ave.</b>	<b>36.25</b>	<b>56.81</b>	<b>93.06</b>	<b>64.70</b>
1975	46.43	64.49	110.92	71.99
1976	49.90	60.75	110.65	82.13
1977	51.50	73.01	124.51	70.54
1978	42.84	71.15	113.99	60.22
1979	40.06	65.97	106.03	60.72
1980	47.08	76.79	123.87	61.31
1981	46.34	80.13	126.46	57.83
1982	38.38	77.31	115.69	49.64
1983	43.50	83.90	127.39	51.84
1984	52.27	105.54	157.82	49.53
1985	47.11	81.25	128.37	57.98
1986	51.53	67.50	119.03	76.35
1987	43.10	79.74	122.84	54.06
1988	44.90	86.34	131.24	52.01
1989	43.94	85.67	129.61	51.29
1990	44.64	71.47	116.11	62.45
<b>ave.</b>	<b>45.85</b>	<b>76.94</b>	<b>122.78</b>	<b>60.62</b>
1991	35.32	80.07	115.39	44.10
1992	16.77	62.25	79.02	26.95
1993	30.32	74.97	105.29	40.44
1994	33.67	62.69	96.37	53.71
1995	33.79	61.56	95.35	54.89
1996	33.85	71.21	105.06	47.53
1997	46.74	85.55	132.29	54.63
1998	39.82	88.70	128.52	44.89
1999	36.81	99.69	136.50	36.93
2000	42.24	98.36	140.60	42.94
<b>ave.</b>	<b>34.93</b>	<b>78.51</b>	<b>113.44</b>	<b>44.70</b>

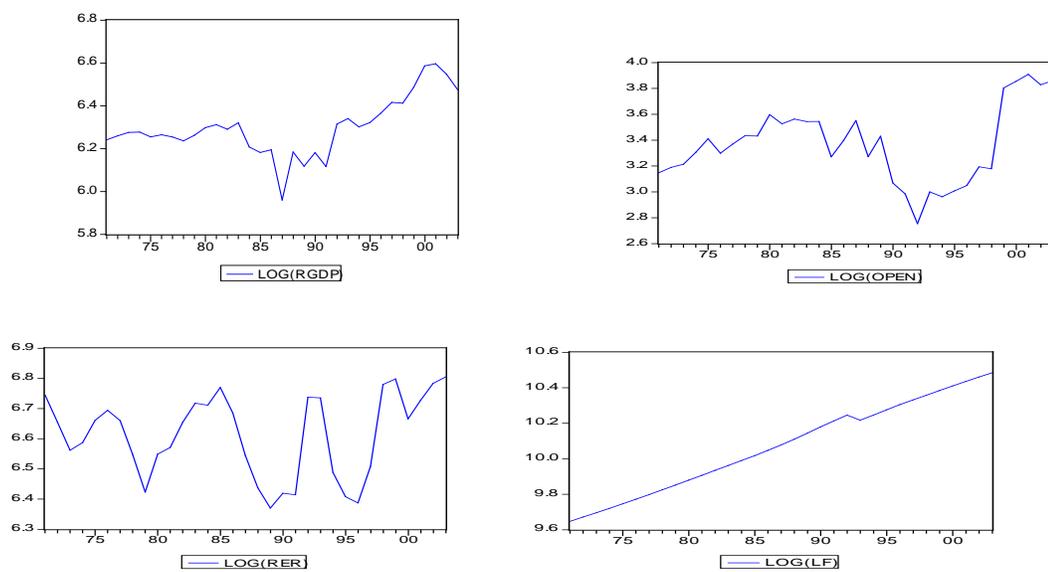
Source: calculated from Penn World data

## Appendix 3 Graphical unit root test for the first difference and levels of the Variables

**Panel a. The result in the first difference**



**Panel b. The result on levels**



## DECLARATION

I, the undersigned, declare that this project is my own original work and it has not been presented in any University. All sources of materials for this project have been fully acknowledged.

Name: Addis Assefa Chaka

Signature: -----

Date: -----

Place: Addis Ababa University