

Impact of International Trade on Economic Growth of Ethiopia
ARDL Approach

Thesis Submitted to the Department of Economics for Partial Fulfilment of the Requirement of Degree of Masters of Science (MSC) in Economics (Economic Policy Analysis)

BY; EndaleTeshome



Jimma University

College of Business and Economics

Department of Economics

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JIMMA Ethiopia

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Co-advisor: Shabu. A. (MSc).



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ABSTRACT

This paper examined the impact of international trade on economic growth in Ethiopia during the period from 1974/75 to 2020. The general objective of the study is to investigate the impact of international trade on Ethiopian economic growth from 1974/75-2020 by using ARDL bound test approach to examine the long and short-run relationship between economic growth and explanatory variables. The study used both descriptive and empirical techniques Source of data were secondary data. To check for the stationarity of the variables, the researcher has used augmented dickey fuller and Phillips-person unit root test and the result indicated that all variables become stationary at first difference. The results of bound test confirm existence of the long-run relationship between explanatory variables and economic growth. The empirical results show evidence of long-run positive impacts of international trade proxy by export volume while negative impact proxy by trade openness index on economic growth in Ethiopia whereas progresses in international trade sector in both proxy contribute to economic growth in short-run. Broad money and gross capital formation as a control variables were positive and have significant influence on economic growth both in long-run and short run while real effective exchange rate, government final consumption expenditure trade openness and inflation level had negatively and significantly influence on the economic growth only in long-run 0.049,0.073,0.22 and 0.012 respectively. The magnitude of the error correction term coefficient is -0.4777justifiedabout 47.77% of the disequilibrium annually converge towards long run equilibrium in the following year. The recommends that enhancing export competitiveness is pre-determined factor for sustainable economic growth in the long run and short run. Moreover, the policy maker's focused on the long-run policies and in short run policies to stimulate economic activates in Ethiopia.

Keywords: *International Trade; Economic Growth; ARDL; VECM; long-run impact. short run impact*

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ACRONYMS

ADF.....	Augmented Dickey Fuller
CSA.....	Central Statistical Authority
ECA.....	Ethiopian Custom Authority
FDI.....	Foreign Direct investment
GDP.....	Gross Domestic Product
GNP.....	Gross National Product
IMF.....	International Monetary Fund
LDCs.....	less developed countries
MEDAC.....	Ministry of Economic Development and Cooperation
MOFED.....	Ministry of Finance and Economic Development
NBE.....	National Bank of Ethiopia
OLS.....	Ordinary List Square
WB.....	World Bank

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The concept of international trade as an engine of “economic growth” dates back to the time of Adam Smith. However, the doctrine of “protectionism” played a dominant role since the Second World War up to the 1970s for a large number of developing countries in the design of their industrial policies. Since the 1890s openness, trade liberalization, and out-wards oriented policies become popular policy prescriptions among economists and policy makers for achieving rapid economic growth (Justin and David, 2012).

With the world having evolved into a global village, it is a precept for a nation to be in alliance with other nation(s). One of the coherent ways to create such an alliance between or among nations is via international trade. International trade allows for the exchange of goods and services and foster healthy relations among countries irrespective of their level of economic development. A country involved in international trade need not have fear of hegemony or loss of its sovereignty because it is a mutual agreement to engage in trade across their border. A nation not participating in international trade is at risk of a slow pace of economic development due to the cogent fact that a country cannot be fully endowed with all the resources essential to be utilized for sustainable economic development (Asiret al.2019)

International trade can be interchangeably referred to as ‘*foreign trade*’ or ‘*global trade*’. It encompasses the inflow (import) and outflow (export) of goods and services in a country. A country’s imports and exports represent a significant share of her gross domestic product (GDP); thus, international trade is correlated to economic growth. In an open economy, development of foreign trade greatly impacts GDP growth (Li, Chen, 2010).

Countries would be limited to goods and services produced within their territories without international trade. International trade is directly related to globalization because increase in trade activities across border is paramount to the globalization process. The globalized nature of an economy enhances its direct participation in the world market consequently leading to market expansion. According to Adam Smith, expansion of a country’s market encourages productivity which inevitably leads to economic growth. Government earns revenue through international trade activities. International trade, as a major factor of openness, has made an

increasingly significant impact to economic growth .The openness of a nation influences a country's growth rate by impacting upon the level of economic activities and facilitating the transfer of resources across borders (Sun and Heshmati, 2010).

There are several variables that contribute to economic process. In keeping with recent and new faculty of thoughts export is taken into account collectively of the vital accelerators of growth. For example, the foreign policy dedicated by mercantilist philosophy was meant to encourage exports, discourage imports, and take the yield of the ensuing export surplus in gold as a result of mercantilists believed that these precious metals were the sole kind of wealth price following (Brue and Grant, 2012).

Since 1992, Ethiopia, under the support and guidance of the IMF and the World Bank has undergone liberalization and enhanced Structural Adjustment Programs (SAPs) to restrain internal and external imbalances of the economy. One of the basic tasks of the new policy is to increasingly open the economy to foreign competition with a view of benefiting the economy from expanded markets. To this end, the government uses different tools such as: devaluation of the Ethiopian Birr (ETB) and step-by-step liberalization of the foreign exchange market (Thomson, 2017).

The contributions of foreign trade on a nation's economy is not only restricted to the quantitative gains, but also foreign capital flow and facilitating structural change in the economy. Trade fosters the efficient production of goods and services via resources allocation to nations that have comparative advantage in their productions. Foreign trade has been described as a tool and catalyst of economic growth (Hasnain 2017).

The predication for foreign trade depends on the veracity that nations of the globe are different in their natural resources endowment, scale of production, capacity for growth, preferences, technology, and sustainable development. Because of these major discrepancies, the involvement in international trade is vindicated for the creation of thoroughfares for nations to exchange and consumer goods and services they do not have capacity for. Differences in resources present a case where nations can only consume what they are capable of producing, but trade invigorates them to consume what other nations are able to produce. Therefore, trade motivates nations to enjoy motley of goods and services in a bid to improve their people's wellbeing (Zilante, 2013).

International trade, as a major factor of openness, has made an increasingly significant contribution to economic growth (Sun and Heshmati, 2010). Schneider (2004) argues that imports bring additional competition and variety to domestic markets, benefiting consumers, and exports enlarge markets for domestic production, benefiting businesses. International trade exposes domestic firms to the best practices of foreign firms and to the demands of discerning customers, encouraging greater efficiency. Trade gives firms access to improved capital inputs such as machine tools, boosting productivity and providing new opportunities for growth for developing countries. It thus difficult to understate economic growth and development, However, some models such as endogenous growth models have tried to link different channels of international trade with economic growth .(Schneider, 2004).

Over the past few decades, the magnitude of external trade between nations of the world has increased significantly. In particular, Ethiopia has experienced a sharp increase in the value and volume of trade with other countries of the world. Ethiopia export flows to few countries such as Djibouti, China, Germany, Kenya, Netherlands, and Saudi Arabia which accounted 3.6%, 12.7%, 6.4%, 0.9%, 6.1%, and 6.3% respectively (NBE, 2015).

1.2 Statement of the problem

The importance of international trade on economic growth has awakened interest over the years to both policy makers and economists alike. Although theoretical links between trade and economic growth have been extensively discussed for over two centuries, a lot of controversies still abound concerning their real effects (Obadan& Elizabeth 2007). The important ingredients and major components of international trade are Imports and exports. Import of capital goods is vital to economic growth. Imported capital goods affect investment directly. This consequently constitutes the engine of economic expansion. Exports on the other hand contribute greatly to GDP. (Meyveci, 2014).

Quite a number of countries have achieved growth through an export–led strategy. Most studies as regards this subject have been done in developed countries and few in the third developing countries. International trade has always been a “catalyst of growth” for global economy. In contrast, some economists are against this idea in that they believe only developed countries benefit from international trade at the expense of developing economies (Yang Yao, 2014).

Ethiopia’s track record on using trade for development is not exactly encouraging. Different trade strategies have been used in the past, including import replacement/protection for infant

industries during the Imperial period, state-managed trade during the military government era, and a more market-oriented liberalized approach supported by much trade-related technical assistance in the most recent period.(Getie and Haiyun 2019).

The process of economic development shall be consistent with the change in the structure of economies of countries that directs the production of primary commodities move towards the production of manufacturing and export of industrial goods. The main reason for this transfer is high income elasticity of demand for exports of industrial products in world markets. Many developing countries including our nations that depend on primary commodity exports or have little exports suffer from uncertainty in their exports. Another important problem is the competitiveness of countries' exports in world markets and the increasing cross-border trade which exporting countries will be exposed to international competition (Asnake .G, 2019).

The growth performance of the Ethiopia economy has been less satisfactory during the past three decades until recently when statistics shows steady growth in the nation's economy. Ethiopia export mainly primary products and often rely almost exclusively on a limited number of commodities, such exports are characterized by lower prices than manufactured goods plus highly volatile markets. (Yeshitila B Dec 2018).

Thus Ethiopia is often on the wrong end of unbalanced trade environment that favors developed countries. Ethiopia with the abundant human and natural resources is paradoxically being regarded as one of the poorest countries in the world. Hence, the need to answer some important questions in this research studies.(Meyveci, 2014).

The interest in the study of foreign trade has-been increased because of its inherent benefits particularly to developing countries. Until now, there has been a general resolution that each nation of the world benefits from international trade. However, previous empirical investigations have shown that less developed nations have not really taken advantages from trade as much as their developed peers. Besides, the highly deplorable status of these nations' economies as regards per capita income, unemployment, gross domestic product, human capital and poverty level in spite of several decades of involvement in trade has further intensified the trade-development quiz. (Grant, 2012).

Ethiopia faces a growing trade deficit with total imports steadily increasing on average by 12.5% per year during the previous 10 years. The rise in imports has exacerbated the trade deficit, which ballooned from \$3.6 billion in 2010 to \$14 billion deficit in 2016/2017.

Concerned by the widening trade balance, the Government of Ethiopia works to suppress imports and took other macroeconomic measures in recent year, which has resulted in a slight narrowing of the trade deficit to \$12.41 billion in 2017/18. Ethiopia's total merchandise exports were \$2.84 billion in 2017/2018, while imports for the same period were \$15.28 billion, a 3% decrease from the previous year (www.Expoert.Gov.com, 10.30.2019).

Several researches have been done in attempt to measure the impact of international trade on economic growth. These studies have continued to generate series of debate among scholars, Lemma A. (2010), in his study on the effect of international trade on economic growth in Ethiopia using annual time series data spanning from 1975/76 to 2008/09 found that foreign trade has a positive effect in the long run. Similarly, a study by Tesema S, (2013), on the impact of international trade on economic growth of Ethiopia using time series data shows that international trade has not important role on economic growth. The study of Eyerus K, (2012), on effect of international trade and economic growth in Ethiopia found that foreign trade has a positive effect on GDP but more benefited developed countries. According to Seid (2011) study done on the international trade and Ethiopian economic growth during the period 1971/72 and 2008/09 by applying methods of Johansen co-integration, degree of openness is statistically insignificant. On the other hand a research done in Ethiopia (Yilkal., 2012), indicates that the contribution of degree of openness to growth is found to be statistically significant.

Once a rustic focuses on a product, that it will turn out competitively, the products become accessible to the community of the planet at cheaper costs (Elena, 2014). The Asian tigers are sensible examples during this regard. They need intimate with a dynamic Economic growth and remodeled themselves inside few decades. completely different reasons are mentioned for Peoples success, one amongst the explanation is openness to international trade, that compete an important role within the historical Economic growth action of the four East Asian Tiger economies (South Korea, Hong Kong, Singapore, and Taiwan), (Senait, 2014).

Now in several countries, particularly the developing ones, the weakening of their currency (the decrease or depreciation of their own currency in terms of foreign currencies) has become a central growth issue (Genye, 2011). Development origination like International monetary fund (IMF) supports the idea of charge per unit flexibility to assist adaptability to help forcefulness cut back trade deficiencies and backing hold collection.

Since 1992, Ethiopia, under the help and direction of the IMF and the World Bank has gone through progression and improved Structural Adjustment Programs (SAPs) to control inside and outside unbalance characters of the economy. One of the essential assignments of the new approach is to progressively open the economy to unfamiliar contest with a perspective on profiting the economy from extended business sectors. To this end, the public authority utilizes various instruments, for example, depreciation of the Ethiopian Birr (ETB) and step by step progression of the unfamiliar trade market (Thomson, 2017).

In the recent period, downgrading has become the fundamental macroeconomic strategy issue in many developing countries. The impact is contractionary or expansionary; contingent upon the structure of the economy. During the primary change program, the International Monetary Fund (IMF) and World Bank (WB) proposed for developing countries to degrade their cash for the advancement of home-grown firms.

Ethiopia is the 11th poorest country in the world with a for every capital monetary profit of \$783 (WB, 2016) however Ethiopians economy undeniable solid wide based development averaging 10.3% per year from 2006/07 to 2016/17. Therefore, there is a need to investigate the impact of international trade on economic growth. In particular, understanding the impact of the different components of international trade on economic growth as well as relatively large sample size and recent data than the previous study is crucial to policy decision makers and attempt to fill another research gap of the above studies. The researcher used ARDL bound test approach to test for the presence of correlation/impact between dependent variable and explanatory variables.

1.3 Objective of the study

The general objective of the study is to investigate the impact of international trade on Ethiopian economic growth from 1974/75-2020

1.3.1. The Specific objectives

The specific objective of the study as follow

- To show the long run impact of international trade on economic growth
- To show the short run impact of international trade on economic growth
- To show the long run relationship between international trade and economic growth

- To show the short run relationship between international trade and economic growth
- To asses a review of the trends in impact international trade and Economic growth of Ethiopia.

1.4 Hypothesis

H0: International trade has a long run effect on economic growth in Ethiopia.

H1: International trade has no a long run effect on economic growth in Ethiopia

1.5 Significance of the study

The researcher believes that such a study on current economic issue/problem is believed to be worth to all stockholders; such as the government, financial institutions and other economic agents. The outcomes of this study fills the gap in existing knowledge by analyzing how much contribute international trade for economic growth and used to resolve some inconsistency in the previous research. Moreover; it helps those who are interested to undertake a study in this topic as a reference

1.6 Scope of the study

The study has focuses on the relationship between international trade and economic growth of Ethiopia. It also tries to identify the determinants of international trade to give more emphasis on the problem faced to promote international trade of the country. The study has covered the period from 1974/75-2020.

1.7 Limitations of the study

The problem related to the reliability of data on Ethiopian economy was chronic, Different institutions provide significantly different data reports on the same variable. The major difference is between the data provided by governmental and nongovernmental/international organizations. The reason may be the use of different methods and assumptions in the preparation of the macro variables. The researcher use only governmental sources of data such as the Ministry of Finance and Economic Development and the National Bank of Ethiopia to minimize the variations as the raw data mainly originate from these offices. The other problem was the difficulty to get a long time series data on real GDP which is prepared with the same base year. There is a long time problem of preparing a time series data with the same base year in MoFED.

1.8 Organization of the study

This study can be organized as follows. Chapter 1 which is introduction of the work presents the background of the study, statement of the problem; objectives of the study, basic research question, the research hypotheses, significance of the study, scope of the study, limitation and organization of the study. Chapter 2 theoretical, conceptual and empirical reviews with the knowledge gaps of the study can be discussed in this chapter. Chapter 3 looks at applied research methodologies, the models of the study and key variables of the study are also defined. In Chapter 4 the data will be presented, analyzed and discussed the results. The final chapter presents the summary of findings, recommendation and conclusion. In this chapter, the researcher will presents the findings of the study and its attendant implications and suggests the direction for future research.

CHAPTER TWO

Review of Related Literatures

2.1 Theoretical literature Review

Definition and concepts

The term international trade has been defined as trade across the frontiers; that's, with the remainder of the planet. It has been argued that it plays a prominent role in promoting economic process and productivity especially, and these debates are ongoing since several decades ago. Furthermore, it's been revealed that internationally active countries tend to be more productive than countries which only produce for the domestic market. As results of liberalization and globalization a country's economy has become far more closely related to external factors like openness. The advantage of international trade for economic process and development are difficult to understate. Imports bring additional competition and variety to domestic markets, benefiting consumers; and exports enlarge markets for domestic production, benefiting business. Trade exposes domestic firms to the simplest practices of foreign firms and to the demand of discerning customers, encouraging greater efficiency. Trade gives firms access to improved capital inputs like machine tools, boosting productivity and providing new opportunities for growth to developing countries. International trade deals with the economic and financial interdependences among nations; international trade is a component of our lifestyle, and international trade plays an important role in shaping economic and social performance and prospects of nations round the world, especially those of developing countries. No country has grown without trade. However, the contribution of international trade to economic process depends on an excellent deal on the context during which it works and therefore the objective it serves. (Berthelemyandchauvin,2010). International trade is that the exchange of capital, goods and services across the international borders or territories. In most countries such trade represents a big share of Gross Domestic Product (GDP). Therefore, international trade has been a neighborhood of interest to policy makers also as economists. It enables nations to sell their domestically produced good to other countries of the planet. International trade has been considered an engine of growth, which results in steady improvement in human status by expanding the range of people's standard and preferences (Adewuyi, 2002). Since no country has grown without trade, international trade plays an important role in restructuring economic and social attributes of nations round the world, particularly, the less developed countries. Furthermore, over the

years, development economists have long recognized the role of trade the expansion process of national economies as trade provides both exchange earnings and market stimulus, for accelerated economic growth.

2.1.2 Traditional Argument for international trade

2.1.2.1 Mercantilist Trade Theory

Mercantilist provided the earlier idea on foreign trade. The doctrine was made up of many features. It was highly nationalistic and thought of the welfare of the state as of prime importance. According to the idea, the foremost important way for a nation to possess become rich and powerful is to export quite its import. Some of the mercantilism is Jean Baptiste Colbert and Thomas Hobbes. It was understood then, that, the foremost important were during which a rustic might be rich was by acquiring precious metals like gold. This was achieved by ensuring that the quantity of export was better than the quantity important . Trade has to be controlled, regulated and restricted. The country was expected to achieve a favorable balance of payment. Tariffs, quotas, and other commercial policies were proposed by the mercantilism to attenuate imports so as to guard a nation's trade position. Mercantilism did not favor free trade. Mercantilism belief during a word of conflict during which the state of nature was a state of war. The need for regulation to take care of order in human affairs and economic affairs were taking without any consideration . To the mercantilist, the world wealth was fixed. A nation's gain from trade was at the expense of its trading partners that are, not all national could simultaneously benefit from trade. Towards the top of 18th century, the economic policies of mercantilism came under strong attack. David Hume criticized the favorable balance of trade as being a short-run phenomenon which might be eliminated automatically overtime. The other nation is likely to retaliate. Mercantilism was also attacked for his or her static view of the planet economy. Adam Smith also criticized the state that the planet wealth is fixed with the benefits of specialization and division of labor. With specialization and division of labor, the overall level of productivity within a rustic will increase. Despite the criticism faced by the inspiration of mercantilism, mercantilism remains alive today. New mercantilism now emphasized employment instead of holding some gold. They also postulate that exports are beneficial as jobs are provided domestically. Import is taken into account bad as jobs are removed and transferred to the foreign workers. To the new mercantilist, trade is a zero-sum activity which a country must loose for the other to gain. And that there's no acknowledgment that trade can provide benefits to all or any countries.

2.1.2.2 Absolute Advantage Trade Theory

The theory of absolute cost advantage was propounded by Smith in his famous book. "Wealth of Nation" 1776. The theory emerges as a results of the criticism levied against mercantilism. He advocated trade because the best policy for the nations of the planet . Smith argued that with trade each nation could concentrate on the assembly of these commodities during which it could produce more efficiency than the opposite nations, and import those commodities during which it could produce less efficiently. This international specialization of things in production would end in a rise in world output, which might be shared by the trading nations. Thus, a nation needn't gain at the expense of other nations, all nations could gain simultaneously. In other words, according to the theory, a nation should specialize in the production of export of commodities in which it has lower cost or absolute cost advantages over others. On the opposite hand, an equivalent country should import a commodity during which it's higher cost or absolute cost disadvantage. (Stephen EgoroA.andObah Daddy Obah2017)

2.1.2.3 Comparative Advantage Theory

Absolute advantage fails to analyze where a country has comparative advantage in the production of two goods, will trade still be necessary or beneficial to the country in question? David Ricardo tackled this question. Ricardo was the first to demonstrate that external trade arises not from a difference in absolute advantage but from the difference in comparative advantage. By "comparative advantage" is meant by "greater advantage". Thus within the context of two countries and two commodities, a trade would still happen even if one country was more efficient within the production of both commodities, provided the degree of its superiority over the opposite country wasn't identical for both commodities. Ricardo assumed the existence of two countries, two commodities, and one factor of production, labor. He assumed that labor was fully employed and internationally immobile which the merchandise and factor of costs were perfectly competitive. There are not any transport costs or the other impediments to trade, within the context of a model of two countries, two commodities and one factor of production, Ricardo obtained the result that a rustic will tend to export the community during which it's a comparative disadvantage. Since comparative costs are the opposite side of comparative advantage, the idea might be expressed in terms of comparative costs. Specifically, the theory now states that a country will tend to export the commodity whose comparative cost is lower in production and the comparative cost is higher in pre-trade isolation. (Stephen EgoroA.andObah Daddy Obah2017)

The theory also assumed the extent of technology to be fixed for both nations. Different nations may use different technology but all firms within each nation utilize a standard production method for every commodity. It also assumed that trade is balanced and rolls out the flow of cash between nations. The distribution of income within a nation isn't suffering from trade. A most assumption of the Riparian theory is unrealistic. The theory is based on a labor theory of values which states that the price of the values of a commodity is equal to or can be inferred by the quality of labor time going into its production process. Labor theory of values is based on-labor is the only factor of production. Labor is employed within the same fixed proportion within the production of all commodities. Labor is homogenous. This underline proposition is sort of unrealistic, because as labor is categorized into skilled, semi-skilled and unskilled labor, there are other factors of production. Despite its shortcomings, the law of comparative advantage cannot be discarded off because it found application in the study of economics. The law is valid and may be explained in terms of cost within the modern theory of trade

2.1.2.4 Modern Theory of Trade.

The Heckscher-Ohlin theory explains why countries trade goods and services with one another . One condition for trade between two countries is that the countries differ with reference to the supply of the factors of production. They differ if one country, for instance , has many machines (capital) but few workers, which another country features a lot of workers but few machines. According to the Heckscher-Ohlin theory, a rustic focuses on the assembly of products that it's particularly suited to supply . Countries in which capital is abundant and workers and few, therefore, specialize in the production of goods that it is particularly require capital. Specialization in production and trade between countries generates, consistent with this a better standard-of-living for the countries involved. The production of goods and services requires capital and workers. Some goods require more capital – technical equipment and machinery - and are called capital intensive. For instance, these goods are cars, computers, and cell phones, other goods require less equipment to supply and rely totally on the efforts of the workers. These goods are called labor intensive. Examples of these goods are shoes and textile products like jeans. The Heckscher-Ohlin theory says that two countries trade goods with one another (and thereby achieves greater economic welfare), if the subsequent assumptions hold; the main factors of production, namely labor and capital are not available in the same proportion in both countries, the two goods produced either require relatively more capital or relatively more labor, labor and

capital do not move between the 2 countries, there are not any costs related to transporting the products between countries. The citizens of the 2 trading countries have an equivalent needs. Of the above conditions, the central one is that the assumption that capital and labor aren't available within the same proportion within the two countries. This condition leads to specialization. The country with relatively more capital, specializes - but not necessarily fully – in a production of capital-intensive goods (which it exports in exchange labor for intensive goods) while the country with relatively little capital focuses on Production of labor-intensive goods (which it exports in exchange for capital-intensive goods). According to the theory, the more different the countries are regarding the capital-to-labor ratio – the greater the economic gain from specialization and trade.(nobleprize.org)

2.1.2.5. The Role of international trade for economic growth.

1. Variety of Goods

International trade gives Americans access to goods that would not be available otherwise. A classic example of this access is that the availability of oranges within the middle of winter. The Senate's Joint Economic Committee found that since 1972, trade variety has increased almost 400 percent, due in large part to international trade agreements. The variety of products stretches across all sectors of the economy, giving Americans more choice within the items that they purchase, and exposing them to new products.

2. Outlet for Surpluses

Without international trade, a company's potential market is restricted to the population of the country during which it operates. During the 1920s, the us experienced how damaging this example might be . American companies flooded the durables market with products, then lacked an outlet for extra production. Economic historian Christiana Romer attributes the onset of the good Depression, in part, to a saturation of the durables market and a scarcity of market opportunities for American companies thanks to American isolationism. International trade expands the entire market size to incorporate every nation with which the us maintains trade relations. American manufacturers can market to American audiences, and maintain a world outlet for products when American sales slow.

3. Reduction of Market Fluctuations

In every sector, the market ebbs and flows. In one a part of the year, consumers demand significantly higher quantities of an item, and within the remainder of the year, demand

plummet, a practice most frequently seen with seasonal clothing. The sheer size of the international market helps to mitigate many of the wild fluctuations in sales. (<https://www.coursehero.com/file/53481093/Trade-in-Pakistan>)

4. Lower Costs

One of the foremost immediate benefits of international trade is lower costs to consumers. The lower cost is the result of two factors. First, companies can produce items overseas, saving money on labor and material costs. Second, a rise in competition forces companies to form their products more attractive to consumers either through product features or lowered prices.

An analysis of the CAFTA agreement found that retail prices decreased considerably as immediate results of the agreement. Consumers paid much lower prices for food imports, and a discount of investment barriers prompted foreign investors to spend money building the domestic economies and infrastructures of member nations.

5. Production Efficiency

The increase in competition and price pressure from imported goods forces companies to become more efficient in their production practices and overall operation. Companies achieve better efficiencies during a number of the way .they'll innovate new methods of production or improve the processes they have already got in situ .they'll experiment with new materials, or seek alternative sources for the essential components of their product. The drive for efficiency may be a boon for consumers. As a result of the improved production, retail prices still drop, and in most cases, the competition for retail dollars forces companies to enhance the standard of their products

6. Resource Specialization

Large countries just like the us and China have access to almost every resource they have , from minerals to land, and even oil. Smaller nations aren't as lucky, and must believe imports to supply their citizens with basic necessities. International trade allows nations to specialize their economies within the areas where their resources are best allocated. For instance, the rich oil reserves of Saudi Arabia make it a natural exporter of oil, while the wide-open spaces in Brazil make it a perfect location for ranchers.

7. Innovation

For companies, a central theme of international trade is innovation. They must innovate to differentiate their products from increased competition; innovate to enhance their cost to consumers; and innovate to be first to plug with new ideas. The Office of Trade Representative (USTR) demonstrated that American firms that compete in international markets are much more likely to spend money on research and development than companies solely focused on the domestic market. The reason for the spending on innovation is ascribed to both the necessity to compete with other companies, and therefore the potential for quick returns in international markets

8. Investment

International trades prompt investment in two ways. First, companies invest in internal research and development to bring new products to plug or improve on existing products. The large size of the international market means companies can potentially see a return on their investment much faster than they might if they were only selling to domestic consumers. The second way international trade affects investment is by opening new markets for American investment dollars. In the wake of the NAFTA agreement, billions of dollars from American investors flooded Mexico. These dollars built new factories and created new job opportunities for many Mexican citizens, who then had the cash to get goods from American companies.

9. Jobs

The chief complaint about international trade agreements is that they deduct American jobs, and while the trade agreements did lower opportunities within the manufacturing sector, trade does promote job growth in other areas. The USTR's data show trade agreements supported quite 11 million American jobs in 2013, the last year data are available. Furthermore, the USTR argues that in industries like agriculture, every billion dollars in exports created quite 6,500 additional jobs.

10. Peace

Thomas Friedman, in his book *The Lexus and the Fruit Tree*, famously wrote that no two countries with McDonald's have ever gone to war with one another. The assessment points out the importance of trade and economic incentives in promoting world peace. Countries with strong international trade agreements rarely attend war with one another, because the economic and political cost of such a choice would be devastating. International

trade creates economic interdependency and an incentive to seek out peaceful, diplomatic solutions to international conflicts, instead of military solutions. International trade may be a deeply divisive issue that evokes emotions on each side . Understanding the positive outcomes of international trade, both for consumers and American companies, opens a broader view of the issue, and puts the role of international trade in perspective.(www.coursehero.com)

2.1.2.6 Major determinant of international trade

Different studies are conducted by different people to research the determinants of trade and its impact on economic process. According to empirical studies Country's international trade is influenced by several macroeconomic variables like Government expenditure, FDI, Openness, Real Effective Exchange Rate and Interest rate. Government Expenditure:-government expenditure refers to the purchase of goods and services, which includes public consumption and public investment and transfer payments consisting of income transfers (pensions, social benefits) and capital transfer (<https://www.myaccountingcourse.com/accounting-dictionary/government-expenditures>)

Government spending especially on domestic transport infrastructure is one of the major factors affecting export supply capacity of a nation. It is expected to play a crucial role especially at the first stages of export sector development (UNCTAD, 2005). Most African countries are characterized by poor transport infrastructure, which may be a major impediment to trade, competitiveness and sustainable development (Bacchetta, 2007). Due to poor internal transport infrastructure African transport costs are high making their exports expensive and uncompetitive and reducing foreign earnings from exports (Mathee et.al, 2007). Therefore, improvements in transportation services and infrastructure can lead to improvements in export performance. Of course, in some countries, government expenditure fails to meet the criteria for improved social benefits, government spending is important for the economic activity of a nation. Foreign direct investment:- is defined as an investment involving a long term relationship and reflecting a lasting interest in and control by resident entity in one economy (foreign direct investor or parent enterprise) of an enterprise resident in different economy (FDI enterprise or foreign affiliate). ShasheenDileepaJayawee (2009) study shows that FDI is a driver of export with emphasis based on FDI leading to improve productivity in the host nation, together with a number of spill over benefits, which help local firms to become competitive leading to an increase export commodities. He also suggested that FDI stands as a catalyst for local industry development through competition effect, that is

where the foreign entrants increase competition in the industry forcing domestic firms to increase efficiency, and backward linkage effect where the foreign entrants boost domestic demand for intermediate suppliers helping them to grow and generate scale economies.

Real Effective Exchange Rate (REER):-which is calculated as a weighted average of the bilateral exchange rates that have been adjusted for relative price level of each economy. In the case of overvalued exchange rate in directly reduce export portfolio or indirectly through an increase uncertainty. However devaluation promote for international trade through augmenting export by shifting price burden, making the product competitive in foreign market.

Openness: -which is the ratio of export plus import to GDP. It contribute to export through external effect such as expose to foreign competition, transfer of technology and economies of scale and also from increased speed of convergence towards richer countries. It also contributes through reduction in tariff rates, simplification of export licensing requirements procedures and suppression for import licensing.

Interest Rate: -interest rate was defined by Patterson and Lygnerud (1999) as prices. Interest may be a price that payable for the cash that borrowed during a period of time and stated in percentage from overall outstanding balance left where is changeable or fixed. In the context of commonest, interest is that the amount of charge to the debtors within the time of using the credit provided (Mutinda, 2014). Finan (2016) defines rate of interest as a credit cost in economy and for more specific may be a charge for price per annum from the creditor to borrowers which is get a loan.

Any countries bilateral or multilateral international trade has been affected by the following factors.

1. The geographical location. Mid-latitude moderate climate, coastal areas, the transportation is convenient, good for development of international trade. High-latitude climate cold, inland mountainous area traffic block, adverse to the event of international trade. Japan to "trading", it's to try to to with its island position. In addition, is advantageous to the event of bilateral trade between neighbors.
2. Natural resources. A country is rich in natural resource type and degree directly affects the country's international trade in primary products. Zaire said as "Mid-Africa gem ", within the national export commodities, minerals (70% ~ 80%).
3. The level of economic development. Economic development level can directly affect a country's foreign trade commodity structure and therefore the position in international trade.

The US, Japan and therefore the European Union's national economic development level is high, the imports and exports accounted for half the planet and therefore the population of the country accounts for less than about 1/7 of the planet. Developing countries relatively backward economy, foreign trade is comparatively less.

4. Political factors. The world's political relations, the policy of a rustic also features a big impact to international trade. The Gulf War after Iraq's oil exports plummeted is thanks to political reasons. In China since the late 1970s adopted a policy of opening to the surface world, foreign trade development quickly

2.2 Empirical Literature Review

Various studies have been conducted on the relationship between international trade and economic growth. However, literature from LDS and Ethiopia is scarce, with only a few studies being conducted on the topic and related topics. The OECD (2003) conducted a study on the impact that trade had on the typical income per population. According to the result, the elasticity of international trade was 0.2, which was statistically significant. Jackson (2006) in his analysis of trade of trade agreements on economic process in United States of America (USA) concludes that nations pursue trade liberalization to realize variety of national objectives. In addition to the “static” gains from trade, he suggests that trade potentially plays a dynamic role in the economy. Singh (2011) supports the positive impact of international trade on economic process theory as evidenced by earlier studies. He finds an affirmative and significant long-run effect of exports and investment on output in Australia. The evidence supporting the positive and significant long-run effects overwhelms the evidence providing mixed effects of trade output. It is widely accepted that the level of international trade in an economy may be one of the main sources of its growth (Gurgul&Lach 2010). In their study, they concluded that Exports positively affected economic process within the Polish economy. In addition, the dynamic interactions between exports and imports influenced the GDP. Sun and Heshmati (2010) concluded that China's outstanding performance in economic process might be traced back to its increasing involvement in global trade and dynamic national trading policy. This rapid economic process has made the country target the planet as its market. The increasing participation within the global market helps China reap the static and dynamic benefits from trade, facilitating the rapid national economic process. Balassa (1978) studied eleven countries that have an established industrial base and

discovered a positive correlation between export and growth. In the same vein, Bairam (1988) examined the model for an outsized sample of developed countries and conclude that the expansion performance of a rustic is informed by the values of income elasticity of exports and imports. Massel (1972) investigated the pattern of the economic growth in selected developing countries using regression methods and observed a high degree of correlation between exports and economic growth. He suggested that countries should target 2.5% expansion in export activities in order to obtain 1% increase in performance. Michaely (1977) investigated the degree of association between the speed of growth of export and GNP and located that the correlation between rates of export growth and GNP of the economy is robust particularly for countries with successful growth experiences. Perraton (1990) estimated the model for 59 developing countries from 1970-1984 and found that the model provides a good fit for significant proportion of the sampled countries. His suggestion also concord with Bairam (1988) that the growth performance of countries depends on income elasticity of both exports and imports. Wah (2004) reported that for the past four decades (1961-2000), the Malaysian economy grew at a significant average rate of 6.8% per annum. The rapid climb was partly informed by the success within the export oriented Industrialization policy. Edwards (1998) after due consideration to the roles of all other factors including capital accumulation, growth in labor force as well as the differences in level of technology, explained that countries with higher degrees of restrictions, on the average tend to grow at a much low pace than countries with higher trade protections. In a related study, Sachs and Warner (1997) estimated a model of African countries and reported that trade restrictions impact negatively on growth. They concluded that lack of openness was responsible for the dismal economic growth performance in sub-Saharan African. Krueger (1997) in a study of 10 countries from 1954-1974 using a single non-linear regression equation for each of the chosen countries, he found exports and GNP to be highly correlated. Frankel and Romer (1999) extended the study to incorporate 150 countries, within the 1985, and concluded that trade raise income level by spurring the buildup of physical and human capital and by increasing capital-output ratio. A large number of studies used trade shares in GDP and located a positive and powerful relationship with growth (Harrison, 1996). Most of earlier studies showed evidence of positive impact of exports and growth which was used to support the export led growth hypothesis, this is evident for cross section study because recent evidence on statistic study cast doubts on the positive effects of exports on growth within the end of the day (Medina, 2001). Oviemuno (2007) viewed international trade as a catalyst to growth in developing countries using Nigeria (1960-2003) a case study.

He used export, import, inflation and rate of exchange and located that Nigeria's export value and rate of inflation don't act as catalyst for growth in Nigeria. Usman (2011) further used OLS techniques to look at the performance evaluation of foreign trade and economic process in Nigeria. He found that export, import and rate of exchange all have negative impact on real output.

Arailym Kadyrova (2011) studied the relationship between growth and export which is measured through Hirfindahl index of export concentration using a sample of 88 countries in the period 1961-2009. His finding provides that the positive impact of export on countries income per capita growth, with strong effect on developing countries. The empirical literature, however, is inconclusive. While some studies provide evidence of a positive relationship between international trade and economic growth (Herzer and Nowak-Lehman, 2006; Agosin 2007; Lederman, 2007), others reveal inverse relationship between international trade and economic growth (Amin Gutierrez de Pineres and Ferrantino, 2000). This apparently mixed evidence in the empirical literature regarding the nature of relationship between international trade and economic growth calls for further studies. Increased levels of international trade could not alone guarantee higher levels of economic growth. It would seem, therefore, that further investigations are needed in order to guarantee the successful implementation of international trade policy. Although the previous literature provided us with intensive debate on international trade strategy and its tangible impact on economic growth, the determinants of international trade, which are important for understanding the differences among the countries, haven't explored abundantly. Even with few studies that explored recently these determinants, they have concentrated on international trade at different margins without paying a considerable attention to trading commodities which is an important remedy for mitigating the negative impacts of any crisis might be imported from other countries. Moreover, this study attempt would be made to fill another research gap of the above studies. The researcher will use to investigate using Johansson co-integration test to test for the presence of correlation between dependent variable and explanatory variables and the test of impulse response and variance decomposition.

2.4 Conceptual Frameworks

The concept of international trade has been defined as the exchange of products and services from one country to another. In other words, imports- flowing into a country from abroad and exports-flowing out of a country and sold overseas. This type of trade gives rise to a world economy, in which prices, or supply and demand, affect and affected by global events.

Trading globally gives consumers and countries the opportunity to be exposed to goods and services not available their own countries because almost every kind of product can be found on international market (Romer D., 2001). The importance of international trade was recognized early by political economists like Smith and Ricardo. International trade allows us to expand our markets for both goods and services that otherwise might not are available to us. Nations trade internationally when there are the resources or capacity to satisfy domestic needs and wants domestically. By developing and exploiting their domestic resources countries can produce a surplus. They may use this surplus to shop for goods and services they have from abroad, i.e. through international trade (Todaro, 1996). Still some argue that international trade actually can be bad for smaller nations by mention its disadvantages like over-specialization, much harder to grow new companies and risk for national security. But most economies agree that international trade helps nations' wealth for example when a person or company purchases a cheap product or services from other country, living standards in both nations rises. This economists support their argument by mentioned the following advantages of international trade (Krugman, 2006).

Competition: international trade boosts competition. This, in turn, is good for prices and quality. If suppliers have to compete more, they will work harder to sell at the lowest prices and best quality possible. Consumers benefit by having more choice, extra money left over and top- quality goods.

Economics of the scale: if you sell your goods globally, you will have to produce more than if you sold just domestically. Producing in higher volumes provides greater economics of the scale. In other words, the value of manufacturing each item is lower.

Transfer of technology: transfer of technology increases through international trade. It goes from the originator to a secondary user. In fact, that secondary user is usually a developing nation.

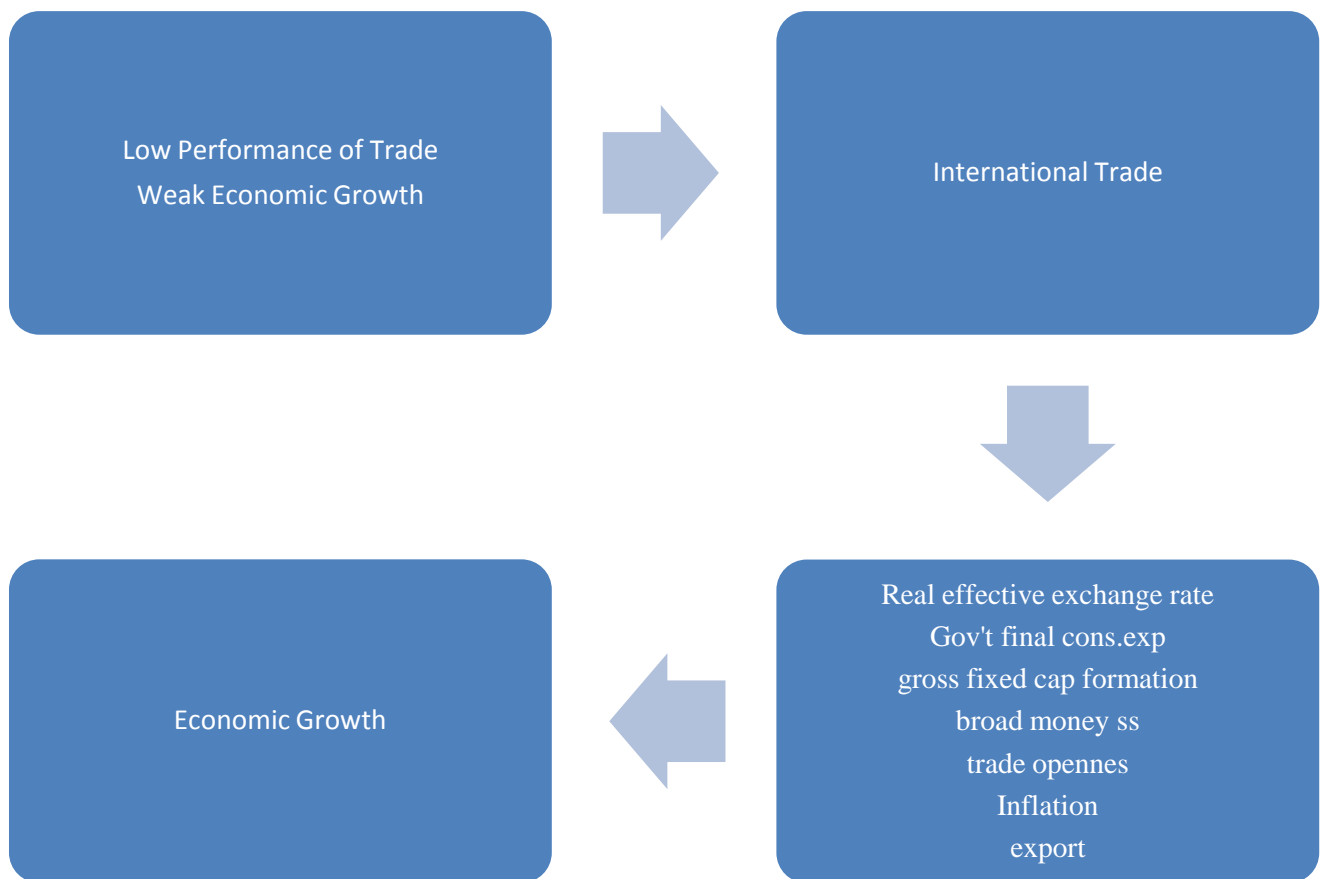
Jobs: great trading nations have much lower levels of unemployment than protectionist countries. Example. Japan, Germany, UK, USA and South Korea.

Comparative advantage: trade encourages a nation to concentrate on producing or supplying only those goods and services which it can deliver more effectively and at the simplest price after taking into account opportunity cost.

The main objective of this paper is to investigate the impact of international trade on the

economic growth of Ethiopia, by identifying the major determinant of international trade of the country, whether international trade affects the economy positively or negatively.

Cause/factors -----Mechanisms



Dependent variable/outcome Instruments/-----independent variables

Source: developed from (Lemma, 2010)

CHAPTER THREE

3. Methodology

3.1 Research Design

The study uses of the quantitative research design because of the quantifiable and the numerical data that is produced in the process. The research deals with the manipulation of the empirical variables from time series data for the period 1974/75 to 2020. This period ranges from of socialist Derg regime and coming of EPRDF in Ethiopia with various reforms of government policies.

3.2 Data Type and Sources

Due to the very nature of the study, the only source of data is secondary data sources based on the country's level macroeconomic data. The annual time series data for the period 1975 to 2020 on real gross domestic product, real effective exchange rate, government expenditure, broad money supply, inflation, trade openness and export premium is gathered from the National Bank of Ethiopia and Ministry of Finance and Development. The choice of the period is basically will based on the availability of data.

3.3 Method of Data Analysis

Descriptive as well as Econometric methods were employee to discuss and analyze different issues. In the descriptive technique, statistical and time series properties reused. These measurements are used to show the trending behavior of economic growth with respect to real effective exchange rate and other variables. In the Econometric method part, emphases were place on investigating the impact of international trade on the growth of Gross Domestic Product. The data we reanalyzed using Eves 9,10 and 11 software. The nature of the model is given in natural logarithmic form to make the analysis and interpretation of the results easier in terms of percentage and growth rate.

3.4 Model Specification and Estimation Techniques

The main objective of this study was to investigate the impact of the international trade on real economic growth (GDP). Macroeconomic theory has identified various factors that influence the expansion of a rustic from the classical, neo classical and therefore the new growth theories. These factors include natural resources, investment, human capital, innovation, technology, economic policies, aid , trade openness, institutional framework, foreign direct investment, political factors, socio-cultural factors, geography, demography

and lots of others” (Tewdros, 2015). The empirical analysis was carried out by using econometric techniques. The economic growth of the country is affected by several factors, but the Solow growth framework provides an initiative and theory based strategy for testing the relationship between trade and economic growth.

The researcher used ARDL bound test approach to test for the presence of correlation between dependent variable and explanatory variables. The study prefers this model since ARDL model is the more statistically significant approach to determine the co-integration relation in small samples (Pesaran et al., 2001; Nayaran, 2004). IN ARDL model it is possible that different variables have different optimal numbers of lags, whereas in Johansen-type models, this is not permitted. ARDL approach can be applied whether the repressors are purely ordered zero [I(0)], purely order one [I(1)], or a mixture of both. the other advantages of bound testing approach in the long run and short run is that parameters of the model in interested variables are determined simultaneously (Nasiru, (2012) as cited in (Tsadkan, 2013) and (Tewodros, 2015). Appling the ARDL technique we will obtain unbiased and efficient estimators of the model (Narayan, 2004), (Pesaran & Shin 1995).

Real GDP = f(real effective exchange rate, government final consumption expenditure, export, gross fixed capital formation, broad money supply, inflation and trade openness index

The study estimates the growth model which can be expressed in its functional forms as follows:

$$RGDP = \beta_0 + \beta_1 REER + \beta_2 GFCE + \beta_3 GFCF + \beta_4 M2 + \beta_5 TOI + \beta_6 inf + \beta_7 EX + \varepsilon$$

Where: β_0 : The intercept

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$: Coefficients of the explanatory variables

ε : Error term which represents omitted variables and other errors in the specification of the model,

RGDP: Real gross domestic product,

REER: real effective exchange rates,

GFCE: government final consumption expenditure,

GFCF: Gross fixed capital formation,

M2: broad money supply,

TOI-Trade openness index

Inf: Inflation, and

EX: export

To obtain elasticity coefficients and remove the effect of outliers, the variables have to be transformed to natural logarithms. This can econometrically be stated as

$$\ln \text{GDP} = \beta_0 + \beta_1 \ln \text{REER} + \beta_2 \ln \text{GFCE} + \beta_3 \ln \text{GFCF} + \beta_4 \ln \text{M2} + \beta_5 \ln \text{TOI} + \beta_6 \ln \text{inf} + \beta_7 \ln \text{EX} + \varepsilon$$

Where;

LnGDP =Log of real gross domestic product

LnREER = Log of real effective exchange rate index

ln GFCE= Log of government final consumption expenditure

ln GFCF=Log of Gross fixed capital formation

lnM2=log of broad money supply (liquid liability).

ln TOI=log of Trade openness index

Lninf=inflation

LnEX= Export

I. Definition and Measurement of Variable

All of the variables included in the above model are stated in terms of natural logarithm. The reason behind taking the natural logarithm of the variables is that, it enables to correct skewed data into normal distribution which is a critical assumption in econometric estimation (Verbeek, 2004).

Real gross domestic product

It represents real income or real gross domestic product. Real gross domestic product refers to the worth of all final goods, and services produced within the territory of a given country during a given period, usually a year. It is calculated at constant price. Since most economists argue that economic process are often measured as growth in real GDP, it includes within the model as main variable so as to live economic process . In order to avoid the inconsistency related to different base year price while computing real GDP, this study was used the important GDP (constant value), which is deflated by Ministry of Finance and Economic Development (MoFED) based on the constant price of 2019 G.

Real effective exchange rate

As the measure of real exchange rate, the researcher preferred to use multilateral real effective exchange rates instead of bilateral real exchange rates since they can move in different, and even opposite directions after the collapse of Bretton Woods's system. The use of bilateral indexes may result in misleading and incorrect inferences regarding the evolution of a country's degree of competitiveness. Therefore, it's necessary to use a multilateral index of real rate of exchange especially when evaluating policy related situations. Real effective exchange rate of 15 major trade partners (Djibouti, Kenya, Sudan, U.A.R, France, Germany, Italy, Netherlands, U.K., Russia, Yugoslavia, U.S.A., Peoples Republic of China, Japan, and Saudi Arabia) instead of frequently used bilateral (usually against USD) real exchange rate was chosen because it is richer measure of competitiveness. Also Ethiopia trade isn't only against the us of America but against more countries; hence, a mean for these trading partners may be a more realistic measure.

Broad money supply (M2)

Money supply refers to the entire sum of cash available to or held by the general public within the economy at some extent of your time . Money supply isa is a flow representing the value of goods and services produced per unit of time, usually taken as a year. This monetary variable is expected to have a positive sign on Real GDP.

The term public includes households, firms and institutions aside from banks and therefore the government. The reason behind considering money supply as held by the public is because to separate the producers of money from those who use money to fulfill their various types of demand for money.

Broad money is the most inclusive method of calculating money supply of a given country. The money supply is that the totality of assets that households and businesses can use to form payments or to carry as short term investments, like currency, funds in bank accounts and anything of value resembling money. The formula for calculating money supply is different from the country to country. Whereas broad money is always the farthest reaching, narrow money includes fewer elements in the calculation..

General government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees)

Gross fixed capital formation, abbreviated as GFCF, consists of resident producers' investments, deducting disposals, in fixed assets during a given period. ... Fixed assets are tangible or intangible assets produced as outputs from production processes that are used repeatedly, or continuously, for quite one year

Openness: -which is the ratio of export plus import to GDP. It contribute to export through external effect such as expose to foreign competition, transfer of technology and economies of scale and also from increased speed of convergence towards richer countries. It also contributes through reduction in tariff rates, simplification of export licensing requirements procedures and suppression for import licensing

Export

Exports are one component of international trade. Exports are the supply of goods and services produced in one country and purchased by countries from abroad. It can be good or service. It can be send at any means. It are often shipped, sent by email, or carried in personal luggage on a plane. (EXP) represent the annual export value of Ethiopia. In this study export of goods and services valued in US dollarII.

Expected Signs-The parameter captures the effect of real effective exchange rate on GDP. For the purpose of this study, the sign of this parameter is critical. As long as the Parameter is Statistically significant; a positive sign will indicate an expansionary, while a negative sign will indicate a contractionary effect.

Variables	Symbol	Expected sign
Real gross domestic product	RGDP	NA
Real effective exchange rates	REER	+
Government final consumption expenditure	GFCE	-
Gross fixed capital formation	GFCF	+
Broad money supply	M2	+
Trade openness index	TOI	+
Inflation	Inf	-
Export	EX	+

Source: self computation (2021)

3.5 Estimation Procedure

As long as testing the long run relationship and causality between the dependent variable (sectoral output growth) and independent variables (human capital, gross investment, Bank credit to each sector, inflation, government consumption and trade openness) are concerned, the study applied Autoregressive Distributed Lag (ARDL) Model. The first task in this study was investigating the time series properties of our data by using Augmented Dickey-Fuller (ADF) and Philip-Perron (PP) tests. This means that the unit root tests were used to check the stationarity of the variables and to check none of the variables are not greater than order one (i.e. $I(1)$), as well as none of the dependent variables, were stationary at level which is precondition to applying ARDL model (Pesaran et al., 2001).

3.5.1. The Autoregressive Distributed Lag Model (ARDL)

Most of past studies have used the Johansen co-integration and Engle-Granger causality technique to determine the long-term relationships between variables of interest. This is because many researchers confirm that most of the accurate method to employ this method when the variables of interest are integrated in the same order. Recently, however, a series of studies by Pesaran et al. (2001); Pesaran and Shin (1999) and Nayaran (2004); have introduced an alternative co-integration technique known as the 'Autoregressive Distributed Lag (ARDL)' bound test. There are numbers of advantages of using ARDL model also called 'Bound Testing Approach' over conventional Engle-Granger two-step procedure, Maximum likelihood methods of cointegration (Johansen, 1988; Johansen and Juselius, 1990). The advantages of using ARDL approach over other methods includes:- The first, the ARDL model is the more statistically significant approach to determine the co-integration relation in small samples (Pesaran et al., 2001; Nayaran, 2004), while the Johansen co-integration techniques require large data samples for valid estimation of the parameters. This means that the model avoids the problem of biases that arise from small sample size (Chaudhry and Choudhary, 2006). Therefore we employed ARDL approach because relatively the sample used in the study is small. Secondly, the endogeneity problem is adequately addressed. In this approach of Pesaran and Shin (1999) maintain that modeling ARDL with the appropriate number of lags will address autocorrelation and endogeneity problems because it is possible that different variables have different optimal numbers of lags, whereas in Johansen-type models, this is not permitted. According to Jalil et al. (2008), endogeneity is less of a problem if the estimated ARDL model is free of autocorrelation.

The third advantage of the ARDL approach is that the ARDL approach can be applied whether the regressors are purely ordered zero [I(0)], purely order one [I(1)], or a mixture of both. While other cointegration techniques require all of the regressors to be integrated of an equivalent order; this suggests that the ARDL approach avoids the pre-testing problems related to standard cointegration, which requires that the variables be already classified into I(1) or I(0) or mixture of both (Pesaran et al., 2001). Moreover, the other advantages of bound testing approach in the long run and short run is that parameters of the model in interested variables are determined simultaneously (Nasiru, (2012) as cited in (Tsadkan, 2013) and (Tewodros, 2015). Finally, Applying the ARDL technique we will obtain unbiased and efficient estimators of the model (Narayan, 2004), (Pesaran & Shin 1995). Therefore, this approach becomes popular and suitable for analyzing the long-run relationship and extensively applied in inquiry within the recent years.

Hence, ARDL model can be specified as:

$$\begin{aligned}
\Delta LNRGDP_t = & \beta_0 + \beta_1 LNRGDP_{t-1} + \beta_2 LNM2_{t-1} + \beta_3 LNGCF_{t-1} + \beta_4 LNREER_{t-1} \\
& + \beta_5 INFLATION_{t-1} + \beta_6 LNGFCE_{t-1} + \beta_7 LNTO_{t-1} + \beta_8 LNEXP_{t-1} \\
& + \sum_{i=1}^p \alpha_i \Delta LNRGDP_{t-i} + \sum_{j=1}^q \alpha_j \Delta LNM2_{t-j} + \sum_{k=1}^r \alpha_k \Delta LNGEC_{t-k} \\
& + \sum_{l=1}^s \alpha_l \Delta LNREER_{t-l} + \sum_{m=1}^v \alpha_m \Delta INFLATION_{t-m} + \sum_{n=1}^y \alpha_n \Delta LNGFCE_{t-n} \\
& + \sum_{o=1}^w \alpha_o \Delta LNTO_{t-o} + \sum_{c=1}^f \alpha_c \Delta LNEXP_{t-c} + U_t \text{ --- --- --- (3.11)}
\end{aligned}$$

- the symbol Δ is the difference operator; p, q, r, s, v, y, f and w are the lag length with their respective variables and U_t error term which is assumed to be serially uncorrelated.
- $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$ and β_8 indicates coefficients that measure long run relationships between the variable whereas $\alpha_i, \alpha_j, \alpha_k, \alpha_l, \alpha_m, \alpha_n$ and α_o indicates coefficients that measure short-run relationships among the variable.

The first step involved in ARDL model is that testing the null hypothesis of no cointegration relationship which is defined as $H_0 = \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = \beta_8 =$

Against the alternative hypothesis of $H_1 \neq \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq \beta_6 \neq \beta_7 \neq 0$ of the existence of cointegrating relationship between the variables.

The co-integration test has been undertaken on the F-statistic with the help of the bound test of ARDL in E-views 9. The F-test has a non-standard distribution which depends on (1) whether the variables include in the model are I(0), or I(1), (2) the numbers of regressors, and (3) whether the model contains an intercept and/or a trend (Narayan, 2004). Thus Pesaran (1997) and Pesaran *et al.* (2001) have come up with two sets of critical values which are called upper and lower critical bound for cointegration test. The lower critical bound assumes that all the variables are I(0), meaning that there is no cointegration among the variables, while the upper bound takes that all the variables are I(1). If the F-statistic is greater than the upper critical bound, then the null hypothesis will be rejected suggesting that there is presence of long-run cointegration relationship among the variables. If the F-statistic falls below the lower critical bound value, it implies that there is no cointegration relationship. But, when the F-statistic lies within the lower and upper bounds, then the test is inconclusive or no decision made. In this case, unit root tests should be conducted to assure the order of integration of the variables (Pesaran *et al.*, 2001). This is due to the fact that ARDL bound testing is inapplicable when the variables are integrated of order 2 or higher order.

The standard test for a unit root is to use Augmented-Dickey (ADF) and Phillips-Perron (PP) t-test statistics. The selection of the lag length was based on the Schwarz Bayesian Criterion (SBC) or Akaike Information Criterion (AIC) which was automatically selected by E-views software. Moreover, the researcher was not going to employ the bound critical value developed by Pesaran *et al.* (2001) because of the computed critical values are based on large sample size (500 and more) rather, we applied the bound critical values developed by Narayan (2004) which was developed based on small sample size ranging from 30 to 80 observations in which Eviews automatically produce critical value with corresponding computed F-statistic. To conduct the study our sample size was also relatively small. In our case there were 46 years observations.

After the testing in which existence of cointegration among the variables are confirmed, the long-run and error correction estimates of the ARDL model are obtained.

Before proceed to the estimation of selected model by using ARDL, the orders of the lags in the ARDL Model was selected by the Akaike Information criterion (AIC) or the Schwarz Bayesian criterion (SBC). According to Pesaran and Shin (1999) recommend choosing a

maximum of 2 lags for annual data series. From this, the lag length that minimizes Akaike Information criterion (AIC) was selected.

The diagnostic test was the mandatory tasks for selected ARDL model so as to examine validity of the short- run and long-run estimation in the ARDL model. The diagnostic test such as Heteroscedasticity test (Breusch & Godfrey LM test), Serial correlation test (Breusch & Godfrey LM test), Normality (Jarque-Bera test) and Functional form (Ramsey's RESET) test were undertaken. Similar to residual diagnostic test, the parameter stability test of the model was also conducted.

With the existence of cointegration, the short run elasticities can also be derived through constructing the error correction of the series in the following.

$$\begin{aligned}
 \Delta LNARGDP_t = & \beta_0 + \sum_{i=1}^p \alpha_i \Delta LNARGDP_{t-i} + \sum_{j=1}^q \alpha_j \Delta LNLM2_{t-j} + \sum_{k=1}^r \alpha_k \Delta LNNGEC_{t-k} \\
 & + \sum_{l=1}^s \alpha_l \Delta LNREER_{t-l} + \sum_{m=1}^v \alpha_m \Delta INFLATION_{t-m} + \sum_{n=1}^y \alpha_n \Delta LNNGFCE_{t-n} \\
 & + \sum_{o=1}^w \alpha_o \Delta LNTO_{t-o} + \sum_{c=1}^f \alpha_c \Delta LNEXP_{t-c} + \gamma ECM_{t-1} + U_t \text{ --- --- ---} \\
 & \text{--- --- --- (3.15)}
 \end{aligned}$$

Where the variable ECM_{t-1} is the error correction term which captures the long- run relationship whereas α' s are the coefficients associated with short-run dynamics of the model coverage to equilibrium. Economic theory suggest that the coefficient of error correction term (ECM_{t-1}) is proved to be negative and less than one to indicate the speed of adjustment process to correct deviations (disequilibrium) from the long- run equilibrium path.

3.5.2. Unit Root Test

Unit root test is critical and mandatory to test for the statistical properties of variables when dealing with time series data. This is because of that time series data are rarely stationary in level forms. Regression involving non-stationary (I.e., variables that have no clear tendency to return to a constant value or linear trend) time series often lead to the problem of spurious regression. This type of regression happens when the regression results come up with a high and significant relationship among variables but, actually, there is no relationship between variables. Moreover, the usual test statistics (t, F, DW, and R^2) will not possess standard

distributions if some of the variables in the model have unit roots (Stock and Watson, 1988). The other necessary condition to be addressed for testing unit root test is to check whether the variables enter in the regression are not order two (I.e. I(2)) which is a precondition in employing ARDL model. Therefore, running any sort of regression analysis is impossible without testing for time series variables. So, the first step in this study is testing unit root before running regression analysis.

The testing procedure for the ADF unit root test is specified as follows:

$$X_t = \alpha + \delta t + \mu X_{t-1} + \sum_{i=1}^{\rho} \lambda \Delta X_{t-i} + \varepsilon_t \quad (27)$$

Where is X_t a time series variables which are mentioned above in this model at time t, t is a time trend variable; Δ denotes the first difference operator; ε_t is the error term; ρ is the optimal lag length of each variable chosen such that first-differenced terms make ε_t a white noise. Thus, the ADF test the null hypothesis of no unit root (stationary) which is expressed as follows

$$H_0: \mu = 0; H_1: \mu \neq 0 \quad (28)$$

Regarding decision of unit root test, if the t value or t-statistic is more negative than the critical values, the null hypothesis (I.e. H_0) is rejected and the conclusion is that the series is stationary. Conversely, if the t-statistic is less negative than the critical values, the null hypothesis is accepted and the conclusion is that the series is non-stationary. Failure to reject the null hypothesis leads to conducting the test on the difference of the time series.

CHAPTER FOUR

4.1 TRENDS AND STRUCTURES OF ETHIOPIA'S FOREIGN TRADE (1974 AND 2020)

4.1.1 An Overview of Ethiopian international trade

Ethiopia, like Sub-Saharan African countries, has an economic structure that is characterized by low per capita income, largely agrarian economy with relatively low growth rates, and serious foreign exchange constraint. There is also less inter-sectoral dependence in the economy. The larger proportion of the active labour force is engaged in agricultural activities and the export sector performance has not been encouraging. The export performance of the country can be seen from different aspects like, export structure, the share of export to GDP and export share to import.

In 1974 the Provisional Military known by its land reform policy (to grant peasants land possessing right) and nationalization (taking full or partial ownership over) of privately owned houses, financial firms, manufacturing industries and the like (Tewodros 2015).

During this regime, the average rate of growth of gross domestic product (GDP) and the precipitate term was 1.6% and -0.7% respectively according to computed data from MoFED. And this growth rate was far below the estimated population growth of 2.5%. Generally, the economic condition of the country during this regime was characterized by very low and irregular economic growth. Military expenditure was very high because of different conflicts which are raised from both internal and external bodies (Wendwesen 2012).

Over the last two decades, the government of Ethiopia has been implementing a development program aimed at reducing the deeply rooted poverty through rapid economic growth and macroeconomic stability. The EPRDF government economic policy is characterized by free market economy which is revealed by promoting domestic private sector, opening the door for foreign investors, liberalizing financial sector (only local owners) and producing and implementing aggressive fiscal and monetary policy. The average growth rate of GDP, GDP capita and population is 6.7%, 3.4%, 2.6%, 6.5%, 6.6%, 4.05%, 5.6% and 6.1% between (1991 – 2020) according to data obtained from MoFED.

Now a day's Ethiopia is becoming one of the highly growing economies in the world. This is a result of good macroeconomic plans which leads the nation to highly utilize all her resources. Ethiopian economy has experienced strong, broad based and pro poor economic

growth over the last decade, averaging 10.8% per year in 2001/02 – 2020/21, while the regional average growth is 5.4%. Expansion of service and agricultural sectors accounts for most of this result, while the performance of manufacturing sector was relatively low. According to the central statistical agency, report, the general inflation rate for the final year of GTP I (2020) was estimated as 20.2% (World Bank report 2020).

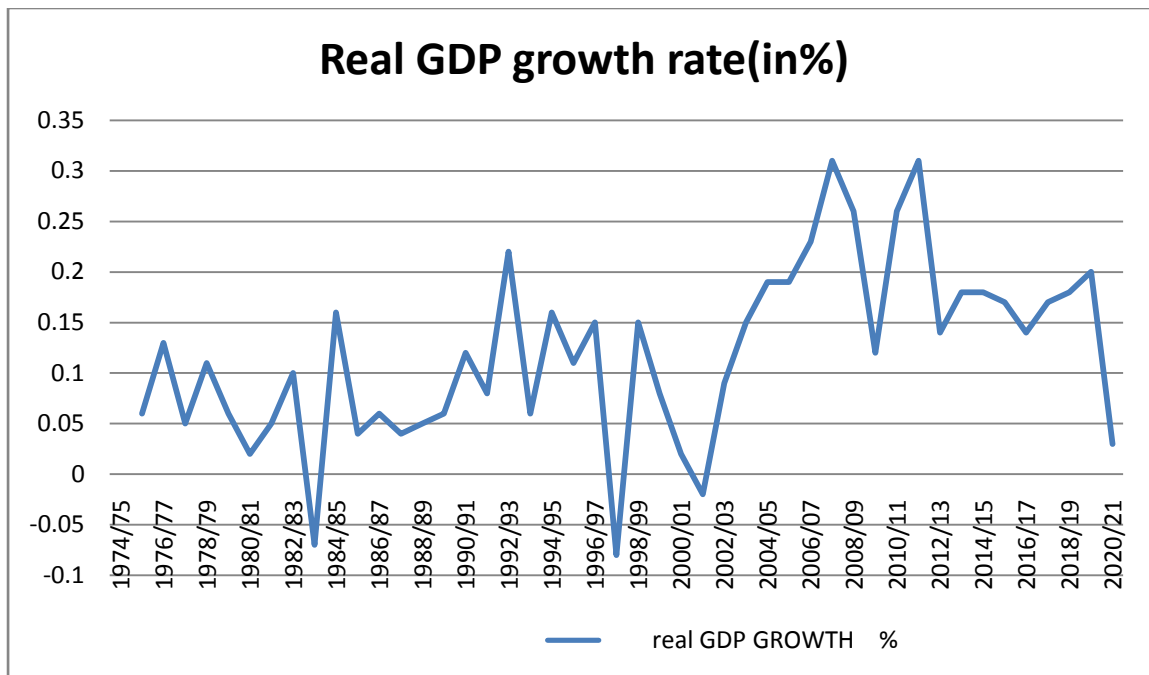
According to world banks report about Ethiopian population, the population of the nation has reached 114.9 million with a population growth rate of 2.9% per year. And the countries life expectancy is reported as 64 years, as at 2020 showing a remarkable change when it is compared to that of the 67.8 in 2020. Relatively the per capital income is traced as \$690 in 2020(UN report 2020).

Agriculture is the main source of growth and development in Ethiopia. During the first growth and transformation plan (GTP I) period agricultural value added growth is reported as 6.6% on average. As the main aim of Ethiopian government is to transform the nation to the industrialized one, the industry sector is planned to play a meaning full role in the contributing to the GDP. Accordingly the primary focus has been given on establishing small-scale and micro enterprises and promoting the existing ones to medium-scale enterprises. As a result of this an employment for more than 7 million citizens has been created (MDGs Report Ethiopia, 2020).

4.1.2 Growth rate of real GDP in Ethiopia (1974 – 2020)

The performance of Ethiopian economy in this study period has showed a fluctuating result especially between 1978/79 and 2004/05. As it can be seen in fig. 4.1 below, the lowest RGDP growth rate was registered in 1983/84 and 1984/85 as -7.14% and -8.79% respectively this is because of disastrous drought at the time. On the other hand, the maximum positive growth rate was registered as 13.14% in 1986/87 followed by 12.64% in 2004/05 and currently 6.1% in 2020.

Fig. 4.1: RGDP growth rate in Ethiopia (1974 – 2020)



Source: Computed based on data from National Bank of Ethiopia (NBE 2020).

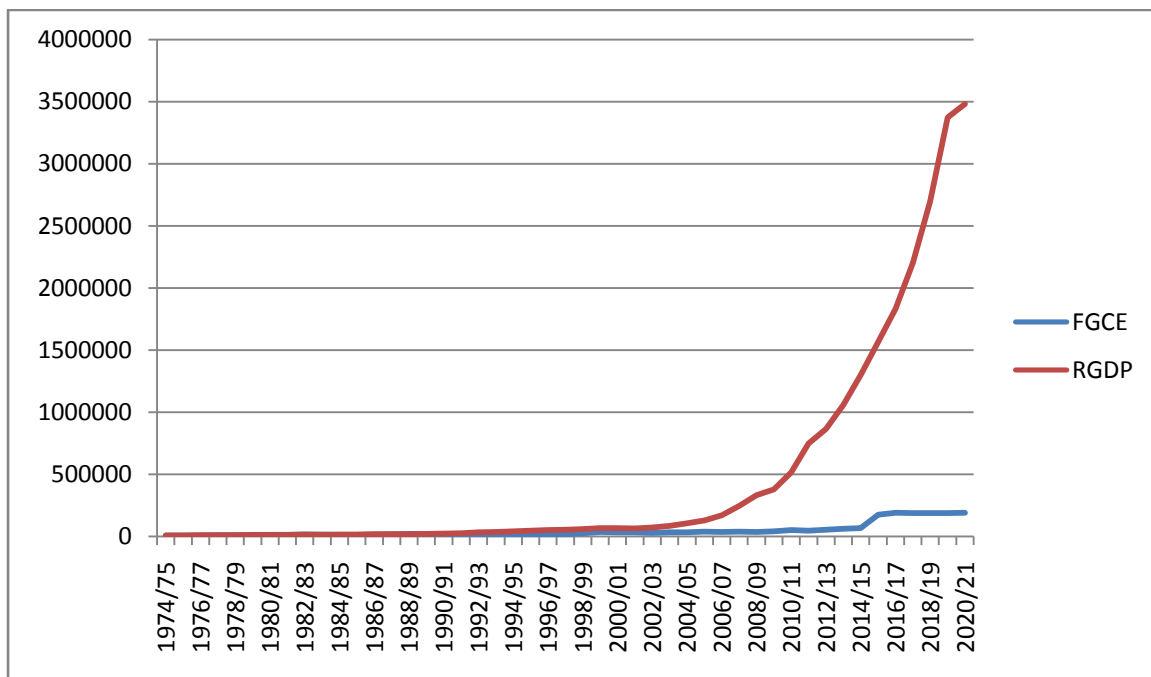
Average annual growth rate was only 2.21% during the Derg regime. But the reform programs of the early 1990's contributed to an improved performance of the economy where the RGDP grew on average by nearly 5.29% between 1992/93 and 2000/2001.

In 1998, -1.3% growth rates was registered, this is because of reduction in agricultural output in the year, since agriculture is the main source of GDP in the country. Another negative economic performance in the EPRDF regime was recorded in 2001 as -2.16% as shown in the fig 4.1 above. This is also as result of drought occurred in the year. Immediately after the year 2001/02, a remarkable change in sign as well as in amount of was registered from -2.16% to 13.57% in 2014 and 2005 respectively. This result is gained as a result of the countries commitment to achieve the MDG's and the external assistance (especially by IFB and WB) for the achievement of the MDG's and the successful implementation of sustainable development and poverty reduction program (SDPRP) (2002/03 – 2004/05), the plan for accelerated and sustained development to end poverty (PASDEP) (2005/06 – 2009/10) and the first growth and transformation plan(GTP I, 2010/11 – 2015) and (GTPII 2015-2020) has played irreversible role for the good performance of the economy averaged as 10.84% in the last 34 years after derg regime of the study period.

4.1.3 Trend of Government final consumption expenditure and GDP in Ethiopia

During this study period (1974 – 2020) both GDP and total government expenditure showed a rising trend i.e. both never has never fall from one year to the next as shown in the fig. 4.2 below. As a result of governments intention to provide every infrastructural facilities and social services following the need for overall control in the economy because of the command economic system in the Derg regime, while at the same time engaging in the production and distribution of basic goods led to the expansion in both GDP and total expenditure.

Fig. 4.2: Trend of Trend of Government final consumption expenditure and RGDP in Ethiopia in millions of birr.



Source: Computed based on data obtained from NBE data.

There was a relative decline in the size of government expenditure in the GDP was generally found to be lesser as compared to that of the last ten years of the Dreg’s government. However since 1997 the share has been rising steadily in which 22.93% was registered from 1997 to 2001/02 on average.

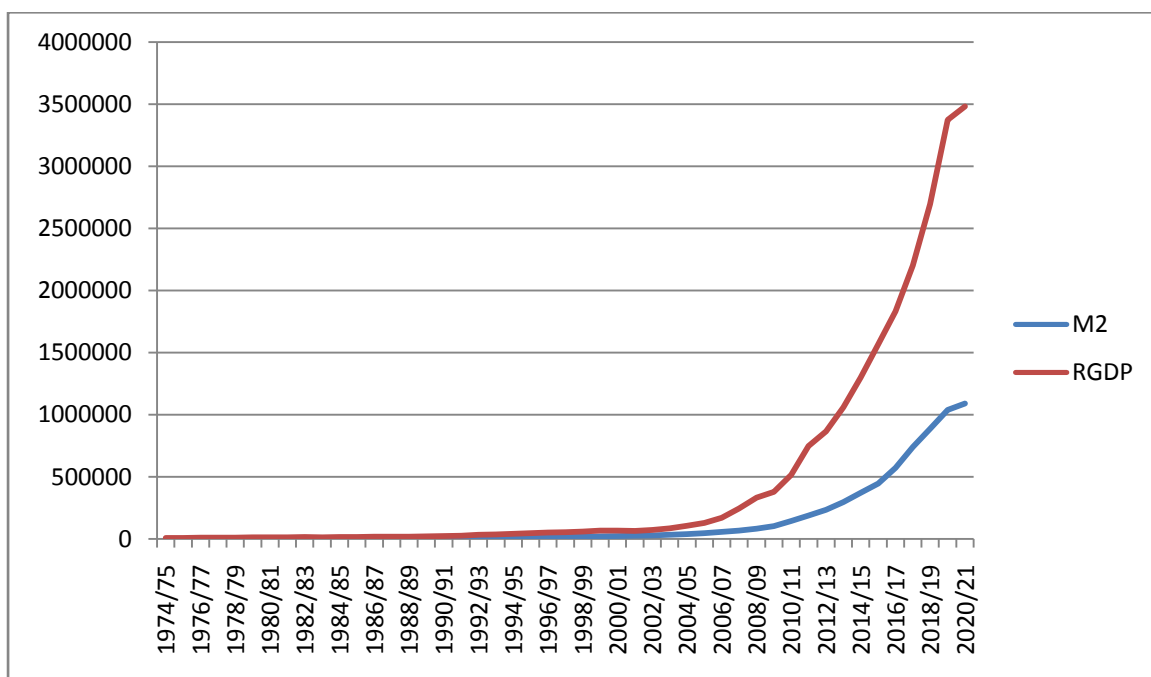
4.1.4 Trend of broad money supply and RGDP in Ethiopia

Broad Money supply refers to all the currency and other liquid instruments in a country's economy. Gross domestic product (GDP) is a measurement of the total value of all the

finished goods and services produced within a country's borders within a specified period of time. While a country's GDP is not a perfect representation of economic productivity and health, in general, a higher level of GDP is more desirable than a lower level. A country's GDP provides information about the size of its economy and the GDP growth rate is one of the best indicators of economic growth over time. The GDP per capita measurement also has a close correlation with the trend in living standards over time.

In general, when the GDP growth rate shows rising economic productivity, the value of money in circulation increases. This is because each unit of currency can subsequently be exchanged for more valuable goods and services.

Fig. 4.3: Trend of broad money supply and RGDP in Ethiopia in millions of birr.



Source: Computed based on data obtained from NBE data.

During the study 1974 -2020 broad money supply and gross domestic product is increase according to above fig.4.3 after 2002/3 Broad money includes notes and coins but also saving accounts and deposits in a savings account of counter is continually increase. Domestic disequilibrium (imbalance) covers the gap in resources which are the result of such items as budget deficits and saving-investment gaps. The revenue-expenditure section of the National Income Account from the more reveals that for the period 1974-2017, the annual resource gap (budget deficit), including and excluding grants, averaged 8492.971 and 14493.69 million Birr respectively. For the year 2017, the figures were 66643.18 and 84557.13 million

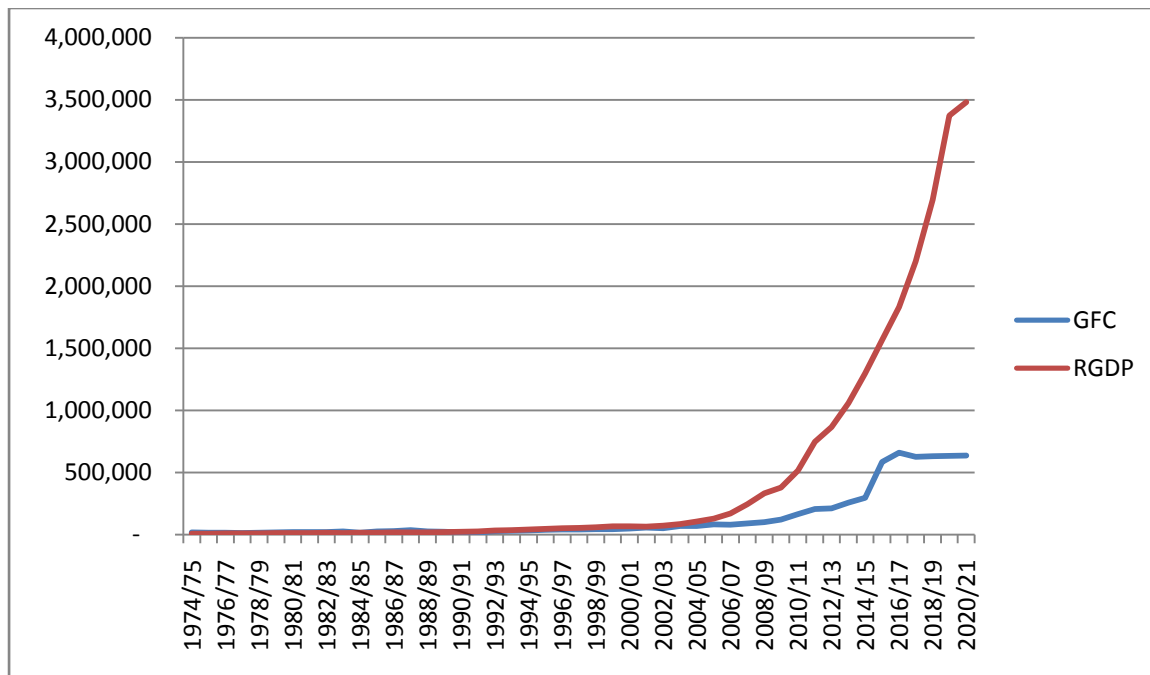
Birr respectively. One of the key sources of inflationary pressure is how the government finances a deficit. Theoretically, a government can finance a deficit in three alternative ways: It can borrow from the public that is issue bonds to the public; it can print money, by borrowing from the central bank; or it can run down its foreign exchange reserves. In Ethiopia, these alternatives of financing deficit have varied from regime to regime.

The dataset from the MoFEC indicates that the average annual financing requirement for the period 1974-2017 was 8492.971 million Birr. The same figures for the periods, 1974-1990 and 1991 – 2017, were 720.279 and 13386.89 million Birr respectively. On the sources of finance for the whole 1974-2017 period, the annual average for gross borrowing, external sources and domestic borrowing was 5448.625, 4663.038, 2140.716 million Birr respectively. For the period 1974- 1990 the figures averaged annually 343.3905, 297.4992 and 396.0675, million Birr respectively; and the corresponding values for 1991-2017 were 8663.032, 7411.711, and 3239.199 for gross borrowing, external sources and domestic borrowing respectively. The World Development Indicator (WDI) for the period for which data is available, 1990 -2013, showed the annual average domestic demand for investment and net saving were respectively 8 billion and 4.37 billion Birr. This signaled saving investment disequilibria of 3.63 billion Birr. The annual average of net borrowing during the same period was 13.7 billion Birr. The data from the National Bank of Ethiopia showed that for the period 1974-2017, the annual averages of inflation and growth of broad money stood at 9.84 and 16.45% respectively. For 1974-1990, the averages were 8.32 and 12.54% respectively; and for 1991-2017, the average inflation and average growth rate of broad money were respectively 10.76 and 18.60%. These figures clearly demonstrate both the existence of domestic imbalances and their association with inflationary pressures in Ethiopia (EEA, 2020).

4.1.5 Trend of *Gross fixed capital formation* and GDP in Ethiopia

Gross fixed capital formation: It is the net increase in physical assets (investment minus disposals) within the measurement period. It is proxy used to measure net investment. During the study period (1974 -2020) the trend gross fixed capital formation shows slowly increase after 2004/5. Generally fig 4.4 below shows after 2004 investment is positive or greater than disposals.

Fig. 4.4: Trend of gross capital formation and GDP in Ethiopia in millions of birr.



Source: Computed based on data obtained from NBE data.

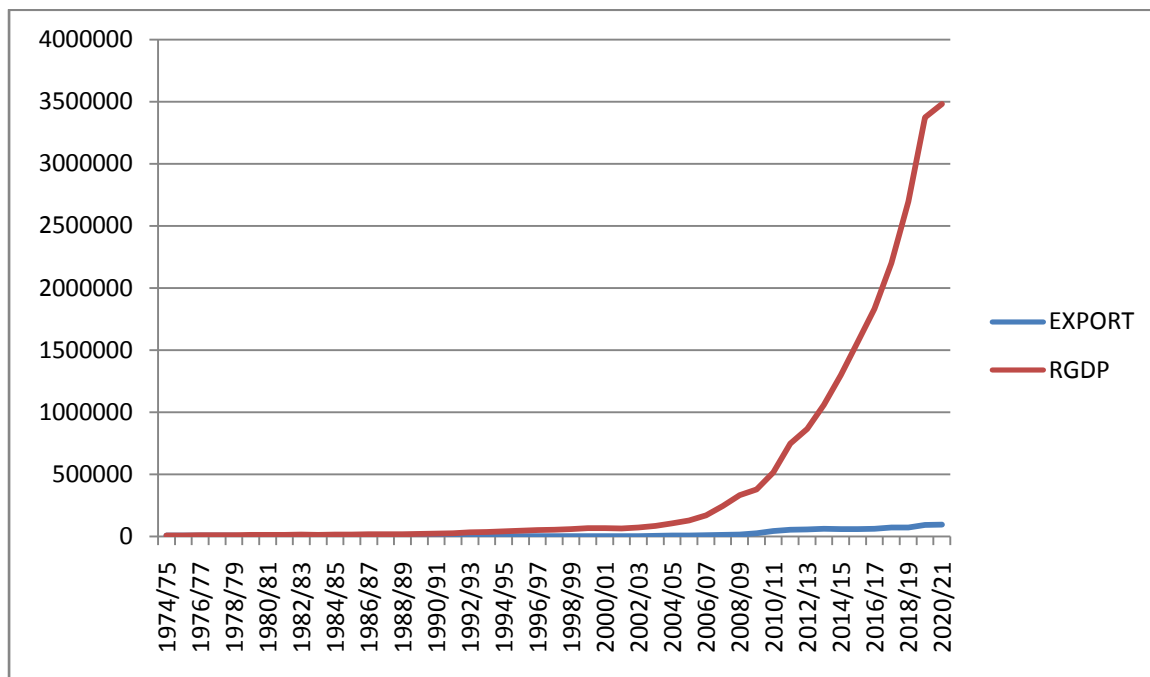
In 2017, gross fixed capital formation growth for Ethiopia was 5.2 %. Though Ethiopia gross fixed capital formation growth fluctuated substantially in recent years, it tended to increase through 1998 - 2017 period ending at 5.2 % in 2017. Gross fixed capital formation (% of GDP) in Ethiopia was reported at 35.26 % in 2019, according to the World Bank collection of development indicators, compiled from officially recognized sources. Ethiopia - Gross fixed capital formation (% of GDP) - actual values, historical data, forecasts and projections were sourced from the (World Bank on April of 2021).

4.1.6 Trend of export and GDP in Ethiopia

The export sector has played an important role to bring about rapid economic growth in developing countries. However, most of them largely depend for their source of currency earning on a single product or a very narrow range of low value products, mostly agricultural commodities and minerals. Likewise, the Ethiopian commodity export sector is basically characterized by the dominant share of agricultural raw commodities in generating the greater proportion of the export earning of the country. These export commodities together have accounted more than 86 percent (NBE, 2012/13) of the total merchandise export earnings. The major export items, in order of their significance in the total commodity export value include coffee, gold, oil seeds, hides and skins, pulses, chat, flower, fruits and vegetables.

The total amount of export value in 1974 was 8,192 Million Birr. It has steadily increased to 929.63 Million Birr in 1983 at constant value. In the year 1984, however, it was fluctuated and starts to decline and reached 300.27 Million Birr in 1991. After the reform period i.e. 1992, export earnings increased with little fluctuations and recorded 96611Million Birr in 2020.

Fig. 4.5: Trend exportand GDP in Ethiopia in millions of birr



Source: Computed based on data obtained from NBE data

Despite the increment of export as share of real GDP from 3.6 percent in 1991 to 18 percent in 2013, the trade balance as share of real GDP (resource balance) continued to rise to 17.8 percent during 2013/14 from 14.2 percent in 2002/03 (NBE, 2013/14).

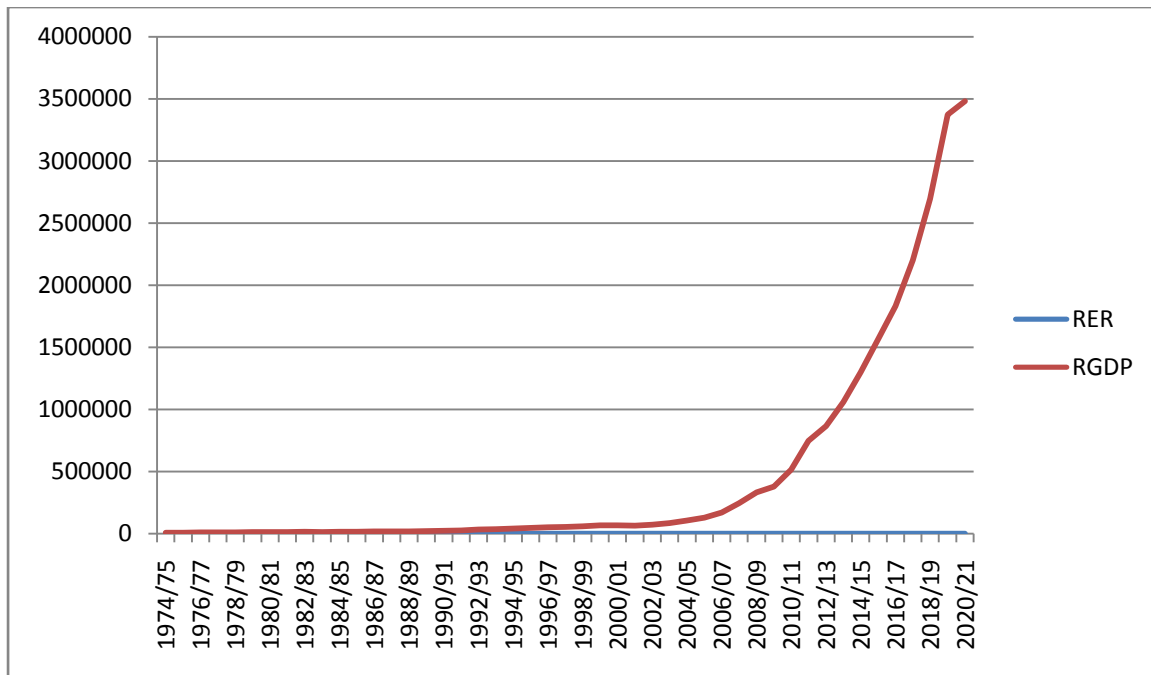
Ethiopia's total merchandise exports were \$2.67 billion in 2018/2019 (a 6% decline from last year, 2017/2018), while imports for the same period were \$15.11 billion, a 1% decrease from the previous year. In 2018/2019, Ethiopia's major goods exports included coffee (28.7%), oilseeds (14.5%), chat (11.4%), pulses (10.2%), cut flowers (9.6%), leather and leather products (4.4%) and gold (1%). Ethiopia's total export earnings by value declined by 6% in 2018/2019 from the previous year. Depressed commodity prices are the leading cause of this drop in exports. Leading destinations for Ethiopia's exports in 2018/2019 were: Asia 41.6, Europe 25.4% and Africa 20.8%. In FY 2018/2019, the United States was Ethiopia's leading export market representing 11.3% of total exports, registering a 2% increase from the

previous year. Ethiopia primarily exports coffee, leather, and leather products to the United States.

4.1.7 Trend of real Exchange Rate and Economic Growth

Real effective exchange rate and real GDP are plotted against time on fig. 4.6. They seem to follow inverse trend for most of the study period. A decrease/increase in real effective exchange rate represents depreciation/appreciation of the domestic currency in this study. Except for years after the 2004, a decrease/depreciation of the real effective exchange rate is accompanied by a fairly stable movement in the real gross domestic product. Before the reform period the real effective exchange rate declines/depreciates sharply and rises/appreciates suddenly after the reform period 1992 until 2020.

Fig. 4.6: real Exchange Rate and GDP in Ethiopia in millions of birr



Source: Computed based on data obtained from NBE data

The term international competitiveness is used here to refer to price competitiveness of domestically produced goods vis-à-vis foreign produced goods, both in domestic and world markets.

The computed indices of misalignment indicate that the real exchange rates were overvalued and undervalued in a number of episodes. The most notable period is the overvaluation of the exchange rate between 1973/74-1975/76, 1991, 1993/94-1995/96 and 2000-2020. The

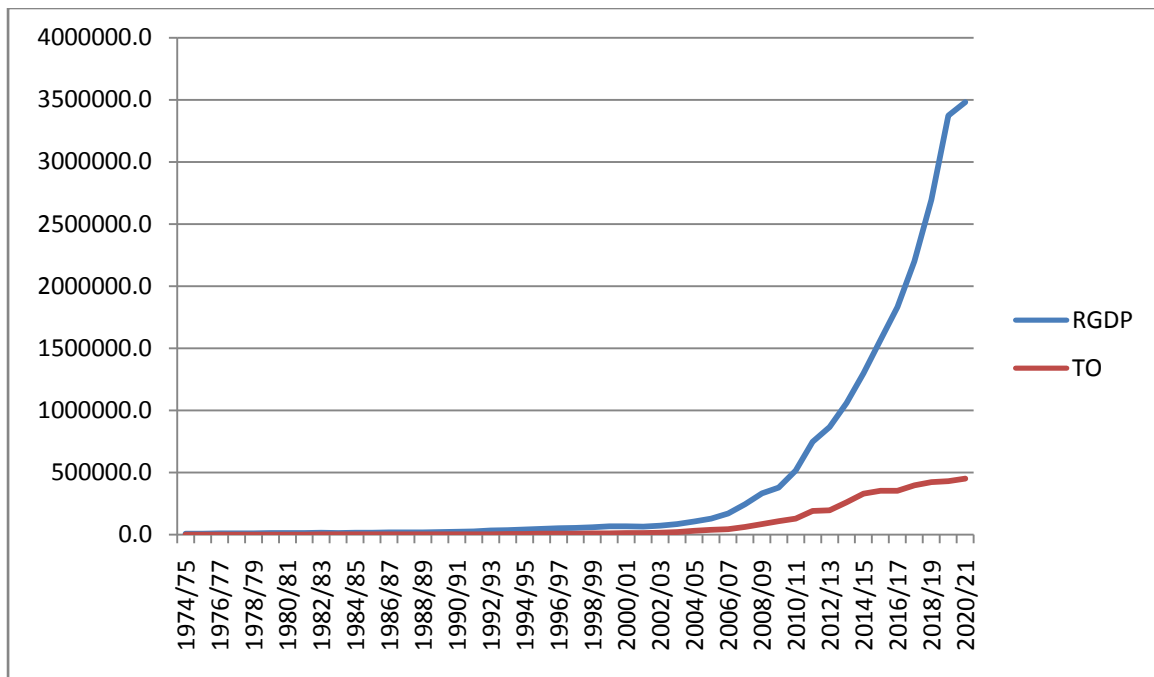
overvaluation of the exchange rate during 1973/74-1975/76 and 1991 could be due to change in governments and the particularly prolonged appreciation of the exchange rate during 1973/74- 1975/76 was on account of the international oil price crises of the 1973/74. Though the introduction of devaluation and the auctioning system initially resulted in the depreciation of the exchange rate during 1992, the real exchange rate appreciated in the following four years (between 1993 and 1996). This could be due to the inflationary impact of the international coffee price boom and the composition of foreign exchange inflows has shifted from official to private sources during these periods.

According to National Bank of Ethiopia (NBE) annual report of 2017/18 fiscal year, the weighted average exchange rate of birr in inter-bank foreign exchange market depreciated by 16.5% on annual bases and reached birr 26.1082/USD. In the retail foreign exchange market, the average buying and selling rates of the birr at forex bureaus both depreciated by 16.7% and 16.6% respectively, with spread margin of 1.91%. The real effective exchange rate (REER) of the birr has been appreciating since 2010/11 as a result of higher domestic inflation relative to that of the country major trading partners. During 2017/2018, the REER however, depreciated by 5.9% due to the devaluation measure taken in October 2017. Similarly, the nominal effective exchange rate (NEER) of the birr has been depreciated by 10.9% on nominal basis.

4.1.8 Trend trade openness and Economic Growth

Import constitutes about 42% of GDP. The export sector of Ethiopia has been growing with an average rate of 7% yearly from 1981-2008 for merchandise exports and manufacturing exports growth was 4% yearly in the same period. The Ethiopian trade balance is also similar to most developing countries trade balance with less amount of export and high amount of imports makes the country in the trade deficit for the last decades. Although Ethiopia did a significant improvement in opening its trade to the international world its trade openness index is still low compared to other developing countries and this suggests that the country needs for more trade openness to the global world.

Fig. 4:7 trade openness and GDP in Ethiopia in millions of birr



Source: Computed based on data obtained from NBE data

For that indicator, data for Ethiopia from 2011 to 2019. The average value for Ethiopia during that period was 37.95 percent with a minimum of 28.82 percent in 2019 and a maximum of 48.23 percent in 2011. The latest value from is percent. For comparison, the world average in based on countries is 0.00 percent. Generally trade openness increase

4.2. RESULTS AND DISCUSSION

In order to attain the major objective of the research, this chapter presented the empirical findings of the study. As it is discussed earlier, stationary test is done first before estimating the coefficients. Following the test for stationary, the co integration using bound test is discussed for the existence of long run association of the research variables. And the Vector error Correction model is presented in order to analyze the short run dynamics of the variable. Finally all the necessary residual tests conducted were presented and discussed.

4.2.1 Unit Root Test Analysis

The bounds test approach to co-integration does not need pre-testing for stationary of the variables included in the model, but still, it is important to carry out stationary tests on all the series. The justification behind the unit root test is to take a care on the order of integration not above I(1) in which we cannot apply ARDL bounds test to co-integration. Therefore, it was necessary to test for stationary of the series before any econometric analysis was done. It is notable that stationary properties of time series are investigated by testing for unit roots. There are several methods for testing for stationary. Thus, this study used the commonly used Augmented Dickey-Fuller (ADF) and the Phillip-Perron (PP) unit root tests.

Table 5.1 Augmented Dickey-Fuller test statistics (ADF)

Variables	With intercept			with intercept and trend		
	at level		1 st difference	Order	at level	1 st difference
ln(RGDP)	4.206823		-5.117515*	I(1)	3.456786	-5.509835*
Ln(M2)	1.948718		-3.880187*	I(1)	0.376911	-4.179241*
Ln(GCF)	1.091572		-2.906587	I(1)	-2.776797	-3.153404
Ln(GFCE)	2.890218		-7.017090*	I(1)	-0.776305	-8.142726*
INFLATION	1.093991		-5.355834*	I(1)	-1.085966	-5.599359*
lnTOI	-1.286513		-5.637944*	I(1)	-0.997340	-5.659830
Ln(EXP)	0.557851		-4.700260*	I(1)	-1.172799	-4.787156*
LnREER	0.666454		- 5.00934*	I(1)	-1.43098	-6.564467*

Source: Author's calculation from E view 10 results, 2021

Table 4.2 Phillip-Perron (PP) unit root tests

Variables	With intercept			with intercept and trend		
	at level	1 st Difference	Order	at level	Order	1 st difference
ln(RGDP)	11.38717	-5.116625*	I(1)	1.298256	I(1)	-6.808406*
Ln(M2)	1.792781	-5.951012*	I(1)	-1.010183	I(1)	-6.319283*
Ln(GCF)	0.859567	-5.275363*	I(1)	-2.765905	I(1)	-5.444856*
Ln(GFCE)	6.893559	-6.997967*	I(1)	0.026250	I(1)	-9.943229*
INFLATION	-4.456893*	-	I(0)	-5.239275*	I(0)	-
Ln(TOI)	-1.318407	-5.645786*	I(1)	-1.092762	I(1)	-5.665297*
Ln(EXP)	1.141785	-5.362007*	I(1)	-1.176380	I(1)	-5.586252*
LnREER	0.666454	5.00934*	I(1)	-1.43098	I(1)	-6.564467

Source: Author's calculation from E view 9 results, 2021

Notes: The sign of *, ** and *** represents the rejection of the null hypothesis of non-stationary at 1%, 5% and 10% significant level and the numbers without sign *, implies the variables have unit root or non-stationary.

The null hypothesis is that the series is non-stationary or the series has a unit root against alternative hypothesis that the series are stationary. From the above table, all variables are stationary at first difference except inflation which is stationary at level. Therefore, the stationary test analysis implies that the variables having different order of integration calls the application of ARDL model to co-integration. Akaike info criterion (AIC) is used to determine the lag length while testing the stationarity of all variables (Lutkepohl, 2005).

4.2.3. Long-run ARDL Bounds Tests for Co-integration

As far as the researcher determined the stationary nature of the variables, the next task in the bounds test approach of co-integration is estimating the ARDL model using the appropriate lag length selection criterion. In other word, ARDL bounds analysis is used to investigate the presence of long-run relation among the variables included in the model. In order to undertake co-integration test with help of ARDL bound test, the maximum lag length must be determined. This is because an important issue addressed in employing ARDL is selecting optimum lag length. The model was estimated by ARDL and the optimal lag was selected by Akaike Information criterion (AIC) method.

According to Pesaran and Shin (1999) and Nayaran (2004) recommend choosing a maximum of 2 lags for annual data series Therefore, following empirical evidence, the researcher set recommended the maximum lag length at 2 years for which are sufficiently long enough for

annual data series to investigate the variable relationship and then AIC is employed to choose at the best ARDL mode (Lutkephl, 2005).

Table 4.3 Bound Test for Co-integration

Level	Bound	Critical Values
10%	Lower Bound	2.03
	Upper Bound	3.13
5%	Lower Bound	2.32
	Upper Bound	3.50
2.5%	Lower Bound	2.60
	Upper Bound	3.84
1%	Lower Bound	2.96
	Upper Bound	4.26
F-statistics ARDL(1,2,1,0,0,2,0,1) k= 7		7.4775458***

Source: Author's calculation from E view 10 results, 2021

Notes: ARDL Model is automatically selected on the basis of minimum value of Akaike info criterion (AIC). The researcher has obtained critical values for upper and lower bounds from Peseran et al. (2001) table CI(iii) at page 300 where ARDL model uses unrestricted intercept but no trend with k=7. The sign of*, ** and *** indicate the level of significance at 10%, 5%, and 1% to reject the null hypothesis of no long-run relationships exist respectively.

According to the result shown in the table 4.3 the researcher has take the upper and lower Narayan (2004) critical values to compare with corresponding F statistics in order to reject or accept the null hypothesis of no long-run relationship among the variables. For small sample ranging from 30 to 80 years' data, the researcher has been used Narayan (2004) critical values in which E Views 10 software provided it automatically.

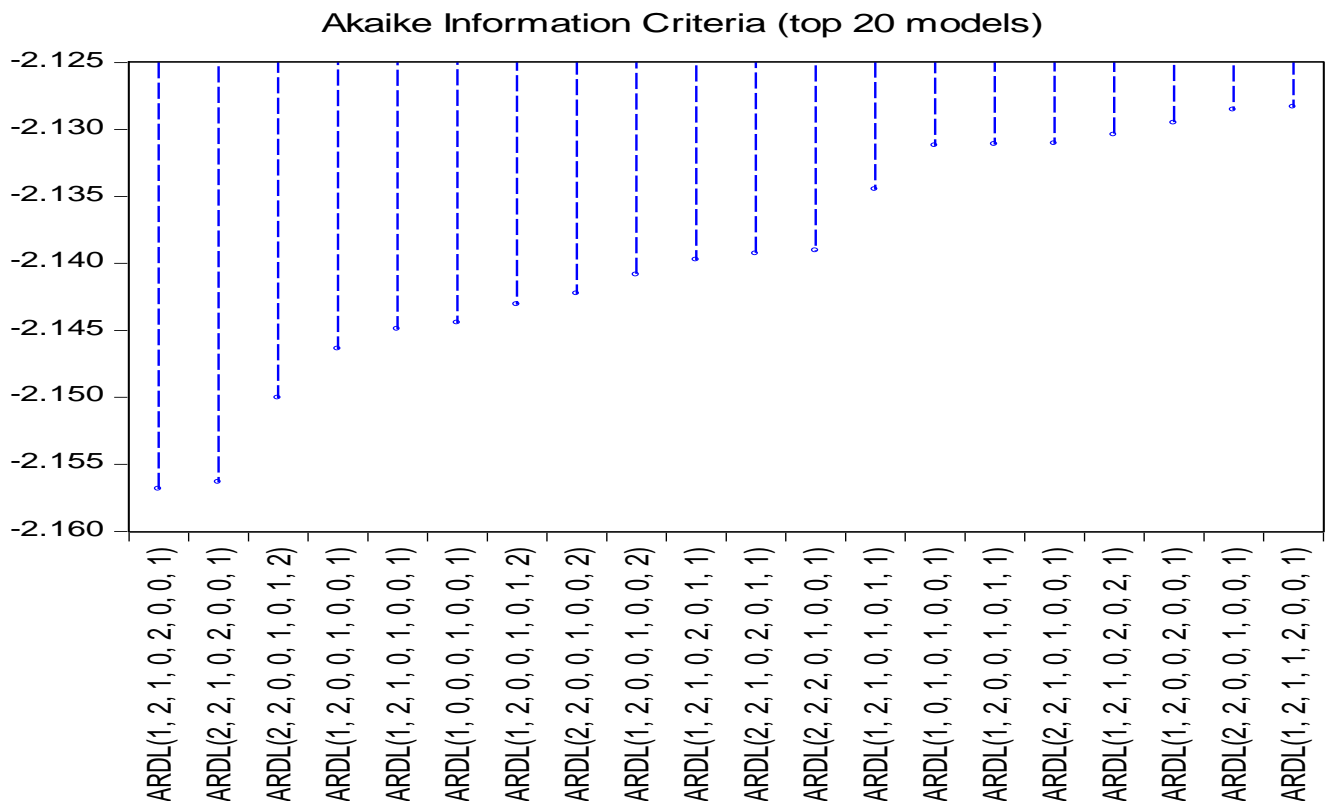
As the result observed from the table 4.3 depicts that F-statistic is 7.4775458 which is greater than the upper bounds critical value at 1% significance level. This clearly evidenced that there is a strong evidenced long-run relationship between economic growth and explanatory variables including our interest variable so called international trade. Therefore, the null hypothesis of no long-run relationship is rejected at 1% significance level and alternative hypothesis of the existence of long-run relationship between the variables is accepted. In

other words, the variables included in the model have long-run relationship which is a base for estimating the long-run impact of the explanatory variable on economic growth at large.

The next step was determining of an appropriate lag order. This needs to implement the information criteria for selecting the lag-lengths. For this purpose the researcher has used two criteria respectively the table (appendix) and graph. In this case the optimal lag length is two.

The researcher used the Akaike Information Criterion (AIC). It is clear from the graph 4, that the model ARDL (1,2,1,0,2,0,0,1) is the optimal model since it has the lowest AIC criterion (for more details see Belloumi (2014) and Belloumi and Alshehry (2015)).

Figure 4 lag selection criteria



Source authors calculation from Eviews 11, 2021

4.2.4. Long Run ARDL Model Estimation

After confirming the existence of long-run co-integration relationship among the variables, the next step is running the appropriate ARDL model to find out the long run coefficients, which is reported in table below.

Table 4.2.4 : Long Run Coefficients co integrating equation

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNMS	0.035711**	0.014712	2.426616	0.0328
LNGCF	0.844350***	0.143779	5.872537	0.0000
LNGFCE	-0.073002	0.048098	-1.794248	0.0707
LNTOI	-0.222875***	0.060672	-3.673427	0.0000
LNREER	-0.049150**	0.020419	-2.407545	0.0450
LNEXP	0.224050**	0.080454	2.784821	0.0071
INFLATION	-0.012584**	0.005111	-2.462061	0.0200
C	4.372757	1.210445	3.612520	0.0011

Source; own computation from Eviews 11, 2020

Note: the sign *, ** and *** indicate that the variables are significant at the level of 10%, 5% and 1% respectively.

The result of the above table indicates that all the variables entered in the regression have the expected signs regardless of their significant level. Money supply, gross capital formation, and export of goods and services have positive and statistically significant impact on Ethiopian economic growth whereas real effective exchange rate government final consumption expenditure, inflation rate and trade openness index have negative impact on economic growth in the long run. The result indicated that government final consumption expenditure and real effective exchange rate are found to be negative and statistically significant impact on Ethiopia economic growth in long-run.

The result shows that real effective exchange rate (REER) has a negative and statistically significant long run relationship with economic growth (RGDP). This result confirms that the alternative hypothesis (exchange rates have a long run effect on economic growth of Ethiopia) is accepted at 5% level of significance. Increase/appreciation of real effective exchange rate by 1% decrease economic growth by 0.049%. The finding of this study shows that decrease in real effective exchange rate [depreciation] does promote economic growth in the long run. Depreciation may encourage exports and decrease the foreign earnings of the country for the time being, but it hurts the economy in the long-run as the cost of imported raw materials increase continuously. Furthermore, this result is similar with empirical findings of Aguirre and Calderón (2005), Elbadawi (2012), Habib (2017)

Export has positively and statistically significant in explaining the economic growth in the long run. Increase/appreciation of export by 1% increase economic growth by 0.22%. The finding of this study shows that increase in export does promote economic growth in the long run. This result is consistent with the previous studies of Mulugeta (2012), Tofic (2012), Alshahram and Asadiq (2014) and Abdu (2014).

Consistent with theory, gross investment to GDP in Ethiopia has a positive sign on real GDP. Specifically, an increase in the level of gross investment by 1 percent will lead a 0.844 percent increase in real GDP which is strong evidence with 1% level of significance. Therefore, capital stock accumulation through investment has positive and significantly determine economic growth in Ethiopia which confirms endogenous growth model that incorporate capital accumulation as an engine for economic growth.

The government final consumption expenditure (LNGFCE) has a negative and significant effect on economic growth of Ethiopia implying that, large size of government expenditure goes to recurrent expenditure. Thus, recurrent expenditure may have impeded growth by reducing the resources available for capital expenditure. Defense expenditure, poverty targeted expenditure, inflation targeted expenditure, and voting campaign expenditure and expenditure on interest payment constitute the most important components of current expenditure. As a result, long run responsiveness of real GDP to the change in government final consumption expenditure is - 0.073. It means that a one percent increase in government final consumption expenditure will decrease real GDP by 0.073percent over time. This is explained by the fact that government spending of money for the purchase of consumption goods and services leads to the increase the aggregate demand for goods and services. The same result with this study was seen in Wendwesen (2012).

The broad money supply (LNM2) had a positive and significant long run effect on economic growth. A 1% increase in broad money supply leads to an increases economic growth by 0.53395% which was contrary to the expected sign. The result was highly significant at 5 percent level of significance. Therefore, the results show that increase in money supply improves economic growth. The National Bank of Ethiopia manages the supply of money through channels like the management of the reserve requirements and the management of the interest rate with the commercial banks. To this end, broad money is highly significant impact on aggregate output growth implying that financial development is an engine for long-

run economic growth. Thus, the expansionary policy may be implemented in Ethiopia since it is significant in the long run. The same result with this study was seen in Muluken (2014).

The long-run estimated coefficient of trade openness has found to be a negative sign and significant effect on economic growth as confirmed by 1 percent level of significance. In our opinion, justification for inverse relationship is that the liberalizing trade might have exposed the country's infant industry to foreign competition thereby adverse effect on long-run real GDP. In this case, domestic investors who are engaged in the non-exportable economic activities were forced to exit from domestic market. Hence, a percentage increase in the ratio of import plus export to GDP which is trade openness will reduce overall output growth by 0.22 percent. The finding is similar to the finding conducted by Adebisi (2006) for Nigeria, Adu et.al. (2013) for Ghana: Mercy et.al, (2015) for Kenya and Tekilu and Jemal(2019) for Ethiopia case.

Finally, inflation rate variable coefficient bears a negative sign and significantly affecting real GDP at 5% level of significance which is in line with the a priori expectation. This implies that there is an indirect relationship between inflationary rate and service sector output. As result reveal that a one per cent increases in inflation rate will lead to 0.012 percent decrease real GDP. The significance of this variable is an implication that macroeconomic instability does reduce output growth in the long-run. Another implication for negative impact of inflation reveals that it creates uncertainty over future inflation which may discourage investment and savings and generally economic growth.

4.2.5 The short run model (VECM)

After obtaining of the long run relationship, establishing the coefficient of the short run dynamics is conducted by estimation of Vector Error Correction mechanism (VECM). It is crucial to specify how short run adjustment of the variables took place (Mulugeta 2012). The most important thing in the short run analysis is the speed of adjustment term. The value of error correction term should be negative and it should be significant in order to decide as the model converges to the equilibrium in the long run. According to Bannerjee et al (2003) as cited by Tewodros (2015), highly significant error correction term confirms the existence of a stable long run relationship.

Table: 4.2.5 VEC Model result

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNMS)	0.183529	0.267696	0.685589	0.4984
D(LNMS(-1))	0.583444*	0.311601	1.872406	0.0713
D(LNGCF)	0.583471***	0.084466	6.907803	0.0000
D(LNGFCE)	-0.034873	0.115588	-0.301703	0.7650
D(LNTOI)	0.379045**	0.123982	3.057269	0.0048
D(LNTOI(-1))	0.116278	0.088833	1.308945	0.2008
D(LNREER)	0.023479	0.057659	0.407208	0.6868
D(LNEXP)	0.111489**	0.037073	3.007282	0.0009
D(INFLATION)	-0.002176	0.001883	-1.155429	0.2573
CointEq(-1)	-0.477700**	0.155931	-3.063541	0.0047

Source; own computation from Eview 11, 2021

The results reveal that one year lag money supply, gross capital investment, trade openness and export of goods and services are positive and significant determinant of economic growth in Ethiopia in the short run. The remaining four independent variables namely real exchange rate, government final consumption expenditure and inflation are found to be insignificant in the short run. This result justifies that emphasizing the importance of international trade through boosting country export competitiveness could have immediate impact on real economic growth in Ethiopia.

The error correction coefficient, estimated at -0.4777 is highly significant, has the correct negative sign, and implies a very high speed of adjustment to equilibrium. According to Narayan and Smith (2006) the highly significant error correction term further confirms the existence of a stable long-run relationship even though most economists recommend that $ECM < -1$. Moreover, the coefficient of the error term (ECM-1) implies that the deviation from long run equilibrium level of inflation in the current period is corrected by 47.77 % in the next period to bring back equilibrium when there is a shock to a steady state relationship but higher than 100% ECM means that it has oscillating type of convergence to long run equilibrium and it takes less than one year to return to its long run equilibrium.

As for results in Table 5.5, short run dynamics results indicate that broad money have positive and significant impacts on economic growth. It is the broadest measure of financial development and it measures the depth of the financial system. It also indicates the degree of monetization with respect to the real economy (William, 2016). Steve (1997) and Domingo (2001) contended that there may not be positive economic growth without an appropriate financial condition. Uduakobong (2014) is in the view that money supply more or less influences Economic growth.

Money supply as ratio of GDP in one year lag has also positive and significant impact on economic growth in short run. With *ceteris paribus*, a one percentage increase in one year money supply leads to 0.58 percent increase in real GDP which is significant at 10 percent level. This positive effect is explained by the supply of money is consistent with the economic growth of the country for the study period. With regard to gross capital formation, Increase in gross capital formation has positive and significant impact on economic growth in short run. So the level of capital used within the economy is not only important but also the way it is used is also an important determinant of economic growth. Country level empirical studies (Kanu et al., 2014) in Africa; (Weeks et al., 2004) and (Tadesse, 2011) in Ethiopia

The short-run result in Table 5.4 show that holding other things constant a percent increase in trade openness increase the LR GDP (real gross domestic product) by 0.37 percent and statically significant at 1 percent. This implies that international trade through trade openness has a positive impact on economic growth. Therefore, positive and significant trade openness impact on economic growth in the short run confirms with the study of (Meron 2016). Similarly, the variable of export of goods and services has found to be positive and statistical significant impact on real GDP in short-run which is significance at 1% significance level. The result indicates that holding other things constant a percent increase in export of goods and services increase the real gross domestic product by 0.11 percent. Therefore, boosting country level export enhances Ethiopia economy through proving foreign currency exchange.

4.2.6. Diagnostics tests

Diagnostic tests tell us about the robustness of estimated coefficients. Diagnostic test statistics are generally not reported automatically by software and thus should be estimated separately. Type of the diagnostic test depends upon the modeling technique being utilized. However, the most common types of diagnostics tests are lag structure, coefficient

diagnostics and residual diagnostics. Residual diagnostics is the most crucial part of diagnostic tests in economic modeling since the regression models try to minimize errors (or residuals).

The error terms must be white noise (independently and identically distributed, i.i.d.). Residual diagnostics examine whether the error terms are i.i.d. Lagrange multiplier (LM) test, Jarque-Bera Normality Test and heteroskedasticity test are the major test methods for residual diagnostics.

The stability diagnostics examine whether the parameters of the estimated model are stable across various sub-samples of the data. The model is given must be consistent with the diagnosis of the econometric requirements of while I have to check the stability of the model. Result of Table 4.2.6 show that some Diagnostic tests with some the Diagnostic tests: serial correlation, form functions model is right with Ramsey's RESET test, normality, heteroscedasticity, and structural stability. The researcher conclude that no correlation form function's model is right with Ramsey's RESET test non-normality of the errors and heteroscedasticity test with all p-value larger than 0.05, associated with the model (Stock & Watson, 2010). Finally, all Diagnostic test have model passes all of the reported diagnostic tests. The researcher concluded that that result of research have economic significance and reasonable.

Table 4.2.6 ARDL ((1,2,1,0,2,0,0,1)) Diagnostic Tests for aggregate output growth equation

Tests	LM-version		F-version	
	statistic	P-value	statistic	P-value
A:Serial Correlation: Breusch-Godfrey serial correlation LM test	χ^2 (2)= 3.047792	0.4695	$F(2, 31)=$ 2.997369	0.1731
Heteroskedasticity: Breusch-Godfrey test	χ^2 (12)= 5.360444	0.7841	$F(10, 33)=$ 0.448321	0.8411
Normality: Jarque-Bera test	$\chi^2(2)=$ 0.116470	0.943428	Not applicable	
Functional Form: Ramsey RESET test	$\chi^2(1)=.281947$	0.7799	$F(1, 31)=$.079494	0.7799

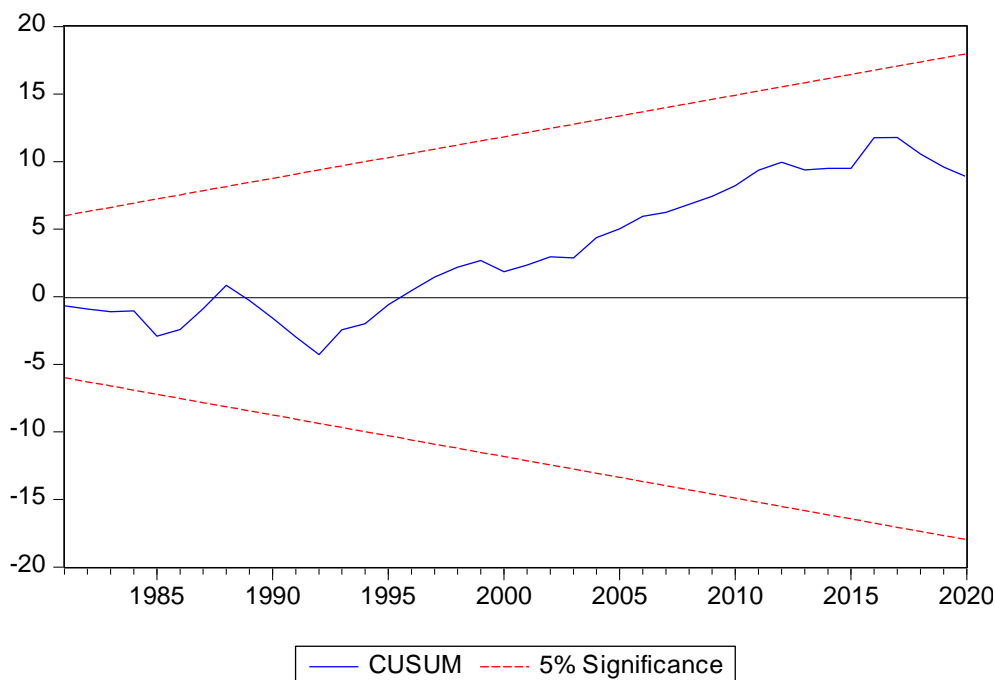
Source: Author's computation of E view 11 result, 2021

4.2.7 Test of Parameter Stability

The stability of the model for long- and short-run relationship is detected by using the cumulative sum of recursive residuals (CUSUM) which helps as to show if coefficient of the parameters is changing systematically and the cumulative sum of squares of recursive residuals (CUSUMSQ) tests which is useful to indicate if the coefficient of regression is changing suddenly.

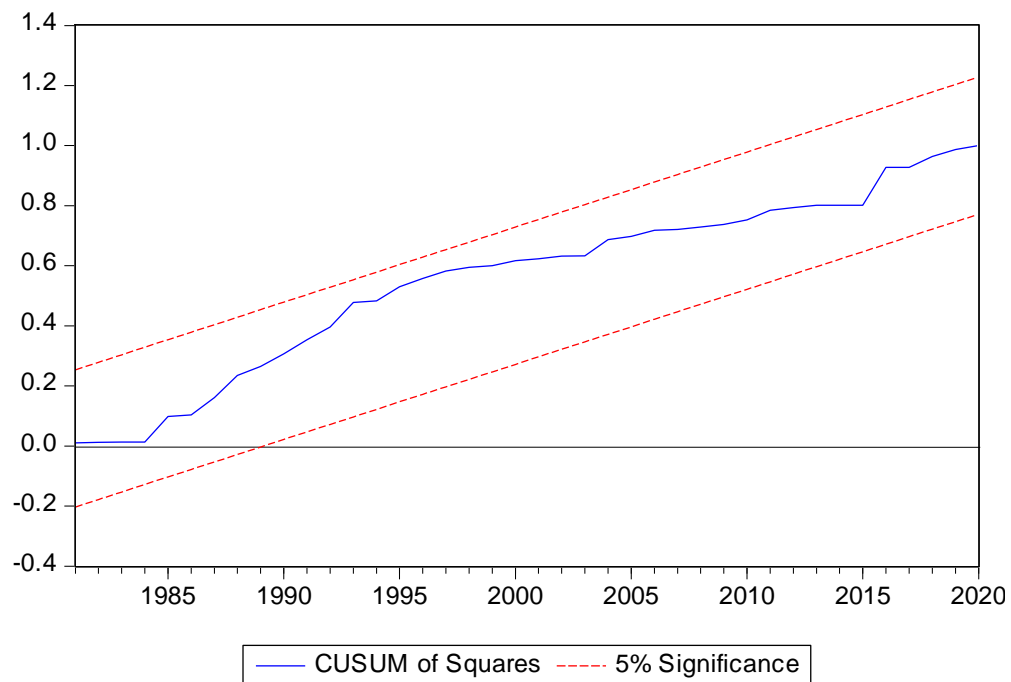
Accordingly, if the blue line crosses redline which is critical line and never returns back between two critical line, we accept the null hypothesis of the parameter instability whereas the cumulative sum goes inside the area (can returns back) between the two critical lines, then there is parameter stability in the short- and long-run. the researcher checked the stability of the long-term these parameters, along with the short-term movement to the equation. Including theory Borensztein et al. (1998), the researcher relied on the cumulative amount (CUSUM) and square cumulative amount (CUSUMSQ), including Pesaran and Pesaran (1997), Mohsen et al. (2002) and Suleiman (2005) to test the stability of the long-run coefficients. The tests applied to the residuals of the ECM model.

Figure 5.Plot of Cumulative Sum of Recursive Residuals (i)



Source: Author's calculation from E view 11 results, 2021

Figure 6.Plot of Cumulative Sum of Squares of Recursive Residuals (ii)



Source: Author's calculation from E view 11 results, 2021

As the result seen from the figure, the plot of CUSUM test did not cross the critical limits. In the same manner, the CUSUMSQ test shows that the graphs do not cross the lower and upper critical limits. So, the researcher concludes that long-run estimates are stable and there is no any structural break.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 CONCLUSION

This study investigated that the impact of International trade on economic growth in Ethiopia. Descriptive and empirical analyses were used in order to reach the objective of the study. The empirical results show evidence of long-run positive impacts of international trade proxy by export volume while negative impact proxy by trade openness index on economic growth in Ethiopia whereas progresses in international trade sector in both proxy contribute to economic growth in short-run.

In short run the study shows that money supply, gross capital investment, trade openness and export of goods and services are positive and significant determinant of economic growth in Ethiopia in the short run. Broad money supply is positively related to economic growth in the short-run and long run. Trade openness and real GDP growth are positively related in the short-run i.e. increase in Trade openness is increases real GDP growth.

The result of the study conclude that Broad money and gross capital formation as a control variables were positive and have significant influence on economic growth both in long-run and short run while real effective exchange rate, government final consumption expenditure and inflation level had negatively and significantly influence on the economic growth only in long-run.

Unlike the short-run result, the long-run result shows that there is a negative relationship between real effective exchange rate and real GDP growth. The long-run result shows that after a periodical depreciation of the 'birr' for some time, it may be helpful to change the policy as the direction of the relationship changes. If the exchange rate variable is to be used as a policy variable in the long-run, it is also depreciation of the domestic currency that decreases economic growth.

Government final consumption expenditure negatively and significantly affects economic growth in Ethiopia. The finding shows that the government of Ethiopia may decrease economic growth significantly by increasing its expenditure.

The relationship between export and economic growth is positive in the long-run. As such, increase in export is accompanied by increase in economic growth.

The results reveal that one year lag money supply, gross capital investment, trade openness and export of goods and services are positive and significant determinant of economic growth in Ethiopia in the short run and affect by 0.58, 0.583, 0.379 and 0.11 respectively. The remaining four independent variables namely real exchange rate, government final consumption expenditure and inflation are found to be insignificant in the short run. This result justifies that emphasizing the importance of international trade through boosting country export competitiveness could have immediate impact on real economic growth in Ethiopia.

5.2 RECOMMENDATION

Based on the finding of this study, the following recommendations are forwarded on the basis of finding by time length in short run and long run impacts of the factors.

A smooth and periodical increase of the 'export and reduce import be helpful to promote economic growth in the short run. Increase of the domestic currency encourages foreign demand for exports as the price of the exportable items become cheaper in foreign currency for foreigners. Increase in foreign demand for exports encourages domestic producers of the same items. The results of these would be increase in foreign earnings of the economy and economic growth and Promoting import substitution strategy through subsidies to the domestic industries to discourage over-reliance on imported goods and substitute their imported inputs and reducing taxes to their imported semi-finished products. This strategy should essentially be implemented based on the law of comparative advantage. So this study recommends that Ethiopian government should give more emphasis to specialization in agriculture for diversification of her production and export base so as to enable the country gain all the benefits of trade including economic growth because major exportable commodities of the country are coming from the agriculture sector.

Government should encourage the private sectors to develop market innovations with which Ethiopia has export potential through various incentive packages

There is a need to manage and control Public expenditure both in allocation and executions. I also recommend that the country's trade should not only be on primary commodity exports but also the promotion of non-primary exports i.e. manufactured goods. This transformation has been achieved by encouraging foreign direct investment.

Therefore, the study recommends that the government should try to understand the role of money supply in enhancing economic growth and come up with monetary policies that will enable money supply to drive the economy properly in order to achieve economic growth. One of such policies is by reducing the price for credit to the private sectors because their activities contribute so much to economic growth in Ethiopia. The study is also suggesting that government should equally strategize ways to ensure that the monetary policies on M2 and is favourable enough to enhance economic expansion in Ethiopia.

On the basis of the assumption that the country's currency devalue problem would be resolved by the foreign earning derived through the depreciation of the domestic currency in the long run.

In Ethiopia need to replace agriculture export by the industrial exports, which command reasonable and stable prices in the world markets. Moreover, the industrialization will reduce dependence on imports by initiating the process of import substitution.

International trade strategy must be hinged on the recognition that government is necessitated to take needful steps for the fostering of competitiveness and productivity of enterprises in the export sector, i.e. upgrading infrastructures, enhancing human capital development, developing and improving technology via an upsurge in allocation of resources to research and development via government spending.

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Appendices

Correlation Matrix

Dependent Variable: LNRGDP

Method: ARDL

Date: 06/01/21 Time: 15:30

Sample (adjusted): 1977 2020

Included observations: 44 after adjustments

Maximum dependent lags: 2 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

Dynamic regressors (2 lags, automatic): LNMS LNGCF LNGFCE LNREER

LNTOI LNEXPORT INFLATION

Fixed regressors: C

Number of models evaluated: 4374

Selected Model: ARDL(1, 2, 1, 0, 0, 2, 0, 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LNRGDP(-1)	0.522300	0.155931	3.349559	0.0023
LNMS	-0.183529	0.267696	-0.685589	0.4984
LNMS(-1)	-0.382855	0.424856	-0.901141	0.3749
LNMS(-2)	0.583444	0.311601	1.872406	0.0713
LNGCF	0.583471	0.084466	6.907803	0.0000
LNGCF(-1)	-0.180125	0.121749	-1.479480	0.1498
LNGFCE	-0.034873	0.115588	-0.301703	0.7650
LNREER	-0.023479	0.057659	-0.407208	0.6868
LNTOI	-0.379045	0.123982	-3.057269	0.0048
LNTOI(-1)	0.388856	0.140621	2.765268	0.0098
LNTOI(-2)	-0.116278	0.088833	-1.308945	0.2008
LNEXPORT	-0.011489	0.037073	-0.309893	0.7589
INFLATION	0.002176	0.001883	1.155429	0.2573
INFLATION(-1)	0.003836	0.001742	2.202119	0.0358
C	2.088868	0.892097	2.341525	0.0263

R-squared	0.995682	Mean dependent var	12.39690
Adjusted R-squared	0.993597	S.D. dependent var	0.900961
S.E. of regression	0.072091	Akaike info criterion	-2.156840
Sum squared resid	0.150718	Schwarz criterion	-1.548593
Log likelihood	62.45047	Hannan-Quinn criter.	-1.931273
F-statistic	477.6463	Durbin-Watson stat	2.034441
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for model selection.

ARDL Bounds Test

Date: 06/01/21 Time: 15:31

Sample: 1977 2020

Included observations: 44

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	7.4775458	7

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	2.03	3.13
5%	2.32	3.5
2.5%	2.6	3.84
1%	2.96	4.26

Test Equation:

Dependent Variable: D(LNRGDP)

Method: Least Squares

Date: 06/01/21 Time: 15:31

Sample: 1977 2020

Included observations: 44

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNMS)	-0.249194	0.281579	-0.884990	0.3834
D(LNMS(-1))	-0.535019	0.289860	-1.845785	0.0752
D(LNGCF)	0.602948	0.088065	6.846608	0.0000
D(LNTOI)	-0.358671	0.102606	-3.495605	0.0015
D(LNTOI(-1))	0.138643	0.091376	1.517292	0.1400
D(INFLATION)	0.002834	0.001700	1.666621	0.1064
C	1.565026	0.846802	1.848161	0.0748
LNMS(-1)	0.006988	0.043211	0.161718	0.8726
LNGCF(-1)	0.431149	0.134364	3.208801	0.0032
LNGFCE(-1)	0.045406	0.112009	0.405379	0.6882
LNREER(-1)	0.020092	0.055327	0.363149	0.7191
LNTOI(-1)	-0.070457	0.086466	-0.814852	0.4218
LNEXPORT(-1)	-0.024220	0.037312	-0.649123	0.5214
INFLATION(-1)	0.007143	0.002814	2.538624	0.0168
LNRGDP(-1)	-0.479019	0.152378	-3.143616	0.0038
R-squared	0.753111	Mean dependent var		0.069559
Adjusted R-squared	0.633923	S.D. dependent var		0.117711
S.E. of regression	0.071220	Akaike info criterion		-2.181153
Sum squared resid	0.147098	Schwarz criterion		-1.572907
Log likelihood	62.98537	Hannan-Quinn criter.		-1.955586
F-statistic	6.318693	Durbin-Watson stat		2.002107

ARDL Cointegrating And Long Run Form
 Dependent Variable: LNRGDP
 Selected Model: ARDL(1, 2, 1, 0, 0, 2, 0, 1)
 Date: 06/01/21 Time: 15:34
 Sample: 1975 2020
 Included observations: 44

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNMS)	-0.183529	0.267696	-0.685589	0.4984
D(LNMS(-1))	0.583444	0.311601	1.872406	0.0713
D(LNGCF)	0.583471	0.084466	6.907803	0.0000
D(LNGFCE)	-0.034873	0.115588	-0.301703	0.7650
D(LNREER)	-0.023479	0.057659	-0.407208	0.6868
D(LNTOI)	0.379045	0.123982	3.057269	0.0048
D(LNTOI(-1))	0.116278	0.088833	1.308945	0.2008
D(LNEXPORT)	0.111489	0.037073	3.007282	0.0009
D(INFLATION)	0.002176	0.001883	1.155429	0.2573
CointEq(-1)	-0.477700	0.155931	-3.063541	0.0047

Cointeq = LNRGDP - (0.0357*LNMS + 0.8444*LNGCF -0.0730*LNGFCE
 -0.0492*LNREER -0.2229*LNTOI + 0.0241*LNEXPORT - 0.0126
 *INFLATION + 4.3728)

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LNMS	0.035711	0.014712	2.426616	0.0328
LNGCF	0.844350	0.143779	5.872537	0.0000
LNGFCE	-0.073002	0.048098	-1.794248	0.0707
LNREER	-0.049150	0.020419	-2.407545	0.0450
LNTOI	-0.222875	0.033185	-3.673427	0.0000
LNEXPORT	0.024050	0.080454	2.784821	0.0071
INFLATION	-0.012584	0.005111	-2.462061	0.0200
C	4.372757	1.210445	3.612520	0.0011