College of Business and Economics

Department of MBA

DETERMINANTS OF ETHIOPIAN EXPORT: AN EVIDENCE FROM FIVE COMMODITIES USING TIME SERIES ANALYSIS

A Thesis Submitted to Addis Ababa University College of Business and Economics, Graduate Studies in Partial Fulfillment of the Requirements for the Degree of Master of Business Administration in Finance

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DECLEARATION

This is to certify that the thesis prepared by Zelealem Melese Asres, entitled: determinants of Ethiopian export on five selected commodities: a time series analysis submitted in partial fulfillment of the requirements for the degree of Master of Business Administration in Finance. I declare that this thesis is my own work and it has never been submitted to any institutions and that all sources of material used for the thesis have been duly acknowledged.

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Date: October, 2019

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STATEMENT OF CERTIFICATION

This is to certify that the research project is prepared by Zelealem Melese Asres, entitled: determinants of Ethiopian export: an evidence from five commodities using time series analysis, submitted in partial fulfillment of requirements for the degree of Masters of Business Administration in Finance, complies with the regulations of the university and meets the accepted standards with respect to originality and quality.

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ABSTRACT

The study investigates the export performance of the five selected commodities of Ethiopia namely: coffee, oil seeds, chat, meat and meat products and fruits and vegetables and their determinants during the period 2003/2004 - 2017/18 using a secondary data extracted from National Bank of Ethiopia (NBE), Ethiopian Revenues and Customs Authority (ERCA) and Central Statistics Agency (CSA). To analyze the relationship between the export commodities and their determinants, gross domestic products (GDP), real effective exchange rate (REER) and trade openness (TOP) were used, an Autoregressive Distributive Lag (ARDL) model have been used. The model helps to investigate the long run and short run relationship between selected commodities and their determinants. The result from econometric analysis revealed that the GDP is the only variable significantly and positively affects the export of the selected commodities. While TOP positively and significantly affects the export of coffee and chat, REER significantly affects the export of fruit and vegetables however, negatively. Since all the export commodities were positively impacted by GDP, increasing quality and quantity of the product of the commodities would bring a vital outcome for increasing the performance of the export of the commodities, which can be regarded as the key finding for the research.

Key words: ARDL, GDP

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ACRONYMS & ABBREVIATIONS

ACP-EU: The African, Caribbean and Pacific - European Union

ADF: Augmented Dickey-Fuller

AGOA: African growth and opportunity act

ARDL: Autoregressive Distributed Lag

COMESA: Common Market for Eastern and Southern African States

CPI: corruption perception index

CSA: Central Statistics Agency

ERCA: Ethiopian Revenues and Customs Authority

FDI: foreign direct investment

GAIN: Global agricultural information network

GDP: gross domestic product

IMF: international monitory fund

LPI: logistics performance index

NBE: National bank of Ethiopia

NEER: the nominal exchange rate.

OLS: Ordinary Least Square

OMI: Open markets index

PASDEP: Plan for Accelerated and Sustained Development to End Poverty

PP: Philips Perron

REER: real effective exchange rate

SAP: structural adjustment program

TOP: Trade openness

UNDP: united Nations development programs

WPIW: Trade-weighted wholesale (producer) price index of trading partners

CHAPTER ONE

1. Introduction

1.1 Background of the study

Long civil war and poverty had been a challenge for African countries for years. These challenges hider the continent from doing business with other continents. Recent performance on economic activities of these countries is in a progress which reflects the implementation of better policies and structural reforms toward business integration with other nations. It's not long ago these countries identified an economic strategy and reform with the direction of export led growth.

Since 1992, Ethiopia, under the support and guidance of the IMF and the WB 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 policy regime is to increasingly open the economy to foreign competition with a view of benefiting the economy from expanded markets. To this end, the government of Ethiopia utilizes various instruments, for example, devaluation of the Birr and bit by bit progression of the outside trade advertise, streamlining import and fare authorizing framework, tax decrease and arrangement of motivators to exporters, removing taxes for exports and subsidiaries to parastatal sending out undertakings, empowering export oriented investments introductions of duty draw back and foreign exchange retention scheme, limiting managerial and bureaucratic procedures, set up trade or export bolster establishments, Instituted export explicit incentives plans are the major institutional courses of action (Haile,1999).

As Kebede (2011) stated, exports generate foreign exchange reserves that are necessary to finance essential imports required for domestic production and capital formation. The increase in export earning can also improve the balance of payment of a country and plays a prominent role in creating employment opportunities for unemployed groups. Again, an expansion in exports may promote specialization in the production of export products, which in turn may boost the productivity of the export sector. Then, the improvement in productivity may lead to output growth by the policies and reforms undertaken, export-led growth has been given special attention in many countries. This is

so because exports generate foreign income that is necessary for import required for domestic production and capital formation as well as balance of payment.

Liberalized international trade in the form of encouraging exports is seen as one of the important factors for promoting growth in these countries. Ethiopia is likewise following liberal trade policies to advance and promote exports. Thus, Ethiopia's export trade performance has been expanding significantly. The value of both exports and imports have improved significantly since the implementation of Plan for Accelerated and Sustained Development to End Poverty (PASDEP) in 2004/05 (Kebede, 2011). According to the World Bank (2014) Ethiopia has been one of the world's fastest growing economies over the past decades. The report mentioned that positive external conditions and the ascent of its exports contributed to this growth.

Like many African countries, Ethiopia's export is mostly dominated by agricultural commodities, as of 2018, data from UNDP, and agriculture accounts for almost 70% of the total export of goods of the country. Numerous other economic activities rely on agriculture, including marketing, processing, and export agricultural items. Production is overwhelmingly of a subsistence nature, and an enormous piece of commodity export are given by the smaller cash-crop sector. Exports are almost entirely agricultural commodities, with coffee as the largest foreign exchange earner followed by oil seeds and Chat. According to UNDP 2018 Ethiopia's coffee exports represented 28% of the total country export followed by oil seeds covers 16.2% and Chat 9.3%.

However, even if there are export opportunities there still remain a lot of hurdles and uncertainties to keep economic growth fast. The economic and social situation of the continent is vulnerable to domestic and external shocks. Limited investments to diversify economic structures and boost growth, new armed conflicts, poor weather conditions and a deterioration of the terms of trade are the primary challenges the African countries face to uphold the gains in economic performance (IMF report, 2011 as cited by Biruk, 2012).

Therefore, the government of Ethiopia has implemented different strategic plans that promote export trade in terms of quality and quantity of both agricultural as well as industrial products which will bring and increase the foreign reserve of the country. The objective of this paper is thus to look at the factors behind poor export growth rate of Ethiopia and come up with reliable and recent

information to inform for the policy makers regarding the problem. The paper identifies the major determinants of export growth rate on selected commodities and examines how much these factors affect the country's export growth.

1.2 Statement of the problem

Since the year 2000, the African Growth and Opportunity Act (AGOA) has given qualified African nations quota and quantity free access to the United States' markets. This has made an open door for African organizations and businesses, large or little to meet trade with new markets and improve the nature of their items and products. Similar to this the African, Caribbean and Pacific - European Union (ACP-EU) and other agreements have also created an opportunity for Ethiopian export items.

Since the year 2000, the African Growth and Opportunity Act (AGOA) has given eligible African countries duty and quota free access to the United States markets due to this, there has been an increased interest in Africa as a continent with a huge potential and resources. The AGOA initiative is believed to stimulate the development of such interest in Africa among others. AGOA has been playing the major role of promoting Sub-Saharan Africa's integration into the multilateral trading system, and empowering the Continent to have more active roles in global trade negotiations. It has also contributed greatly for African countries by making them more attractive partners for U.S companies. The African, Caribbean and Pacific - European Union (ACP-EU) and other agreements have also created an opportunity for Ethiopian export items.

Being qualified to AGOA and ACP-EU has created good condition for the eonomic development of Ethiopia in general.Additionally, Ethiopia has been singled-out as a place where there is development and venture openings (Ethiopian Investment Agency's, 2008).

According to UNDP (2013) Ethiopia, as Africa's main exporter of coffee, is an important country for the international coffee community with the highest premium coffee Arabica originates from country and it is the main export item followed by Oilseeds in which more than 3 million smallholders are involved in its production. exports actually comprise of sesame and Niger seed, for which there is a growing interest in the world market. Ethiopia positions among the main 5

world producers of sesame seed and linseed. The growing interest on the world market for these products and the available capacity to expand production could make oilseeds transform into one of the engines of the economic development of Ethiopia. (Bemnet, 2004).

Even if there are opportunities by international market, the country did not use the advantage of the cheap large labor and fertile land which is available for cultivation, production, processing and exporting purpose as well as the preferential market access provided by EU and US such as EBA and AGOA respectively.

According to MOI (2013) the Ethiopian government has been using different strategies to further expand and develop industrial sectors, to diversify agricultural as well as industrial sectors, to enhance enterprise cultivation, to increase private and public investments which will increase the export of the country. Devaluing the currency, which were expected to improve the competiveness of the country and substitute some of the imported commodities by switching expenditure from imported goods to relatively domestic products, which would improve the foreign currency deposit of the country and set up a good ground for domestic investment. Increased in domestic investment will lead to increase in growth domestic product of the country which indirectly increase export of the country.

According to Kiros (2012) until the 1990s the Ethiopian export sector could be characterized as a 'three-commodity sector' consisting of coffee, hides and skins, and oilseeds and pulses. Between 1966 and 1996, on average 59% of the country's export earnings came solely from coffee and similarly in 1997/98 the share of coffee is 70% but in 2009/10 it shows a significant decrease to 20% while the share of non-coffee agricultural exports and major manufacturing export commodities (leather and leather products; textile; and agro processing products) are 30% in 1997/98 and has increased remarkably and reached 80% in 2009/10.

However, when we examine the export of goods and services as percentage of GDP, 1.844%, 10.6%, 7.73 % and 4.28%, for Ethiopia, Uganda, Kenya, and Tanzania in 2017, respectively. This shows the export percentage of GDP is very low comparing with Sub- Saharan African countries (Own calculation data from CBE and WTO; 2017).

Alemayehu (1999) argue that Ethiopia's external trade has major problems both on the supply side – its dependency on 3 few primary products, characterized by large fluctuations in volume; and a very high degree of concentration of exports on few commodities – and on the demand side – a low income elasticity for the type of commodities that Ethiopia exports, declining prices for its exports, and limited destinations for Ethiopian exports.

In general, having the above mention problems for the low growth rate of Ethiopia's export and the controversial issues on the determinants of export initiates the researcher to conduct a research on this area. Identifying and examining the factors that significantly affects Ethiopia's export growth should facilitate the design of policies to improve the growth and ultimately to see and improve overall economic growth. The objective of this paper is thus to look at the factors behind poor export growth rate of Ethiopia and come up with reliable and recent information to inform for the policy makers regarding the problem.

Although numerous researches have been conducted in the area, more commodities have not been used within a single research and different determinants with recent research periods covered. Therefore, the research identifies the major determinants of five selected Ethiopian export commodities namely: coffee, oil seeds, chat, fruit and vegetables and meat and meat products.

1.3 Objectives

1.3.1General objectives

The general objective of the study is to investigate and to undertake quantitative measures of the export performance and its determinants of the five selected export commodities of Ethiopia. Particularly Coffee, oil seeds, Chat, fruit and vegetables and meat and meat products.

1.3.2 Specific objectives

1. To examine the relationship between selected export commodities and gross domestic product of the country.
2. To access the relationship between selected export commodities and real effective exchange rate of the country.

3. To evaluate the relationship between selected export commodities and Trade openness.
4. To empirically estimate the short run and long run relationship between export commodities and gross domestic products (GDP), real effective exchange rate (REER) and Trade openness (TOP).

1.4 Research Questions

The general question is what are the determinants that affect the export commodities of Ethiopia? Based on the general questions the following specific questions are raised.

1. Is there long run relationship between the export commodities and GDP, TOP and REER?
2. Is there short run relationship between the export commodities and GDP, TOP and REER?

1.4.1 Hypothesis

Based on the research question the following hypothesis has been developed.

H1. There exists long run relationships between Ethiopian export commodities and GDP, TOP and REER.

H2. There exists a short run relationship between Ethiopian export commodities and GDP, TOP and REER.

1.5 Scope of the study

The study will be focusing on investigating the effect of export determinants on the selected Ethiopian export commodities. The study covers a period of fifteen years stretching from 2003/2004 to 2017/18 and relies on a quarterly arranged secondary data mainly drawn from the National bank of Ethiopia (NBE), Ethiopian Revenues and Customs Authority (ERCA) and Central Statistics Agency (CSA).

1.6 Significance of the study

The research will have a benefit to overcome the export challenges of the selected export commodities so that the country could improve its quality and quantity of export items. It is believed that the research outcome benefits for policy makers which will identify the drawbacks of export and will help clearly identify the impact of the specified determinants on export of the country in the short run and long run.

The research will benefit to overcome the export drawbacks so that the international trade part takers could be competitive in the global market. The model is expected to reliably estimate the relationship between the dependent and explanatory variables that are hopefully believed which could help to improve the performance of Ethiopian commodities in the international market. In addition, the research output could as well benefit responsible government bodies such as Ministry of Trade, Quality and Standard Authority of Ethiopia and other related sectors.

1.7 Limitation of the study

Obtaining adequate data was one of the major challenges the researcher faced while conducting the study. Although the initial intention was to cover a longer period of time, the unavailability of data has limited the research in to the specified scope, fifteen years. In addition to this there were minor challenges on measurement techniques on GDP, since the extracted data was on annually base, the researcher used E-view 10 to convert the data quarterly.

1.8 Organization of the paper

The study is organized in five chapters. Chapter one deals with the introductory part which includes background of the study, statements of the problem, objectives, Hypothesis, research questions, scope of the study, and significance of the study, limitation of the study and organization of the paper. Chapter two presents the short review of all these relevant literatures. Chapter three will deal with the research methodology used to address the research. Chapter four covers the research analysis and interpretation of the research. The last chapter presents the conclusion and recommendations based on the findings of the study.

CHAPTER TWO

2.Literature review

2.1 Theories of international trade

International trade plays a crucial role in economic development of a nation. It allows countries to expand their markets for both goods and services that otherwise may not have been available domestically. As a result of international trade, the world market contains greater competition, and therefore more competitive prices, which brings a less expensive product home to the consumer. According to Porter 1998, if there were no international competition, the level of productivity attainable in a nation's economy would be largely independent of what was taking place in other nations. International trade and foreign investment, however, provide both the opportunity to boost the level of national productivity and a treat to increase or maintain it. International trade enables a country to raise its productivity by eliminating the need to produce all goods and services within the country itself. A country can in this manner specialize in those industries and segments in which its firms are relatively more productive and import those products and services where its firms are less productive than foreign rivals, in this way it raises the average productivity level in the economy.

Expansion and diversification of exports is often behind spurts in economic growth. A thriving export sector helps align the domestic economic incentive structure with areas in which a country has comparative advantage. This is desirable from the perspective of resource allocation. Furthermore, successful exports create dynamic efficiency gains by exploiting economies of scale, embracing best practice foreign technologies and business processes, and by being subject to higher international competition. Export sectors are also associated with productivity gains leading to wage premiums and job creation Abuka (2014).

2.2 Agricultural export performance in developing country

The impact of economic integration on agricultural export performance has been hotly debated in academia. The fundamental concerns have been the drivers of regional integration, its static and dynamic consequences on the theory of custom unions (Che et al. 2015; Fuchs and Klann 2013; Qureshi 2013). A number of studies have investigated the effects of trade liberalization on export

growth in developing countries with inconclusive results. Some studies have identified positive effects of trade liberalization on export performance (Bleaney and Wakelin 2002), while others confirmed an insignificant or even negative relationship (Greenaway et al. 1999).

African agricultural production is largely subsistence in nature with a high dependence on the rain; farmers suffer price competition with large scale farmers in more developed countries who flood their products in Africa while export capacity of locally produced agricultural products from Africa is very limited (Mkpado, 2013). Other worrisome agricultural characteristics and trends shared by African countries include high degree of production variability, relatively low crop yields and dependency on primary exports with low income elasticity and high price volatility. Relative to other developing regions, Africa‟s agriculture is undercapitalized, uncompetitive and underperforming; the sector is relatively weak as its productivity lags behind that of other regions and often declining performance is symptomatic of the myriad challenges it faces. Similarly, most of Sub-Saharan African countries depend almost on primary commodities for their foreign exchange earnings.

2.3 Ethiopia export trend

International trade has several advantages countries like Ethiopia. The undeniable advantage from trade is that it enables nations to increase their production and consumption through specialization on goods and services on the basis of their comparative advantage.

Ethiopia's development model is partly inspired by the East Asian experience that realized high economic growth through the development of new export sectors and government-led development investments. The four East Asian tiger economies, Hong Kong, Singapore, South Korea and Taiwan are good examples of economies that followed export led growth strategy and registered a remarkable achievement. Many developing nations have endeavored to pursue the East Asian growth model in recent decades. Ethiopia, like other developing nations pursued the export-led growth strategy since 1992. The general performance of Africa in terms of export diversification has been far from satisfactory and most nations continued to be totally dependent on a few traditional exports. Following the export-led growth strategy of the country, Ethiopia's economy, as well as, its export composition still remained highly dependent on agriculture.

Verwimp (2011) sited that, according to the Food and Agricultural Organization (FAO, 2002), 43 African countries earned more than 20% of their total export revenue from one agricultural commodity, during the period 1997–1999. They include Burundi, Ethiopia, Rwanda, Uganda (coffee), Côte d' Ivoire (cocoa), Malawi (tobacco), Mali (cotton), Kenya (tea), Ghana (cocoa) in Africa and the coffee-producing Latin American countries Honduras and Guatemala. For Rwanda, Burundi, Uganda, Ethiopia and Mali, revenues from this single crop even surpassed 50% of total export revenues, during the period 1986–1988.A number of these countries have been ruled by authoritarian or undemocratic regimes during recent decades. To give some examples: in Ethiopia, a communist one-party regime ruled the country after the demise of Emperor Haile Selassie in 1975 until 1991.

The structure of the export sector of Ethiopia is dominated by a few primary products that records for a lion's share of the country's export earnings. Recently however, the export industry has seen significantly diversifying away from its dependence on coffee. In 1991, coffee brought more than 55% of the country 's total export revenue, but, by the end of 2009 its share declined to less than 35% while the shares of other goods such as Chat, flower, leather and leather products have increased substantially Kebede (2011).

In terms of the commodity composition of exports, although coffee continues to dominate the top spot, notable among Ethiopia's non-coffee exports is the growing importance of five major products that each bring in more than $100 million per year: these include oil seeds, gold, Chat, flowers, and pulses. Export products with annual sales of more than $10 million have also increased substantially and now include products as varied as processed meat, vegetables, textiles and clothing, spices, leather products, minerals and cotton. Though much of this diversification is within the same industry, the overall result shows a significant departure from the traditional, mono-crop dominated export sector. (Wondemhunegn, 2011)

2.4 Trade Openness and Export performance

Ethiopia has a relatively closed economy, though trade openness has increased substantially over the past decade. Exports and imports of goods and services as a share of GDP increased from 37.5 percent in 2001/02 to 47.5 percent in 2017/18. Ethiopia's degree of international integration lags behind countries such as Kenya and Tanzania (74.9 and 79.8 percent of GDP, respectively) while

it exceeds that of Rwanda (45.2 percent). In fact, Ethiopia has the lowest goods export-to-GDP ratio (7 percent) among populous developing countries (NBE and World Bank report 2014).

Opening trade policies with the rest of the world is highly needed for economic growth. Current trend shows that countries with trade liberalization have achieved a tremendous amount of economic growth. Trade liberalization implies considerable reduction in tariff and non-tariff barriers, so as to establish a noticeable open market as compared with the pre- liberalization era. The empirical re-searches focusing on the impact of trade liberalization (openness) on export earnings have exhibited positive results. (Belayneh and Wondaferahu: 2012)

2.5 Real Effective Exchange rate and Export performance

The foreign exchange element of exports is important for sustainable growth of an economy. Exports help finance imports, especially of capital goods, and enable countries to maintain a more favorable balance of payment situation. Ultimately this means that countries are in a better position to repay their external loans. Better availability of foreign exchange in an economy will also ease the overall financing burden for companies to trade. On the other hand, competitively priced imports used as inputs to the production process are an import part of overall competitiveness of companies.

The performance of the country‘s exports highly dependent on its exchange rate regime and more specifically the real exchange rate. Various studies have shown that the demand for the county‘s exports increase when its export prices fall in relations to the world prices. The depreciations of its currency compared to other currencies particularly, the dollars make its exports cheaper on the international market. For example, Sharma (2001) discovered that the demand for Indian exports increased when its export prices fell. He also said that the appreciations of the Indian rupee at one time adversely affected Indian exports. In Uganda an investigations of the impact of trade liberalizations on export volumes by Kasekende and Atingi-Ego (1999) found no significant relationship between real exchange rate and export volumes .it is further argued that a competitive exchange rate is associated with export growth. In Tanzania, a time series study on non-traditional export (NTE) found a statistically significant relationship between real devaluations and export growth of NTEs. (C. f Berhanu, 2003)

In theory, devaluation stimulates exports and aggregate economic activity through the famous multiplier effect. However, currency devaluation may not produce the desired outcomes for several reasons.

2.6 GDP and Exports

There have been many theoretical and empirical studies discussing the impact of exports on the growth of a nation's GDP. The theoretical foundations have been avidly analyzed by different authors. Dawson et al (2010) argues that the export led growth hypothesis dominates the export income literature for several reasons. Firstly, according to Keynesian short run arguments, export growth leads to income growth via the foreign trade multiplier. Secondly foreign exchange earned from the export sector can bolster the import of manufactured, capital and technology inputs which ultimately leads to income growth. Thirdly; following Endogenous Growth Theory popularized by Grossman and Helpman, the export sector creates positive externalities such as more efficient production methods which lead to growth.

There are numerous empirical studies of the export–income relationship. Early studies generally support the export-led growth hypothesis and include Balassa (1978) whose estimate of the export elasticity of income is 0.05, and its validity gained wide spread acceptance, notably by the WorldBank(1987).

Later Solo type growth equations were used to support the export lead growth hypothesis. An aggregate production function is specified with labor and capital as conventional inputs and exports as an additional 'input' were utilized. Sources-of-growth equations are then derived where income growth is determined by growth rates of both conventional inputs and exports.

But there were little efforts made to analyze the impact of agricultural exports on GDP growth or the other way round i.e. does growth in GDP leads to increase in agricultural exports. Levin and Raut (1997) who examined the impact of both manufactured and primary export on GDP growth found that GDP growth can be increased by manufactured export growth, but not by expanding primary commodity exports. Dawson (2005) used annual data for 62 developing countries of 1965-1974 and 1975-1984 to find that the short-run agricultural export elasticity of GDP is similar to non-agricultural export elasticity and that the impact fall as income increases. Dawson (2010) on the other hand examines the long run relationship between GDP and agricultural and non-agricultural exports by using annual data from 42 developing countries for 1970-2004. The findings

prove the validity of the export lead growth hypothesis and existence of long run relationship between GDP and exports.

2.7 Export commodities of Ethiopia

The level of development of the economy, resource endowments, policies and development strategies followed are some of the determining factors of the export structure of a country. Being an underdeveloped economy that heavily depends on agriculture, the structure of Ethiopian export is dominated by agricultural products which used to account for more than 70% of the total export for a long period of time. The current trend shows that there is an improvement on export of industrial outputs like textile and garments. The overall goal of the industrial development strategy is to bring about structural change in the economy through industrial development. Specifically, it is aimed at by aggregating the share of the industry sector as % of the GDP from the current 13% to 27% by 2025, and also increasing the share of the manufacturing sector as % of the GDP from the current 4% to 17% by the year 2025 (MOI 2017). This is accredited from improved industrial activities, besides the decline of world prices for primary commodities, specifically coffee.

Coffee has been the dominant export commodity for the last decades making-up on average 55-60% of total exports followed by oil seeds and Chat. Since 1992, Ethiopia, under the support and guidance of the IMF and the World Bank has experienced 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 rule is to increasingly open the economy to foreign competition with a view of benefiting the economy from expanded markets as well as increased export capacity. Since then the government has been reforming the policies so as to support the sector in the ever dynamic world economy.

Although coffee has been the predominant export of Ethiopia for a long time, it's being closely followed by oil seed, Chat and other agricultural produces. This research focuses on the export performance of the commodities discussed below.

2.7.1 Export of Coffee

According to GAIN (2019), Coffee is one of the most important exports of Ethiopia. It is the predominant foreign exchange generator for the country. Ethiopia's diverse coffee varieties, flavors and natural forest friendly production methods provide the economy a comparative advantage in

the international market. Although the country's performance on the export of coffee lags behind the leading coffee exporting countries like Colombia, Brazil and Vietnam, its share in the international market is significant and following Peru, the country is the second largest organic coffee exporter by volume. Ethiopia has more than 400 coffee exporters, 395 coffee farmers who directly export coffee, and over 30 import-export companies who export coffee and use the foreign currency to import other materials like vehicles and construction inputs. Ethiopia exports coffee to over 60 countries. Based on the coffee export data in 2017/18, the principal export markets for Ethiopian coffee were: Germany (22 %), Saudi Arabia (16 %), United States of America (11%), Belgium (7 %), Sudan (6 %) and Italy (5 %).

2.7.2 Export of Oil Seeds

Oilseeds are the second biggest export earner for the country after coffee in which more than 3 million smallholders are engaged in its production. Exports actually comprises of sesame and Niger seed, for which there is a increasing demand in the world market. Ethiopia ranks among the top 5 world producers of sesame seed and linseed. It is also an main producer of Niger seed. Castor, linseed and safflower have good export potential. The growing demand and interest in the world market for these products and the available capacity to expand production could make oilseeds transform into one of the engines of economic growth of Ethiopia. Groundnuts, safflower, rapeseed and many other oilseeds are produced on a limited scale. Sesame seed is the main oilseed export product. Niger seed, as second, is mainly to the US. In 2005 and 2006 Ethiopian exports further increased, whereby China came up as a new market. Export of sesame seed has been growing rapidly. The major importers of Ethiopian sesame seed in the EU are Greece, Germany, the Netherlands and the UK. Although Japan is the biggest world importer of sesame seed, Ethiopia is not one of its sources due to quality requirement mismatches. On the other hand, Ethiopia is a net importer of refined oil (Abule, 2012).

2.7.3 Export of Chat

Chat is one of the most recent commodities that was added to the basket of exportable items in Ethiopia. According to data from National Bank of Ethiopia, the export of Chat started flourishing during the late nineties. Prior to that period although there were trends of marketing Chat, the volume of export and its associated income was very limited. In Ethiopia, the income from exports of chat grew by 59.1% during 1960/61-2000/01. At the time of the Derg regime (1974/1975 to

1990/1991), export revenue from the plant demonstrated an average annual growth of 69.8% compared to 0.8% during the imperial rule (Gemechu, 2002). After the year 1991/92, under the period of Ethiopian Peoples' Revolutionary Democratic Front (EPDRF), the growth rate in the real value of total exports had a significant increase In 2018, following coffee, oilseeds and pulses, Chat registered the highest income, $ 263 ml for the country. The fertile land of Ethiopia grows several types of Chat which are favored by many consumers. The main destination of this commodity is the neighboring countries and some parts of Asia.

2.7.4 Export of Fruits and vegetables

International trade of fruits and vegetables is of vast dimensions. Endowed with diverse geographical and climatic conditions, Ethiopia produces a wide range of fruits and vegetables. In recognition of the importance of production of fruits and vegetables as a valuable supplement to the food resources of the country and as a sector offering sizable export prospects, increasing attention has been paid, in recent years, to gear up this industry to achieve the dual objectives. Data from the national Bank of Ethiopia indicates that the performance of the sector has been improving especially since the year 2010.

According to official GOE figures reported by the Central Statistics Agency (CSA), annual fruit production for MY 2017/18 is estimated roughly at 780,000 metric tons. This is slightly lower than production figures for previous crop year. In MY 2017/18, fruit crops occupied a total area of 104,000 hectares, down by 4% over preceding year. The total acreage and production volume of fruits represent is very small when compared to grains production.

2.7.5 Export of Meat and Meat Products

Ethiopia has the largest cattle population in Africa; however, the export of meat and meat products hasn't developed as it should. At the household level, 70% of all Ethiopians rely on livestock in some form to contribute to their family's livelihood. Women play an important role in livestock production, both through contributing livestock to the assets of the household and in supporting primary production of smaller ruminants. In Ethiopia cattle, goats, sheep, camel and poultry, are used as resource base for meat production. The regions with the largest livestock populations in Ethiopia are Oromia, Amhara and SNNP, with Tigray at a distant fourth (CSA, 2013). However, the pastoralist areas are main sources of animals for meat export.

2.8 Empirical Literature Review

Nega (2013) on his study of factors that determine the export performance of Ethiopia, in his study he identified some major determinants of export performance of Ethiopia for the period that covered twenty-five years, from 1974-2011, the results from the econometric analysis revealed that the explanatory variables, terms of trade, trade openness, gross domestic product, real effective exchange rate, domestic credit and capital expenditure over a period, significantly affected export performance in the long run except capital expenditure. In the short run, terms of trade became insignificant and negative in sign which was unexpected. Capital expenditure was also insignificant like in the case of long run. However, except these two variables other variables were found to significantly affect the export performance of the country. On the other hand, out of the variables significantly affected export both in the long run and short run; terms of trade, trade openness, and real gross domestic product affected export positively as expected.

Mulualem (2006) on his study of determinants of manufacturing performance in Ethiopia used Ordinary Least Squares (OLS) estimation method using annual data from 1970 – 2004. The findings from analysis results of the model indicated that Ethiopian manufacturing exports were positively & significantly impacted by investment to GDP ratio, total factor productivity and foreign income while real effective exchange rate was found to have insignificant influence on exports.

In the case of South Africa, Edwards & Alves (2005) in their analysis of determinants of manufacturing export supply in South Africa used a panel data set of 28 manufacturing sectors using import substitution model. The researchers used dynamic fixed effects (DFE) & Generalized Method of Moments (GMM). The results from the export demand equation estimated to check whether the small country assumption holds for South Africa shows that South Africa is a price taker. The results from the equation estimated on export supply determinants tell that South African total manufacturing export volume is positively & significantly influenced by relative prices (i.e. real effective exchange rate), real foreign income, skilled to unskilled labor ratio and import penetration and rail capacity. On the other hand, output deviation from the trend was found to have

a negative significant impact, supporting the vent for surplus hypothesis for South Africa. Unit labor costs and output trend were found to have insignificant influence on manufacturing export performance.

Abule (2012) on his study of the impact of exchange rate variability and its components on three important primary agricultural exports of Ethiopia; namely: coffee oilseeds and flower. The study employed a time series data from 1992-2010 and adopted the Autoregressive Distributed Lag Model (ARDL) model to estimate the impact. The result revealed that export of coffee and oilseeds have negative relationship with exchange rate variability and none for export of flower. Furthermore, Terms of Trade (TOT) was found to be negative and significant for Oilseeds and flower but insignificant for coffee which implying the deteriorating TOT of the country. Gross Domestic Product (GDP) is found to be insignificant but negative for coffee and oilseeds, implying the change in export of these items are decreasing over time. Generally, the exchange rate variability of the country has resulted in deteriorating terms of trade and flow of resources from the country exploitatively.

In the case of Uganda, Agasha (2009) used VEC model to analyze the determinants of export growth rate. The research covered a period of nineteen years' quarterly data from 1987 – 2006. The researcher evaluated export growth rate as a function of Gross Domestic Product, Terms of Trade, Real Exchange Rate, Foreign Price level & Foreign Direct Investment. The results from the long run co-integrating regression show Gross Domestic Product, Real Exchange Rate & Terms of Trade to affect export growth rate positively & significantly although Foreign Price level were found to affect export growth rate negatively & significantly. FDI was found to be insignificant.

Amezenech (2018) has conducted a research on effects of exchange rate volatility on the coffee export of Ethiopia. The research relied on an annual time series data stretching from 1980 to 2015. To estimate the impact, the Autoregressive Distributive Lag Model (ARDL) has been applied. The result of the study shows that coffee export in Ethiopia has negative and significant relationship with exchange rate volatility. Similarly, Gross Domestic Product (GDP) and Terms of Trade (TOT) have negative effect on coffee export. On the other hand, Trade Openness and Real effective Exchange Rate were positively and significantly related with the dependent variable.

Tigist (2018) has conducted a research on determinants of export performance in Ethiopia.The study employed a panel data analysis to empirically analyze these determinants in Ethiopia for the period 2007 to 2017. A sample of ten major trading partners was selected to examine the determinants of total export. Based the Hausman test fixed effect is appropriate to evaluate the model for Ethiopia's export performance. Using fixed model and found that from the supply side factors GDP, LPI, FDI and REER have insignificant effect for Ethiopia's export performance while(CPI) institutional quality significantly affects the export performance.

The empirical analysis of agricultural exports and economic growth in Nigeria was done by different Authors. Oluwanseun et al.(2013) studied the existence of long run relationship between agricultural exports and economic growth by using time series data from 1980 to 2010.The study made use of unit root tests and Johansen maximum likelihood test of co-integration and discovered that, the long run equilibrium relationship exists between agricultural exports and economic growth and the relationship is elastic in nature meaning that a unit increase in agricultural exports would bring a more than comparable increase in the Real Gross Domestic Product in Nigeria. Ekiranet al. (2014) also examined the relationship between agricultural export and economic growth by using a multivariate Johansen co-integration analysis for the period covering 1980 to 2012 and found that, agricultural exports are long run determinants of economic expansion. The study recommended that the government of Nigeria should direct efforts to improve agricultural exports in the process of economic growth in the country.

In North Africa, Bakari and Mabrouki (2018) looked for the impact of agricultural export on economic growth between 1982 and 2016, using the static gravity model. Their empirical results demonstrated that agricultural policy has significant impact on agricultural investment and trade openness policies in the region. Equally, Uysal and Mohamoud (2018) analyzed the impact on export performances of seven East African countries, using data from World Development Indicators between 1990 and 2014 and suggested the need to replace agricultural exports with industrial export, improve infrastructural facility, the quality of human capital and the need for policies to attract international investors.

Muhammad (2010) examined the contribution of agricultural export to economic growth of Pakistan by estimating the relationship between agricultural exports and nonagricultural exports to economic growth of Pakistan by employing Johansen co-integration technique for the period 1972

to 2008. The results of the study indicated that there was negative and insignificant relationship between the agricultural exports and economic growth. The agriculture export elasticity of GDP was –0.14 which means that one percent increase in agricultural exports decreases the country's GDP by 0.14 and the non-agricultural export elasticity of GDP was 0.58. Based on the empirical results, the study suggested that nonagricultural exports should be promoted than agricultural exports.

CHAPTER THREE

3. Methodology

3.1 Research Design and approach

The research will bound in studying the export performance of the five selected commodities and their determinants of Ethiopia. The study uses secondary data extracted from National bank of Ethiopia (NBE), Ethiopian Revenues and Customs Authority (ERCA) and Central Statistics Agency (CSA). Econometric model has been used to analyze the data. Graphs and tables have also been used to show the trends of the variables.

3.2 Data source

To analyze the export determinants of the top 5 export items (Coffee, oil seeds, Chats, fruits and vegetables, and meat and meat products) of Ethiopia, the study relies on secondary data sources. The study is based on 15 years' quarterly data covering the period from 2003/4 to 2017/18. The required time series data for the paper was collected from National bank of Ethiopia (NBE), Ethiopian Revenues and Customs Authority (ERCA) and Central Statistics Agency (CSA).

3.3 Definition of Variables

3.3.1 Gross Domestic Product (GDP):

GDP is the value of goods and services produces in a country in a given fiscal year. Higher GDP values in the exporting country imply increased capacities for export. It is expected to have to have a positive impact on exports. For instance, Kumar (1998) in his study on the determinants of export growth in developing countries confirmed that GDP has a significant positive impact export volume. So, a higher GDP implies a higher production and hence larger volume of exports. Therefore, we expect a positive relationship between the dependent variable and GDP. The extracted GDP data was in annually base, but using E-view 10 the data has been populated quarterly.

3.3.2 Real Effective Exchange Rate (REER):

The real effective exchange rate (REER) is the weighted average of a country's currency in relation to an index of other major currencies. The weights are estimated by comparing the relative trade balance of a country's currency against each country within the index.

It is important to construct the real effective exchange rate index (REER), which is the measure of the price of the country's goods relative to the price of its trading partner countries, both expressed in domestic currency. When the value of REER falls either because of a decrease in exchange rate or a decline in the inflation differential or both, show real depreciation of the exchange rate and thus enhanced competitiveness of the country's goods in relation to 24 foreign goods. On the other hand, an increase in REER represents a real appreciation implying declining competitiveness of the home economy. It is constructed by dividing the trade-weighted foreign price level index by the corresponding domestic price level index, after converting the values to a common scale using nominal exchange rate (Bouoiyour and Selmi 2013).

The REER is measured by:

$$REERt = NEERt * (P^*t/Pt) \quad \text{..... (1)}$$

Where:

NEERt: the nominal exchange rate.

*P*t*: foreign price level index

Pt: Domestic price level index

3.3.3 Trade Openness (TOP):

Trade openness refers to the outward or inward orientation of a given nation's economy. Outward orientation refers to economies that take significant advantage of the opportunities and advantages to trade with other countries. Inward orientation refers to economies that overlook taking or are incapable to take advantage of the opportunities to trade with other countries. Some of the trade policy decisions made by nations that empower outward or inward orientation are trade barriers, import-export, infrastructure, technologies, scale economies and market competitiveness.

The degree of global trade openness existing in countries is scaled on a number of economic issues and tracked in the Open Markets Index (OMI). The OMI grades four central categories of economic issues are: Trade openness (including trade to GDP ratio and real growth of imports), Trade policy regime (including applied tariffs, tariff profile, border efficiency), Openness to foreign direct investment (FDI) (including FDI inflow to GDP and ease of business establishment) and Infrastructure open for trade (including logistics performance, communications infrastructure, telephone lines, Internet)

Openness to trade as it is calculated as a percentile of sum of import and export as a percentile of GDP, has been selected as a proxy for the dependent variable due to its ability to filter out the degree of change specifically on international trade performance from an overall GDP outlook of an economy. The higher the rate the more liberal the trade is in the given economy.

Trade openness is calculated as the sum of import and export over GDP as shown below.

$$TOP = \frac{Import + Export}{GDP} \quad \text{..... (2)}$$

3.4 Model specification

The Autoregressive Distributed Lag (ARDL) model is increasingly becoming popular as a means of testing the presence of a long run relationship between Ethiopian export items and its main determinants. The Johansen co-integration technique is still being used, the only challenge being that it can only be applied when all the variables are integrated of the same order.
The ARDL model is applicable whether the variables are I (0) or I (1).
In addition to this, ARDL Model is found to be an appropriate model since it is very important method to estimate the influence of continuous devaluation on export supply (Abule, 2012).

As a result, for this study ARDL model was used to test for a long run relationship between variables that are not necessarily integrated of the same order. In addition to this, export supply model is used to assess the effect of the explanatory variables on the export performance of the five selected export commodities. Xt represents the dependent variable (export amount of coffee, export amount of oil seeds, export amount of Chat, export amount of fruits and vegetables, export amount

of meat and meat products) gross domestic product, real effective exchange rate and trade openness would be controlled to regress the dependent variables one by one.
The model is specified as below:

$$Log\ Xt = \beta_0 + \beta_1\ Log\ GDP + \beta_2\ Log\ REER + \beta_3 Log\ TOP + \mu \ldots\ldots\ldots\ldots\ldots\ldots \quad (3)$$

Where,

Xt: dependent variables (export amount of coffee, export amount of oil seeds, export amount of Chat, export amount of fruits and vegetables, export amount of meat and meat products)

GDP: Gross Domestic Product

REER: real effective exchange rate

TOP: Trade Openness

μ: The Error Term

The analysis of the paper was computed using E-view 10 standard version 2017.

3.5 Data analysis and method of estimation

The available data will be analyzed using descriptive types of data analysis model as per the data, graphs, charts tables were applied. And also for the econometric analysis part Autoregressive Distributed Lag (ARDL) is used to estimate the parameters of the variables of short run and long run.

3.5.1 Stationary test (Test for unit root)

The standard classical methods of estimation which are used in the applied econometric work are based on a set of assumptions one of which is the stationary of the variables. A variable is said to be covariance (weakly) stationary if the mean and the variances of the variable are constant over time and the covariance between two periods depends only on the gap between the periods, and not the actual time at which this covariance is considered whereas a non-stationary series has a different mean at different points in time and its variance increases with the sample size (Debel G., 2002).

Various literatures support that most times series data are not stationary; therefore, it's important to establish stationary before using them in a model to avoid a forged regression analysis. In this study, to identify the level of integration of the data, Augmented Dickey- Fuller (ADF) test was applied.

3.5.2 Long Run relationships

To obtain the coefficient of the parameters for the long run analysis, the model is specified as below:

$$LogXt = \beta 0 + \sum_{i=1}^{m} \beta 1 LogGDPt - 1 + \sum_{i=1}^{m1} \beta 2 LogREERt - 1 + \sum_{i=1}^{m2} \beta 3 LogTOPt - 1 + \sum_{i=1}^{m3} \beta 4 INFLATIONt - 1 + \mu t$$

..... (4)

3.5.3 Short Run relationship

The short run estimation model of ARDL has been specified as below:

$$LogXt = ¥0 + \alpha 1 \sum_{i=1}^{m} LogGDPt - 1 + \alpha 2 \sum_{i=1}^{m1} LogREERt - 1 + \alpha 3 \sum_{i=1}^{m3} LogTOPt - 1 + \alpha 5 \sum_{i=1}^{m5} INFLATIONt - 1 + \alpha 6 + \lambda ECTt - 1 + \mu t$$

..... (5)

In the short run analysis:

λ= The speed of adjustment to long run equilibrium following changes to the system

ECT_{t-1}= Error correction term

3.5.4 Co-integration test

Co-integration is used to regard or take care of the non-stationary of the variables and to examine whether there exists long run equilibrium relationships among the variables under consideration (Gujerati, 2004)

According to Pesaran and Smith 2001, the ARDL approach requires two steps, the first step is to determine the existence of any long run relationship among the variables of interest, the second one is to estimate the coefficients of the long run relationship and determine their values.

As Alemayehu,et.al (2009) noted, the co-integration test shows that even though the variables taken separately are not stationary, i.e., are I(1), their linear combination may be stationary. In such a case the variables are say to be co integrated series is not spurious and hence, it enables to establish long run relationship between independent and dependent variables.

ARDL model for co-integration shown below:

$$\Delta LogXt = ¥0 + \sum_{i=1}^{m} \beta 1 LogGDPt - 1 + \sum_{i=1}^{m1} \beta 2 LogREERt - 1 + \sum_{i=1}^{m3} \beta 3 LogTOPt - 1 + \sum_{i=1}^{m4} \beta 4 INFLATIONt - 1 + \alpha 1 \sum_{i=1}^{m} LogGDPt - 1 + \alpha 2 \sum_{i=1}^{m2} LogREERt - 1 + \alpha 3 \sum_{i=1}^{m3} LogTOPt - 1 + \alpha 4 \sum_{i=1}^{m4} INFLATIONt - 1 + \lambda ECTt - 1 + \mu t$$

..... (6)

Where:

Δ= The First difference operator

β= Parameters of the long run estimator

α= Parameters of the short run estimator

¥0= the intercept

μ= the error term

3.5.5 The error correction model (ECM)

According to Gujerati (2004), even if the variables of the model are co-integrated, there may be disequilibrium in the short run. ECM tells us how much time it takes to adjust this short run shocks. As a result, the residual of the long run model can be treated as the equilibrium residual and it can be used to connect the short run behavior the model dependent variables to its long run value

3.6 Post diagnostic tests

Tests of Serial correlation, testes for hetroskasticity, tests for normality and tests for stability have been conducted, to check the stability and to determine the long and short run analysis.

4. CHAPTER FOUR

4.1 Research Findings and Discussions

This section covers the descriptive and econometric data analysis. In the first section the variable's statistic properties and trend analysis would be discussed. In the following section the research findings would be discussed with the support of theoretical and empirical evidences.

4.2 Descriptive Analysis Results

Before conducting an econometric analysis, systematic understanding of the data and its statistical behavior is very important. Therefore, different tools of descriptive statistics such as measures of central tendency, graphs and charts were used to check the properties of the variables. All these tools would help to identify the characteristics of the variables over the research period. Furthermore, a comprehensive observation of the data helps to make meaningful interpretation of econometric results. The following section elaborates the preliminary analysis of the data and associated variables.

Table 4.1 descriptive analysis of the variables

	LOG OIL	**LOG MEAT**	**LOG FRUIT**	**LOG COFFEE**	**LOG CHAT**	**LOG GDP**	**LOG REER**	**LOG TOP**
Mean	1.839192	0.991007	0.805224	2.106097	1.644531	4.324749	2.114701	-0.910971
Median	1.869438	1.151644	0.960474	2.143618	1.756768	4.353956	2.137353	-0.914507
Maximum	2.478418	1.494824	1.204509	2.527308	1.919132	4.641732	2.235781	-0.852562
Minimum	1.080230	-0.068588	0.218329	1.408208	1.169410	3.586700	1.969882	-0.943390
Std. Dev.	0.307438	0.387839	0.325070	0.265783	0.213805	0.257343	0.078651	0.021791
Jarque-Bera	4.075323	4.930342	6.663424	3.645783	6.931304	4.582539	3.725325	4.302297

Source: researcher own construction from E-view 10.

As presented above the average value of the export commodities during the study period shows all positive result, this indicate that The result of descriptive statics of the variables have been displayed above. Descriptive statistics gives a presentation of the mean, median, maximum and minimum values of variables applied together with their standard in this study. An analysis of all the variables was obtained using Eviews software for the period of 15 years (2003/04 to 2017/18) on quarterly basis. Export of coffee has a mean of 2.1 with a standard deviation 0.26. export of oilseed has a mean value of 1.84 with standard deviation 0.31. export of chat has a mean value 1.64 with a standard deviation of 0.21. export of meat and meat products has a mean value of 0.99 and a standard deviation 0.4. export of fruits has a mean value of 0.8 with standard deviation 0.32. the Jarque-Bera test for the variables shows that all the variables are distributed normally since it is significance at 5%.

4.2.1 Trend analysis of the variables

This study attempts to investigate the main determinants of the export performance of Ethiopia. The researcher has identified five predominant export commodities of the country. The trend analysis below shows the flow of the selected export commodities.

4.2.2 Export of Ethiopia

The import trade sector in Ethiopia is exclusively reserved for domestic investors. However, engaging in an export business in Ethiopia is a good business venture; export from the country is growing and the government also highly encourages the sector. Coffee has been the principal export of Ethiopia, recently however, other agricultural products like Oilseeds, Chat, Fruits and Vegetables, Meat and Meat products are growing in importance.

According to the report of National Bank of Ethiopia, all the above listed commodities have been the major exports that are expected to generate foreign exchange.

The following table shows the export earning of the selected items during the research period.

Table 4.2. Export earnings of five selected export commodities of Ethiopia in millions of dollars.

Year	*Coffee*	*Oil Seeds*	*Chat*	*Meat & Meat Prod.*	*Fruits & Veg*
2003/04	$ 55.89	$ 20.90	$ 22.01	$ 1.92	$ 1.79
2004/05	$ 83.80	$ 31.26	$ 25.05	$ 3.64	$ 4.02
2005/06	$ 88.56	$ 52.85	$ 22.27	$ 4.63	$ 3.30
2006/07	$ 106.05	$ 46.86	$ 23.20	$ 3.87	$ 4.04
2007/08	$ 131.12	$ 54.69	$ 27.08	$ 5.22	$ 3.21
2008/09	$ 93.97	$ 89.02	$ 34.68	$ 6.65	$ 3.03
2009/10	$ 132.08	$ 89.63	$ 52.38	$ 8.50	$ 7.87
2010/11	$ 210.44	$ 81.66	$ 59.58	$ 15.82	$ 7.87
2011/12	$ 208.26	$ 118.08	$ 60.09	$ 19.70	$ 11.23
2012/13	$ 186.66	$ 110.86	$ 67.82	$ 18.56	$ 10.97
2013/14	$ 178.60	$ 162.97	$ 74.34	$ 18.65	$ 11.49
2014/15	$ 195.12	$ 127.52	$ 68.10	$ 23.20	$ 11.89
2015/16	$ 180.68	$ 119.30	$ 65.61	$ 24.10	$ 13.42
2016/17	$ 220.80	$ 87.76	$ 68.25	$ 24.67	$ 14.03
2017/18	$ 179.90	$ 88.26	$ 65.79	$ 21.94	$ 12.81

Source: National bank of Ethiopia

Almost all of the export commodities are primary goods. Coffee, the leading export commodity of Ethiopia shows a strong increasing pattern except for the fluctuation caused by the sudden decrease in 2008/09 and 2017/18. Oilseeds follow the pattern of coffee with a rapid growth specially starting from the year 2008/09. Other export commodities like meat and meat products, fruits and vegetables and chat are also increasing in total amount although their share is relatively smaller.

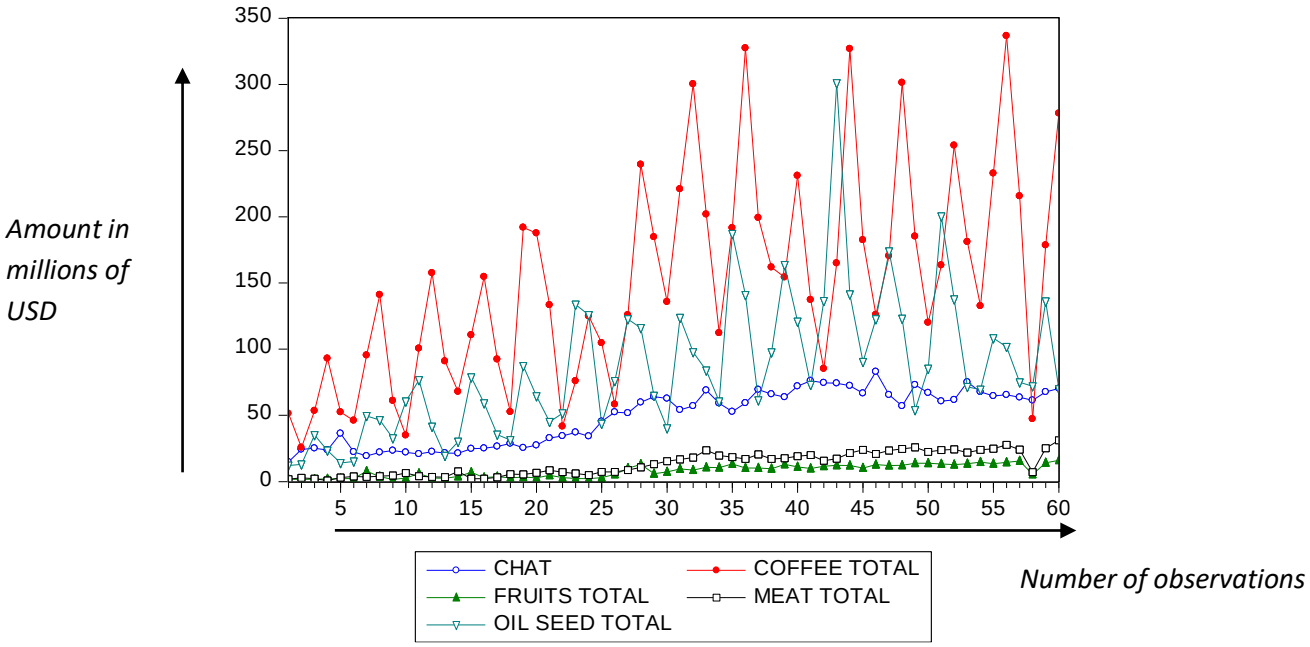
Being the origin of coffee, Ethiopia hasn't done much to increase its coffee export to the global market. Coffee has always been a leading source of export item and major source of foreign income for the country. However, the current trend shows that the country's coffee export covers only 3% of the world share, and as can be referred from the above table coffee export doesn't show a satisfactory growth trend. This could be due to the many challenges the country is facing in the international market. Oil seed is the second largest export item with a growth trend faster than the

rest of main export items. Following the major two, Chat, meat and meat products and fruits and vegetables are also increasing their share in the international market.

The performance of these agri-products is expected to rise in an even higher rate as the government takes several measures to tackle the challenges they are facing. Among these measures the development of agro processing industrial parks is worth mentioning.

The below graph shows the trend of the selected five export items over the research period.

Figure 4.1. Trends for selected commodities during the study period.



Source: Researcher's own construct using E-view 10

4.3 Econometric Results

The ARDL model which was specified in the methodology part was adopted to find out the short run and long run relationships between the dependent and independent variables. The analysis result would be discussed for the regression analysis that has been conducted considering the five major export commodities (Coffee, Oilseeds, Chat, Meat and Meat Products and Fruits and Vegetables) separately as dependent variables using the same explanatory variables.

4.3.1 Test of Stationary

When dealing with time series data, in order to specify the econometric model, we first need to check stationery of the data.

If the variables are stationary at levels, one may use the simple Ordinary Least Square (OLS) regression to examine the long-run relationship between the variables. However, when the variables exhibit mixed order of integration i.e. few independent variables are stationary at levels i.e. I(0) and others are stationary at first difference i.e. I(1), the ARDL co-integration testing approach proposed by Pesaran et al. (2001) is used to confirm the co-integration among the variables.

According to ARDL model the existence of co-integration relationship can be investigated between the time series regardless of whether they are I(1) or I(0), under this circumstance the dependent variable is I(1) (Trinh thiThuy 2019). Therefore, each data is checked for stationary in levels and first difference using the standard Augmented Dickey-Fuller (ADF) for testing their level of integration.

The null hypothesis of non-stationary was accepted with the precondition that the absolute values of the computed ADF exceed the absolute critical value at 5% level of significance.

The table below shows the level and first different integration of variables.

Table 4.3. ADF at level and at First difference

Variables	In level	In first difference	Order integration
Log Coffee	0.1113	0.0001	I(1)
Log Oil Seeds	0.0412	0.0002	I(1)
Log Chat	0.7355	0.0000	I(1)
Log Meat	0.2457	0.0000	I(1)
Log Fruit	0.3763	0.0000	I(1)
Log TOP	0.2023	0.0030	I(1)
Log REER	0.3335	0.0000	I(1)
Log GDP	0.0208	0.0000	I(0)

Source: researcher own construction using E-view 10

The above results shows that all the series are I(1), with the exception of the growth domestic product (LogGDP) which is at I(0). The unit root test shows that the dependent variable Log Coffee, Log Oil seeds, Log Chat, Log Meat and Log Fruits are I(1) whereas the independent variables are a mixture of I(1) and I(0). Thus, the ARDL approach is more suitable than other approaches for examining relationships between the given dependent and independent variables. The test result of each variable can be referred in the appendix.

4.4 Econometric Results for the Export of Coffee

4.4.1 Determination of the Lag Length

The lag length selection criteria adopted to determine lag length for the model. An important issue for implementation of the ADF test is the specification of the lag length p. As can be seen from the output below criteria chose 1 for all dependent variables as the optimal lag length since it gave the minimum value for each of the evaluated information criterion in LR, FPE, AIC, SC and HQ. The lag length is 1 for all of the models specified in the paper.

VAR Lag Order Selection Criteria

Endogenous variables: LOGCOFFEE LOGGDP LOGTOP LOGREER

Lag	LogL	LR	FPE	AIC	SC	HQ
0	299.4542	NA	5.25e-10	-10.01540	-9.874548	-9.960416
1	461.8565	297.2787*	3.68e-12*	-14.97819*	-14.27394*	-14.70328*

4.4.2 Test of co-integration

The first step of data analysis using ARDL model is to check the long relationship between dependent and independent variables. From the above lag order selection, the optimal lag length of 1 is used in the bounds test. After the lag length was determined, the F-test statistic computed within the co-integration test framework is compared with the upper and lower critical values. For the model given, the lower bound is based on the assumption that all the variables are I(0), and the upper bound is based on the assumption that all the variables are I(1).

The results of the co-integration test procedure for co-integration analysis coffee export (LogCoffee) and its independent (LogGDP, LogREER and LogTOP) variable are presented below.

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	42.91625	10%	2.37	3.2
k	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66
			Finite Sample:	
Actual Sample Size	59		n=60	
		10%	2.496	3.346
		5%	2.962	3.91
		1%	4.068	5.25
			Finite Sample:	
			n=55	
		10%	2.508	3.356
		5%	2.982	3.942
		1%	4.118	5.2

As shown in Table the joint null hypothesis there is long run relationship is rejected at 1% significance level. This is because the calculated F-statistic value of 42.91625 exceeds the upper bound critical value of 4.66 at 99% level. This means the hypothesis on long run relationship existence between coffee export and independent variable is accepted at 1% significance levels; hence there exists co-integration or long run relationship between them. Hence it is significant at 1%.

The result confirms that we can proceed into estimating the coefficients of the parameters in the long run.

4.4.3 Long run relationship analysis

After finding out the long run co-integration relationship among the variables, the next step is to run the find the long run coefficient.

Levels Equation				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGGDP	0.512215	0.162801	3.146270	0.0027
LOGTOP	7.403311	1.053145	7.029715	0.0000
LOGREER	0.876710	0.531013	1.651014	0.1046
C	4.772247	0.879265	5.427542	0.0000
EC = LOGCOFFEE - (0.5122*LOGGDP + 7.4033*LOGTOP + 0.8767 *LOGREER + 4.7722)				

As shown in the above table, the long run analysis result shows that the export functions of coffee export trade indicate that trade openness (LOGTOP) and gross domestic product (LOGGDP) are the two important factors that influence Ethiopian coffee export performance in the long-run. Trade openness on the international market has a significant and positive impact on the export of coffee, assuming other things remaining constant; a one-unit percentile increase on trade openness would bring the export of coffee almost eight times higher on average. As discussed on the previous chapter trade openness is calculated as a percentile of the sum of total import and export and it measures the international trade performance of a country, therefore positive relationship between the dependent variable and this specific explanatory variable was expected, the result is consistent with the findings on Nega, (2013) and Abule (2012).

The result implies that a unit percentile increase in the GDP would highly and positively enhance the export of Coffee. An increase in GDP is expected to enhance the performance of a country in the international market. It implies that the overall economic development is moving on an upward scale, this includes the growth of export the result is in line with Nega (2013).

In line with Amezenech (2018) real effective exchange rate is positively affects the export of coffee however it is insignificant.

4.4.4 Short run relationship Analysis

After analyzing and accepting the long run result, the short term (Error Correction Model ECM) has been estimated. ECM indicates the speed of adjustment to restore equilibrium in the dynamic model. It is a one lagged period residual obtained from the estimated dynamic long run model. The

coefficient of the error correction term indicates how quickly variables converge to equilibrium. Based on the appropriate lag length selected, the short run error correction representation of ARDL has been regressed as below.

ECM Regression

Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGREER)	3.893679	0.664591	5.858764	0.0000
CointEq(-1)*	-0.921708	0.060673	-15.19132	0.0000
R-squared	0.822193	Mean dependent var		0.012425
Adjusted R-squared	0.819073	S.D. dependent var		0.262875

The error correction estimate results for the short run situation in the analysis estimated at -0.921708 is highly significant and has the expected sign, negative. The error correction model helps to correct for disequilibrium in the short run and therefore the negative coefficient in the results above is a confirmation that the disequilibrium caused by the impact of the explanatory variables would adjust. The error correction estimate results for the short run situation in the analysis estimated at is highly significant considering the data arrangement being in a quarterly manner, period of recovery is short. The result shows that 92% of the disequilibrium caused by movements in the independent variables would adjust to the dynamic equilibrium within a single quarter of a year.

4.5 Econometric Results for the export of Oil Seeds

4.5.1 Determination of the Lag Length

Similar with the result of coffee the model has automatically selected one as the optimal lag length. Below presented is the test result:

VAR Lag Order Selection Criteria

Endogenous variables: LOGOIL LOGGDP LOGTOP LOGREER

Lag	LogL	LR	FPE	AIC	SC	HQ
0	286.8491	NA	8.05e-10	-9.588106	-9.447256	-9.533124
1	453.7264	305.4703*	4.85e-12*	-14.70259*	-13.99834*	-14.42768*

The five lag length selection criteria have all indicated that one is the optimal lag length.

4.5.2 Test for co-integration

As shown on the table below, the hypothesis that states there is long run relationship between the dependent and independent variables is accepted at 1% significance level. This is because the calculated F-statistic value 13.64320 exceeds the upper bound critical value of 4.66 at 99% level. This means that the hypothesis of existence of long run relationship between export performance of oilseeds and the independent variable is accepted at 1% significance levels; hence there exists co-integration or long run relationship between them.

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	13.64320	10%	2.37	3.2
k	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66
			Finite	
Actual Sample Size	59		Sample: n=60	
		10%	2.496	3.346
		5%	2.962	3.91
		1%	4.068	5.25
			Finite	
			Sample: n=55	
		10%	2.508	3.356
		5%	2.982	3.942
		1%	4.118	5.2

The result confirms that we can proceed into estimating the coefficients of the parameters in the long run.

4.5.3 Long run relationship Analysis

Levels Equation				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGGDP	1.051703	0.214127	4.911582	0.0000
LOGTOP	1.475093	1.539180	0.958363	0.3423
LOGREER	-0.337414	0.719028	-0.469264	0.6408
C	-0.660401	1.242136	-0.531666	0.5972

Gross domestic product is the most important factor determining the export of oil seeds. It is positively and significantly related with the dependent variable, export of oil seeds in the long run. The result implies that a unit percentile increase in the GDP would highly and positively enhance the export of oil seeds. An increase in GDP is expected to enhance the performance of a country in the international market. It implies that the overall economic development is moving on an upward scale, this includes the growth of export the result is in line with Nega (2013).

The other two determinants affect the export of oil seeds positively for TOP and negatively for REER however both are insignificant.

4.5.4 Short run relationship Analysis

ECM Regression				
Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGGDP)	1.628695	0.296299	5.496799	0.0000
D(LOGTOP)	8.035818	0.783849	10.25174	0.0000
CointEq(-1)*	-0.748774	0.087361	-8.571079	0.0000
R-squared	0.790486	Mean dependent var		0.012947
Adjusted R-squared	0.783004	S.D. dependent var		0.254743

In the short run trade openness and GDP are positively and significantly related with the dependent variable. An increase in both variables was expected to enhance the export performance of oilseed and the result has confirmed it.

The error correction term is negative and significant. The negativity and significance confirms that shocks that took place in the short run would adjust to the long run equilibrium, the coefficient 0.748774 indicates the speed of adjustment, and it could be interpreted as 75% of variation on the dependent variable would adjust to the equilibrium in the first period.

4.6 Econometric Results for the Export of Meat and Meat products

4.6.1 Determination of the Lag Length

In consistency with the regression models to Coffee and Oilseeds the optimal lag length that was automatically selected for Meat and Meat exports is one.

VAR Lag Order Selection Criteria

Endogenous variables: LOGMEAT LOGGDP LOGTOP LOGREER

Lag	LogL	LR	FPE	AIC	SC	HQ
0	288.4822	NA	7.62e-10	-9.643464	-9.502614	-9.588482
1	445.6029	287.6108*	6.38e-12*	-14.42722*	-13.72297*	-14.15231*

The five selection criteria have shown that one is the optimal lag length.

4.6.2 Test for co-integration

The bound test has been conducted to check for a long run relationship between the independent variables and the export of Meat and other Meat Products. As the result below indicates the F-statistic value exceeds the upper bond at 1% significance level, therefore the hypothesis of levels relations is accepted and we can conclude that long run relationship exists between the dependent and the independent variables. Hence it is significant at 1%.

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	5.846081	10%	2.37	3.2
k	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66
			Finite	
Actual Sample Size	59		Sample: n=60	
		10%	2.496	3.346
		5%	2.962	3.91
		1%	4.068	5.25
			Finite	
			Sample: n=55	
		10%	2.508	3.356
		5%	2.982	3.942
		1%	4.118	5.2

The result confirms that we can proceed into estimating the coefficients of the parameters in the long run.

4.6.3 Long Run Relationship Analysis

The below table shows the long run regression analysis results:

Levels Equation Case 2: Restricted Constant and No Trend				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGGDP	1.750163	0.266940	6.556381	0.0000
LOGTOP	3.155443	1.652545	1.909444	0.0616
LOGREER	-1.044347	0.855409	-1.220874	0.2275
C	-1.492947	1.446622	-1.032023	0.3067

Among the selected explanatory variables only gross domestic product has an impact on the export performance of meat and meat products in the long run. GDP is positively and significantly related with the dependent variable. A unit percentile increment on GDP would highly improve the export of this specific commodity. The impact direction is similar with that of the export of oilseeds. The result indicates that the other variables included in the model don't have significant relationship with the export performance of Meat and Meat Products.

Ethiopia has the largest cattle population in Africa, Central Statistics Agency (2015). However, the export of livestock without value addition is a hindrance for the economy as the earning is much less than processed meat. According to Addis Ababa Chamber of Commerce reports (2015), the Meat Processing Industry Value Chain is a new and promising economic sector in Ethiopia which has started proliferating since only a little more than a decade ago. The government recognized and has clearly stated the strategic importance of the livestock sector in general and the meat processing industry in particular to the country's economic growth.

The main source of meat in Ethiopia is the livestock, which isn't handled on a commercial basis, but by smallholders who keep cattle mainly for milking and draught power the domestic market meat processing is also traditional. With the given business model of sourcing animals from non-commercial breeders with interplay of multiple brokers it is hardly possible to process high quality meat at a competitive price for the international market and lower the price of meat at domestic markets. Government intervention is vital to improve the performance of the sector, Addis Ababa Chamber of Commerce reports, (2015).

4.6.4 Short run relationship Analysis

The below table shows the result from the short run error correction model regression analysis:

ECM Regression

Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGTOP)	-0.436319	0.861577	-0.506420	0.6147
CointEq(-1)*	-0.670053	0.119507	-5.606824	0.0000
R-squared	0.403191	Mean dependent var		0.020982
Adjusted R-squared	0.392721	S.D. dependent var		0.178531

The error correction term is negative and significant, implying that 67% of the disequilibrium would adjust in a short period of time. The short run analysis with lag order ARDL (1,0,1,0), only trade openness negative relationship with the dependent variable, However, insignificant.

4.7 Econometric result for the export of fruits and vegetables

4.7.1 Determination of the Lag Length

Once again one is the optimal lag length selected automatically by the model, below presented is the table that shows the five selection criteria results:

VAR Lag Order Selection Criteria

Endogenous variables: LOGFRUIT LOGGDP LOGTOP LOGREER

Lag	LogL	LR	FPE	AIC	SC	HQ
0	293.3963	NA	6.45e-10	-9.810043	-9.669193	-9.755061
1	445.1755	277.8331*	6.48e-12*	-14.41273*	-13.70848*	-14.13782*

4.7.2 Test for co-integration

The F- statistic value at 9.227572 is higher than the upper bound 4.66 of the 1% significance level. With this result we can confidently conclude that there exists long run relationship with the export performance of fruits and vegetables and the selected explanatory variables. Hence it is significant at 1%.

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	9.227572	10%	2.37	3.2
k	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66
			Finite	
Actual Sample Size	59		Sample: n=60	
		10%	2.496	3.346
		5%	2.962	3.91
		1%	4.068	5.25
			Finite	
			Sample: n=55	
		10%	2.508	3.356
		5%	2.982	3.942
		1%	4.118	5.2

Again the result confirms that we can proceed into estimating the coefficients of the parameters in the long run.

4.7.3 Long Run Analysis Results

Levels Equation

Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGGDP	1.829764	0.244079	7.496606	0.0000
LOGTOP	0.599072	1.631505	0.367190	0.7150
LOGREER	-2.429411	0.819812	-2.963377	0.0046
C	-1.437509	1.251983	-1.148186	0.2561

EC = LOGFRUIT - (1.8298*LOGGDP + 0.5991*LOGTOP -2.4294

*LOGREER -1.4375)

Two of the variables LOGGDP and LOGREER are the two important variables that affect the export of fruit and vegetables in the long run. REER is negatively and significantly related with the dependent variable. When the value of REER falls either because of a decrease in exchange rate or a decline in the inflation differential or both, it shows real depreciation of the exchange rate and thus enhanced competitiveness of the country's goods in relation to foreign goods. On the other hand, an increase in REER represents a real appreciation implying declining competitiveness of the home economy. Therefore, the inverse relationship on the regression analysis confirms that the export performance of fruits and vegetables increases as the currency depreciates or devaluates. The result is in line with the findings of Kebede (2011).

Gross Domestic Product positively and significantly impacts the dependent variable. An increase in GDP is expected to enhance the performance of a country in the international market. It implies that the overall economic development is moving on an upward scale, this includes the growth of export. This result is in line with the findings of Abule (2012).

According to the report of Ethiopian Investment Agency report (2012), the performance of the sector could highly improve given the natural gifts of the country and the government given opportunities. There also exists a growing demand for high quality and pre packed vegetables. However, in Ethiopia, fruit processing is limited mainly to extraction of fresh juice which is sold on the local markets therefore putting more focus on value addition would help the performance of the sector to improve.

Trade Openness has positive effect on the export performance of fruit and vegetables of the country however insignificant.

4.7.4 Short Run Relationship Analysis

ECM Regression

Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGTOP)	1.846119	0.768570	2.402019	0.0199
D(LOGREER)	0.229404	0.802233	0.285957	0.7760
CointEq(-1)*	-0.770569	0.109318	-7.048895	0.0000
R-squared	0.489523	Mean dependent var		0.015967
Adjusted R-squared	0.471291	S.D. dependent var		0.183701

The Error Correction Model (ECM) indicates that the disequilibria that was caused by change in the explanatory variables would adjust to the long run equilibrium in a short period of time. The coefficient indicates that the first period would actualize 77% of the adjustment.

4.8 Econometric Results for the Export of Chat

4.8.1 Determination of the Lag Length

The export of chat is the fifth commodity with optimal lag length of 1, the test results are presented as below:

VAR Lag Order Selection Criteria

Endogenous variables: LOGCHAT LOGGDP LOGTOP LOGREER

Lag	LogL	LR	FPE	AIC	SC	HQ
0	326.9642	NA	2.07e-10	-10.94794	-10.80709	-10.89296
1	512.0303	338.7652*	6.72e-13*	-16.67899*	-15.97474*	-16.40408*

4.8.2 Test for co- integration

As we have been discussing in the previous sections, form the below result we can conclude that long run co-integration between the dependent and independent variables exists at 1% significance

level, this is based on the F- statistic value of 4.727413 that exceeds the upper bound on 4.66 at 1% significance level. The test result is presented as below:

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	4.727413	10%	2.37	3.2
k	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66
			Finite	
Actual Sample Size	59		Sample: n=60	
		10%	2.496	3.346
		5%	2.962	3.91
		1%	4.068	5.25
			Finite	
			Sample: n=55	
		10%	2.508	3.356
		5%	2.982	3.942
		1%	4.118	5.2

Again the result confirms that we can proceed into estimating the coefficients of the parameters in the long run.

4.8.3 Long run relationship Analysis

Levels Equation

Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LOGGDP	0.656847	0.264734	2.481162	0.0164
LOGTOP	5.057927	1.696340	2.981670	0.0044
LOGREER	0.534697	0.929934	0.574984	0.5678
C	2.300297	1.130642	2.034505	0.0471

EC = LOGCHAT - (0.6568*LOGGDP + 5.0579*LOGTOP + 0.5347 *LOGREER + 2.3003)

The export performance of chat is positively and significantly affected by changes in Gross Domestic Product and trade openness. As GDP and TOP rises with one percent, the export of Chat boosts significantly. Real effective exchange rate also has positive relationship; however, the long run relationship between REER and the export of Chat is insignificant.

According to Rakesh and Hassen (2010), the growth rate in the real value of total exports of Chat had a significant increase since the year 1991. However, the chat export associations rarely find direct trading opportunities with the importers. Private exporters depend on intermediaries to handle their exports; there are also export houses that may act as buying agents for foreign buyers or as selling agents for local producers, for a commission. Intermediaries may also deal as independent exporters through outright purchases and their sale abroad. These arrangements force the Ethiopian exporters to give away their benefits.

4.8.4 Short term relationship

ECM Regression

Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LOGGDP)	0.452732	0.127128	3.561215	0.0008
D(LOGTOP)	0.396883	0.393226	1.009299	0.3176
D(LOGREER)	-0.769648	0.331365	-2.322664	0.0242
CointEq(-1)*	-0.340161	0.070251	-4.842064	0.0000
R-squared	0.434512	Mean dependent var		0.011486
Adjusted R-squared	0.403668	S.D. dependent var		0.065929

The error correction term is negative and significant; the coefficient indicates that 34% of the disequilibrium would adjust in a short time. In the short run GDP has a positive relationship with the export of Chat. REER has inverse relationship with the dependent variables.

4.9 Post diagnosis test

4.9.1 Auto correlation

Auto correlation test is performed to check whether there is a serial co relation existed in the model or not. It is always assumed on ARDL model that no correlation exists between the variables in the model.

The Null hypothesis of no serial correlation (H0= No serial Correlation) was tested against the alternative hypothesis of serial correlation existence. The null hypothesis is rejected in favor of the alternative hypothesis if the probability of F- Statistics is significant at five percent.

Breusch- Godfrey Serial correlation LM for Coffee, Oil seeds, Chats, Fruits and vegetables and meat and meat products tests have been conducted respectively and the result is presented in the below.

Coffee correlation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.233386	Prob. F(1,52)	0.2719
Obs*R-squared	1.366995	Prob. Chi-Square(1)	0.2423

Oil seeds correlation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.103818	Prob. F(1,51)	0.1531
Obs*R-squared	2.337407	Prob. Chi-Square(1)	0.1263

Chat correlation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.084913	Prob. F(1,50)	0.7720
Obs*R-squared	0.100027	Prob. Chi-Square(1)	0.7518

Fruits and vegetables correlation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.013034	Prob. F(1,51)	0.9096
Obs*R-squared	0.015074	Prob. Chi-Square(1)	0.9023

Meat and meat products correlation

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.335651	Prob. F(1,52)	0.2531
Obs*R-squared	1.477500	Prob. Chi-Square(1)	0.2242

The probability F-Statistic of the test for coffee (0.2719), oil seeds (0.1531), Chats (0.7720), Fruit and fruit products (0.9096) and meat and meat products (0.2531) is statistically significant at 5%. The result indicates failure that there is no serial correlation among the variables in each of the models.

4.9.2 Heteroscedasticity Test

Different heteroscedasticity tests were conducted to check the existence of heteroscedasticity problem in the model. ARCH, Harvey and Breusch-Pagan-Godfrey tests applied in the model, as the output shown below the null hypothesis (H0= No Heteroscedasticity) has been tested against the alternative (H1= Heteroscedasticity exists).

The null hypothesis would be rejected in favor of the alternative hypothesis in cases where the probability of the F- Statistics is significant at 5%.

HeteroscedasticityTest for coffee

Heteroskedasticity Test: ARCH

F-statistic	0.080248	Prob. F(1,56)	0.7780
Obs*R-squared	0.082995	Prob. Chi-Square(1)	0.7733

Heteroskedasticity Test: Harvey

F-statistic	1.905070	Prob. F(5,53)	0.1090
Obs*R-squared	8.988284	Prob. Chi-Square(5)	0.1095
Scaled explained SS	8.906933	Prob. Chi-Square(5)	0.1128

HeteroscedasticityTest for oil seeds

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.631167	Prob. F(6,52)	0.7046
Obs*R-squared	4.005113	Prob. Chi-Square(6)	0.6760
Scaled explained SS	2.224423	Prob. Chi-Square(6)	0.8979

Heteroskedasticity Test: ARCH

F-statistic	0.351179	Prob. F(1,56)	0.5558
Obs*R-squared	0.361455	Prob. Chi-Square(1)	0.5477

Heteroskedasticity Test: Harvey

F-statistic	0.434233	Prob. F(6,52)	0.8527
Obs*R-squared	2.815079	Prob. Chi-Square(6)	0.8317
Scaled explained SS	4.832764	Prob. Chi-Square(6)	0.5654

Heteroscedasticity Test chat export

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.664874	Prob. F(7,51)	0.1389
Obs*R-squared	10.97442	Prob. Chi-Square(7)	0.1397
Scaled explained SS	7.416011	Prob. Chi-Square(7)	0.3869

Heteroskedasticity Test: Harvey

F-statistic	0.700769	Prob. F(7,51)	0.6712
Obs*R-squared	5.176920	Prob. Chi-Square(7)	0.6384
Scaled explained SS	3.881912	Prob. Chi-Square(7)	0.7933

Heteroskedasticity Test: ARCH

F-statistic	3.579061	Prob. F(1,56)	0.0637
Obs*R-squared	3.484203	Prob. Chi-Square(1)	0.0620

Heteroscedasticity Test for fruits and vegetables export

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.181189	Prob. F(6,52)	0.3308
Obs*R-squared	7.076684	Prob. Chi-Square(6)	0.3138
Scaled explained SS	7.992488	Prob. Chi-Square(6)	0.2387

Heteroskedasticity Test: Harvey

F-statistic	1.452279	Prob. F(6,52)	0.2130
Obs*R-squared	8.467724	Prob. Chi-Square(6)	0.2058
Scaled explained SS	7.608422	Prob. Chi-Square(6)	0.2682

Heteroscedasticity Test for meat and meat products export

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.741041	Prob. F(5,53)	0.5962
Obs*R-squared	3.855151	Prob. Chi-Square(5)	0.5705
Scaled explained SS	8.011327	Prob. Chi-Square(5)	0.1556

Heteroskedasticity Test: Harvey

F-statistic	0.687922	Prob. F(5,53)	0.6347
Obs*R-squared	3.595647	Prob. Chi-Square(5)	0.6090
Scaled explained SS	4.663577	Prob. Chi-Square(5)	0.4583

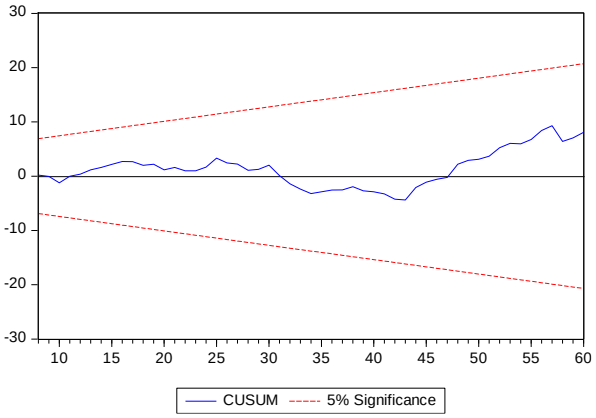
Heteroskedasticity Test: ARCH

F-statistic	5.492723	Prob. F(1,56)	0.0227
Obs*R-squared	5.180742	Prob. Chi-Square(1)	0.0228

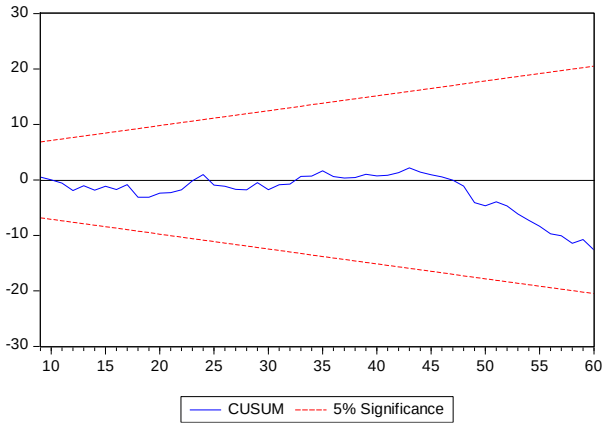
As can be seen from the result the level of the F-statistics is statically significant with the level for ARCH, Harvey and Breusch-Pagan-Godfrey. The result of F-statistics for all the tests clearly shows that there is no heteroscedasticity problem in the model since the null hypothesis would be rejected in favor of the alternative hypothesis in cases where the probability of the F- Statistics is significant at 5%. This implies that we have failed to reject the null hypothesis.

4.9.3 Stability Test

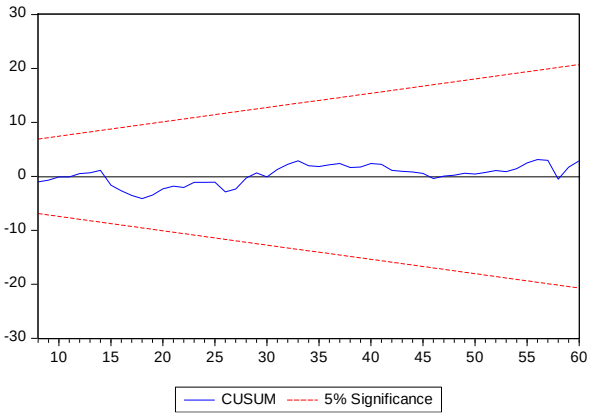
To analyze the stability of the long run and short run coefficients cumulative sum (CUSUM) applied. As can be seen from the picture below tests are plotted against the critical bond of five percent significance level and the plots of CUSUM remain within the boundaries of the 5 percent significance level. Thus as can be seen from the result below for all the models we used, we failed to reject the null hypothesis.



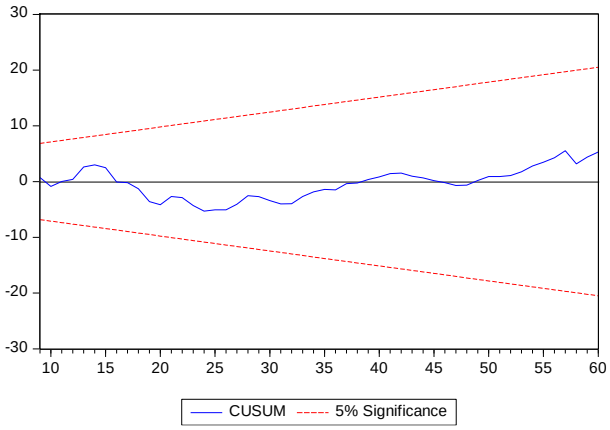
Stability test for coffee export



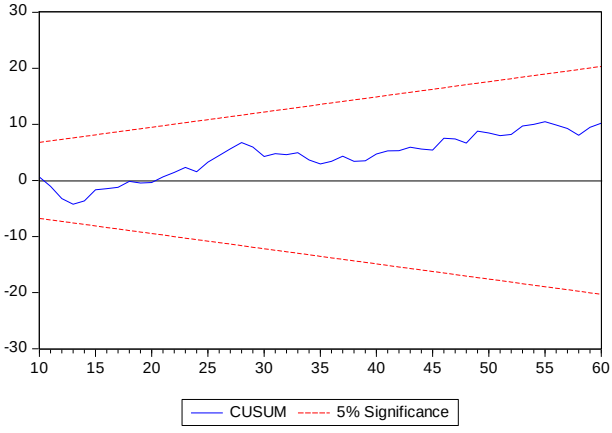
Stability test for oilseeds export



Stability test for meat export



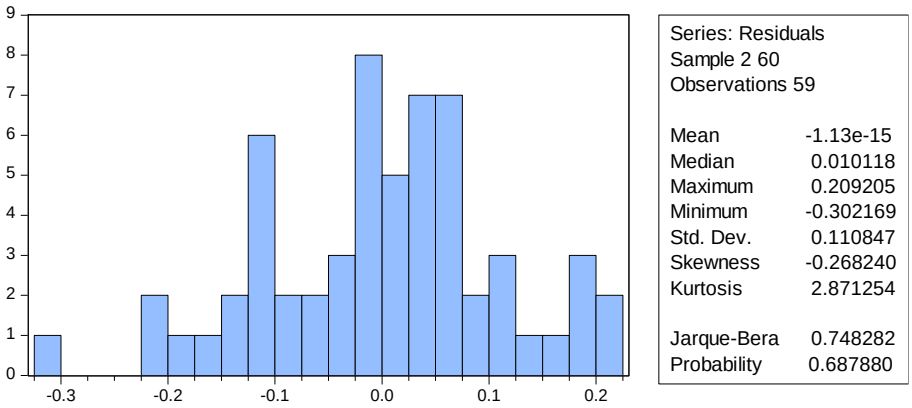
Stability test for fruit export



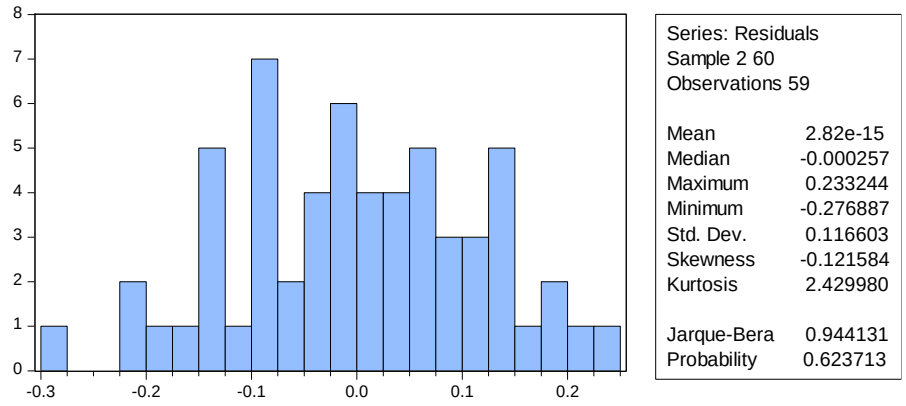
Stability test for Chat export

4.9.4 Normality Test

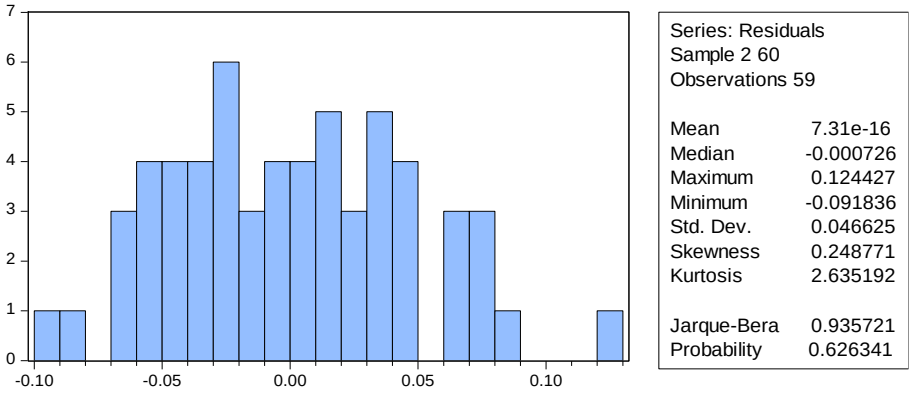
The Jargue- Bera test with probability confirms that the residuals in the model are normally distributed with significance level for coffee (0.904838), oil seeds (0.964275), Chats (0.626341), fruits and vegetables (0.06541) and meat and meat products (0.165059) respectively.



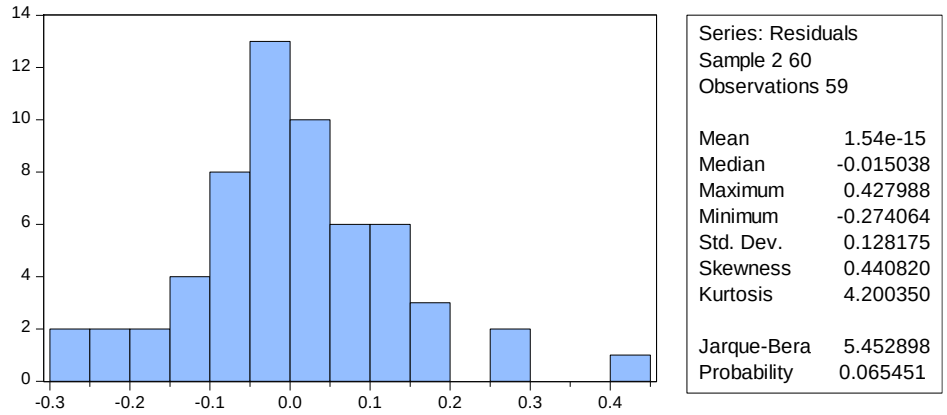
Normality test for coffee



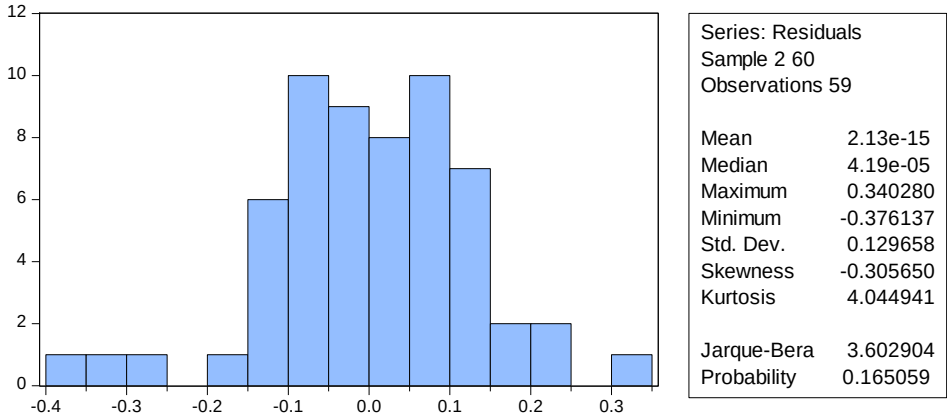
Normality test for oil seeds export



Normality test for Chat export



Normality test for fruit export



Normality test for meat export

As (Brooks, 2014) stated that, in economics or financial modeling it is quite often the case that one or two very extreme residuals cause a rejection of the normality assumption. Such observations that do not fit in with the Pattern of the remainder of the data are known as outliners. Of this is the case, one way to improve the chance of error normality is to use dummy variables. In the case of fruits and meat model to adjust the normality problem dummy variables have been applied.

5. CHAPTER FIVE

5.1 Conclusion

The study investigated the determinants of the five selected export commodities of Ethiopia, by using time series data during the period 2003/2004 to 2017/18. The study uses secondary data collected from National bank of Ethiopia (NBE), Ethiopian Revenues and Customs Authority (ERCA) and Central Statistics Agency (CSA).

The study applied the Autoregressive Distributed Lag (ARDL) model to investigate the existence of long run relationship and co-integration among variables in the model. Pre-estimation tests of the behavior of the variables using Augmented Dickey Fuller test were applied and the resulted that the variables have an integration level I(0) and I(1).

The General objective of the research is to investigate and to undertake quantitative measures of the export performance and its determinants of the five selected export commodities of Ethiopia. Particularly Coffee, oil seeds, Chat, fruit and vegetables and meat and meat products, with the specific objectives to examine and evaluate the relationship between the dependent variables and explanatory variables: gross domestic product (GDP), real effective exchange rate (REER) and trade openness (TOP).

Co-integration test was performed to check the presence of long run relationship between the dependent variables and the explanatory variables. And the result confirmed that there exists a long run between the variables.

The Error Correction Model (ECM) was estimated to show the short run relationship between the dependents and explanatory variables, and its presence was confirmed and negative in value as expected. It is concluded that the study has addressed the issue and answered the research questions.

5.2 Recommendations

Based on the findings of this study the following policy implications may be drawn: the study found that the export performance of the selected commodities is positively and significantly related with GDP. Therefore, efforts exerted on improving the overall economy would also be reflected on the improvement of the export sector. The government should focus on supporting and incentivizing domestic businesses to enable them in becoming exporters and foreign export earners.

Trade Openness is also positively and significantly related with some of the leading export commodities of the country. This indicates that the government should make the economy more open to international traders to create more opportunities to the already existing export commodities and to develop new markets for unexploited Ethiopia resources and products.

The government should also work on stabilizing the foreign exchange market by taking all the necessary measures. This action would benefit both local and international traders that are doing business with Ethiopian and foreign organizations, managing the risk associated with exchange rate volatility through monetary policies would benefit all part takers and would help business to flourish.

Finally, the researcher recommends that more researches should be conducted on this area with multiple more determining factors that could enable the country to better identify its challenges and opportunities and be able to mitigate the hindrances and exploit the opportunities.

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APPENDIX

Appendix A

Null Hypothesis: D(LOGCOFFEE) has a unit root

Exogenous: Constant

Lag Length: 5 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.021160	0.0001
Test critical values:	1% level	-3.560019	
	5% level	-2.917650	
	10% level	-2.596689	

Appendix B

Null Hypothesis: D(LOGOIL) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-11.91937	0.0000
Test critical values:	1% level	-3.552666	
	5% level	-2.914517	
	10% level	-2.595033	

*MacKinnon (1996) one-sided p-values.

Appendix C

Null Hypothesis: D(LOGMEAT) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-8.438954	0.0000
Test critical values:	1% level	-3.550396	
	5% level	-2.913549	
	10% level	-2.594521	

*MacKinnon (1996) one-sided p-values.

Appendix D

Null Hypothesis: D(LOGFRUIT) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.500637	0.0000
Test critical values:	1% level	-3.548208	
	5% level	-2.912631	
	10% level	-2.594027	

*MacKinnon (1996) one-sided p-values.

Appendix E

Null Hypothesis: D(LOGCHAT) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic - based on SIC, maxlag=10)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.127063	0.0000
Test critical values:	1% level	-3.550396	
	5% level	-2.913549	
	10% level	-2.594521	

*MacKinnon (1996) one-sided p-values.