EFFECT OF COFFEE EXPORT EXPANSION ON ECONOMIC GROWTH IN ETHIOPIA

A Thesis Submitted to the School of Graduate Studies Jimma University in Partial Fulfillment of the Requirements for the Degree of Masters of Science in Economics (Industrial Economics)

BY: MEGERSA GUDISA

JIMMA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

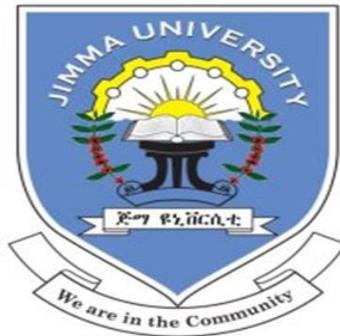# DEPARTMENT OF ECONOMICS

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CERTIFICATE

This is to certify that the thesis entitles "Effect of coffee export expansion on economic growth in Ethiopia", submitted to Jimma University for the award of the Degree of Master of Science in Economics carried out by Megersa Gudisa, under our guidance and supervision.

Therefore, we hereby declare that no part of this thesis has been submitted to any other university or institution for the award of any degree or diploma.

Main Adviser's Name	*Date*	*Signature*
_____	_____	_____
Co-Advisor's Name	*Date*	*Signature*
_____	_____	_____

DECLARATION

I hereby declare that this thesis entitled "Effect of coffee export expansion on economic growth in Ethiopia" has been carried out by me under the guidance and supervision of Ass Prof. Sisay Tolla and Mr. Alaka Jaldu. This thesis is my original work and has not been submitted for the award of any degree or diploma to any university or institution.

Researcher's Name   Date   Signature

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ABBREVIATION

ARDL	Autoregressive Distributive Lag
BLUE	Best linear Unbiased Estimator
ECE	Ethiopia's Coffee Export
ELG	Export-led growth
GLE	Growth-led export
GMM	Generalized method of moments
GNP	Gross national product
ICO	International Coffee Organization
LDC	Less-Developed Countries
MoFED	Ministry of finance and economic development
NBE	National bank of Ethiopia
OCFCU	Oromia coffee farmers' cooperative union OCFCU
OLS	Ordinary least square
R&D	Research and development
REER	Real effective exchange rate
TFP	Total factor productivity
US	United States
VSS	Voluntary Sustainability Standards
WT	Worker training

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ABSTRACT

Ethiopia is known as the birth place of Coffee Arabica. Coffee has been and remains the leading cash crop and export commodity of Ethiopia. Coffee export has heavily contributed to both domestic and foreign earnings in the country. One can argue the positive association found between coffee export expansion and economic growth. Thus, this study is aimed to investigate the effect of coffee export expansion on economic growth in Ethiopia. Coffee export data during the period 1981/82 - 2019/20 were obtained from secondary data of National Bank of Ethiopia, Central Statistical Agency of Ethiopia, Ministry of Finance and Economic Development of Ethiopia, Ethiopian Revenues and Customs Authority, and Ethiopian coffee and tea authority. Explanatory variables namely Coffee export value(CEX), gross capital information (Investment), Total labor force (TLF), real effective exchange rate (REER), Total labor forces(TLF),Trade Openness (TOP),imports (IM) and Inflation(Infl) were regressed using the Autoregressive Distributed Lag (ARDL) model. Granger causality method was used to test the direction of causality between coffee export and economic growth. The long run results obtained indicated that coffee export has positive and significant effect on economic growth of Ethiopia. In the short run, coffee export has significant effect on economic growth. The result from econometric analysis revealed that the GDP and TOP significantly and positively affect coffee export. Thus, increasing quality and quantity of coffee would bring a vital outcome for increasing its coffee export performance. To improve the policy coffee trade and quality of coffee export, the government should adopt modern machines and technology, provide adequate inputs and ensure availability of credit.

Key word: *Coffee export, economic growth, long run, short run, ARDL model*

CHAPTER ONE

1. INTRODUCTION

1.1 Background of study

In every nation, the export has been an important determinant of economic growth. It has been stated in Keynesian economic theory that in a short run, more exports produce more income growth through the export multiplier, referring to the amount raised on national income after an increase of one unit in domestic investment on exports (Murindahbi et al,2019). Coffee export is one of the primary commodities that are widely commercialized in the world nowadays. Coffee became an important commodity in global export because almost all countries in the world are involved in coffee export trading in the international market (Djuraidin et al,2017). The structure of African coffee export is characterized by dependence of its exports on primary commodities. Such dependence is making African countries vulnerable to the global economy because such commodities are characterized by low income elasticity of demand, volatile and secular declining prices and generally come from sectors where the scope for technical progress is limited Woldeyohannes & Region(2021).

Like most of the Sub-Saharan African countries and other developing countries, the Ethiopian economy is dependent on the export of primary and low value-added products. The country is characterized by shortage of foreign exchange because of declining exports, particularly from primary commodity exports, which constitute significant part of the total export earnings. Export growth is considered as the engine of economic growth, dominant source of foreign currencies and main component of globalization. Economic growth can be defined as the expansion of a nation's capability to produce the goods and services its people want (Peterson,1988). In much the same way, Todaro and Smith (2008) described economic growth as the steady process by which the productive capacity of the economy is increased over time to bring about rising levels of national output and income (Adnan,2018).

Exports are engine of economic growth as it provides the foreign exchange earning to any country to accelerate its growth and development. Its expansion leads to economies of scale, production efficiency, employment generation, capital formation, and better resource allocation and distribution (Njikam,2018). The association of export-growth has been remained an important issue to examine and to discuss among economists. The idea of trade promoting economic growth has been traced back to the classical and neo-classical economist (Tarek et al,2016). Economic growth is one of the most important determinants of economic welfare. Exports of goods and services represent one of the most important sources of foreign exchange income that ease the pressure on the balance of payments and create employment opportunities. Coffee Exports are very important to African countries even if Africa exports are not very significant in the world market (Udoidem et al 2017).

Ethiopia is one of the fastest growing economies in the world. It has registered impressive GDP growth for several years, ranging between 8% and 12%, depending on the data source (Getaneh, 2019). The export sector has depended on a few agricultural products mainly coffee, oil seeds and pulses which are characterized by fluctuations in amount of price and have low competitiveness on the world market (Johnston & Mellor, 2016). The coffee export sector in Ethiopia is one of the highest contributors to the government treasury through taxation, social services, and trade. It also plays a crucial role in Ethiopia's economy by influencing economic growth and employment. Ethiopia is also unique in Africa as far as it has a strong domestic coffee consumption culture, which frequently accounts for over half of production (Wondesen et al,2019). The economy of the country is mainly dependent on the agricultural sector thus; the export sector is also highly dependent on agricultural productivity. Thus, Ethiopia has taken different measures to diversify and increase the contribution of the export sector to economic growth such as export duty incentive, which incorporates manufacturing warehouse, export credit guarantee scheme and foreign exchange retention scheme to those wholly engaged in supplying their products to foreign markets. The country's export sector has also depended on export of other agricultural products like skins and hides in addition to the commodities mentioned above (Kebede, 2021).

As indicated in the previous sections, coffee is a prime foreign exchange source of Ethiopia. Based on the methods of processing, Ethiopian coffee is exported in two forms, as washed and sun dried or natural coffees. Coffee is commonly processed using wet processing and sun-drying methods to finally produce green beans. The sun dried coffee, on the average (2005/06 – 2014/15), accounts for 70.2% of the total export while washed or wet processed coffee contributes the remaining 29.8% to the central markets in Addis and Dire-dawa. In terms of monitory value, however, the share of washed coffee was equivalent to 41% while that of sundried coffee stood at 59% indicating the net increase in the price of washed green coffee beans by 11.2% over sundried coffee. Therefore, promotion of washed coffee export should be considered as an alternative strategy for value addition and maximizing foreign exchange earnings from coffee sale. In GTP II, Ethiopia has set a plan to become the second largest world coffee producer after Brazil and generate over a billion dollar from coffee export. In order to achieve the desired goal and earn the maximum possible foreign currency from coffee export, it is of paramount importance to put in place the right coffee research and development strategies which takes in to account some key strategic issue (Amamo, 2014).

Ethiopia's export portfolio is characterized by a highly concentrated on a few groups of commodities (coffee, sometimes called a one group economy) which are highly vulnerable to change in price of primary commodities. Ethiopia is a price taker in almost all of its export commodities. The world price of Ethiopian coffee usually depends on the performance of the major coffee suppliers (like Brazil and Vietnam) to the world market. Coffee was originally recognized by goat herd, Khalid in 9th century in Oromia regional state, Jimma zone, Goma district, Choche or Keta Muduga locality and nowadays produced by more than 70 countries in the world. It is the top most export for Ethiopia and represents just about one-third of overall exports worth of the country. Sharing 40% of Africa and 4% of global coffee production, Ethiopia is the top and the sixth largest Arabica coffee producer in Africa and the world respectively (Gezahagn, 2019; Jimma, 2020). Understanding of coffee production and marketing constraints, marketing actors and margin distribution is important in designing and implementing appropriate technological, policy and institutional strategies to improve coffee production and productivity in Oromia region (Taye,2019).

Quality is an important attribute of coffee and this attribute of coffee is currently becoming even more important than in the past as coffee is generally going through a world wide surplus production Crisis(Petit,2007). Ethiopia is naturally endowed with suitable climate and as impressive selection of distinctive coffee profiles and has the potential to produce large amounts of differentiated high quality green coffee. But if the currently harvested Ethiopia's coffee qualities are considered. They are quite mediocre and need special attention to produce high quality coffee to be competitive in today's world market.

1.2 Statement of the problem

Coffee exports have internal and external factors that affect the Expansion of coffee Export and Economic growth in Ethiopia until today. Such factors are; externally (demand side), the fluctuation of prices and the export short fall associated with the world recession at different times. This could be affected by coffee quality production. In addition, it greatly affected the economic growth of many different countries including Ethiopia. Ethiopia is endowed with a good production environment for growing coffee with a combination of appropriate altitude, temperature, rainfall and soil type. While consumers benefit from low coffee prices, producers may face challenges with regard to the economic viability of production. Besides, there are several measures of coffee export quality in the Ethiopian market place (Van Vu et al., 2016). They include most importantly certification, which affects marketability, and prices, lack of competitiveness, lack of infrastructure, in adequate access to services, low value addition, in adequate technology transfer and research and rainfall variability are among major constraints of coffee export production in Ethiopia. Indeed, price volatility, poor accesses to market, little market promotion and incentive mechanism, poor management practices and poor pricing are considered with quality. As Ethiopian Commodity Exchange (ECX) trades standard coffee contracts mentioned different problems, based on a warehouse receipt system, with standard parameters for coffee grades, transaction size, payment, and delivery. The first level quality control is decentralize and undertaken in nine liquoring and inspection unit in major production areas (Rajesh, 2015).

Coffee yields are very low in Ethiopia compared to other countries and it is possible to coffee productivity growth by increasing support at the farm level and giving training towards higher

adoption of improved technologies on mulching, pruning, rejuvenation of trees, planting of improved varieties, and modern input use. Hence, quantities of coffee exported was an important commodity in the world economy.

As ICO(2011) revealed that, many countries were explained that coffee exports not only a vital contributor to foreign exchange earnings, but also account for a significant proportion of tax income and gross domestic product (International Coffee Organization, 2011). Accordingly ICO data has shown that share of coffee in total exports by value, during 2005-2010, Ethiopia is the third next to Burundi. This also show Ethiopia has a significant contribution in supplying coffee to the world market and earning the foreign currency for the country. The production of coffee bean has not changed much since the 10th century in Ethiopia because of the coffee production has followed traditional processing methods. However, as various researcher's have studied in different countries, several factors that affect the coffee quality was human and environmental factors. Thus, it is necessary to examine how the factors affect the quality of coffee products and the coffee export in Ethiopian commodity exchange (National bank of Ethiopia, 2018/19).

According to MOFED (2010/11), Coffee export revenue was highly dependent on commodities, such as coffee or agricultural products. There are various drawbacks for coffee export in developing countries especially Ethiopia. Primarily, traditional exports have been dominated by declining terms of trade which made export earnings not to increase well enough. Then, the incentives provided by the new policy to promote coffee export also could not totally eliminate the anti-export-bias incentive structure. As a result, the coffee export supply response was weak and the foreign currency exchange rate low.

Moreover, as Tadesse (2015) conducted his study on coffee exports, economic growth and determinants of coffee export in Ethiopia focused that an investigating the major determinants of coffee export supply before ten years using vector auto regressive model approach. The instabilities in export supply was short run deviation around a trend. In line with, Kamma (2020) also conducted the determinants of export performance in Ethiopia that used the export value, export destination and GDP as variables and applied the Autoregressive Distributive Lag (ARDL) model. Tamiru (2016) also conducted a research on export marketing practices, problems and prospective of oromia coffee farmers cooperative union in Ethiopia.

In addition, there are numerous problems that have constrained the growth of the coffee sector industry. Those includes weaknesses in technology, market structural, finance, policies and skilled manpower. These problems were brought less attention on coffee export and coffee demand prices which affect the economic growth in Ethiopia due to less quality coffee supply. It is obvious, there was no researcher has done on effect of coffee export expansion on economic growth in Ethiopia specifically. Because coffee export expansion leads to economies of scale, production efficiency, employment generation, capital formation, and better resource allocation and distribution. Therefore, the present study was aimed to identify effect of coffee export expansion on economic growth in Ethiopia through time series analysis using ARDL model approach.

1.3 Research Questions

There are many economic and non-economic factors affecting coffee export and economic growth in Ethiopia. Therefore, this study focuses on the macroeconomic determinants of economic growth, which includes physical capital, human capital, export, aid, external debt and inflation; for this reason the following questions would be addressed.

➢ What are the possible historical export of coffee and its contribution on economic growth?
➢ What are the long run relationships between coffee export and economic growth?
➢ What is the contribution of coffee export practice for economic growth in Ethiopia?
➢ How will be done to improve the performance of Ethiopia's coffee export sector and real exchange rate?

1.4 Objectives

1.4.1 General Objective

The general objective of the study was to investigate the effect of coffee export expansion on economic growth in Ethiopia.

1.4.2 Specific objectives

➢ To assess the historical export of coffee and its contribution on economic growth.
➢ To examine long run relationships between coffee export and economic growth.
➢ To examine contribution of coffee export practice for economic growth in Ethiopia.
➢ To identify ways to improve the performance of Ethiopia's coffee export sector and real exchange rate

1.5. Significance of the Study

The significance of this study was to know internal and external factors that affect coffee export performance and economic growth in Ethiopia. Coffee exports expansion have a positive and significant link to economic growth. This research could be help to understand factors that govern the volume of coffee export in Ethiopia and its contribution on Ethiopia's economic growth. This study is also helpful to know the relationship between exports and economic growth and consequence's. It provides information on consequences of coffee export systems, production and training on way of productivity. It makes linkage with many organizations including national and international research institutions, development organizations, traders, producers, policy makers, extension service providers, government and non-governmental organizations. It helps the firms to gain more market information that may allow them to make additional improvements to their production processes by way of upgrading their technology and skills.

1.6. Scope and Limitation of the study

The study covers the analysis of coffee export expansion and economic growth in Ethiopia only for the period 1981/82-2019/20 that were assessed from secondary documents extracted from website of National Bank of Ethiopia, Central Statistical Agency of Ethiopia, Ministry of Finance and Economic Development of Ethiopia, Ethiopian Revenues and Customs Authority, and Ethiopian coffee and tea authority.

Due to unavailability of updated data within the time as expected from source, coffee export within as required, such as daily, weekly and monthly gross domestic product would not be considered in this study and obtaining adequate data was one of the major challenges encountered while conducting the study.

1.7. Hypothesis

Based on the real feature of the country, the research hypothesis is that to check the analysis of the study.

$H_0 = \delta = 0$; that is, there is a unit root (the time series is non-stationary), and
$H_1 = \delta < 0$; that is the time series is stationary
- ➢ The expansion of coffee export has direct effect on the country's economic growth.
- ➢ The export of coffee and economic growth have positive relationship.

1.8. Organization of the paper

This study is organized in five chapters. Chapter one deals with the introductory part which includes background of the study, statement of the problem, objectives, significance of the study, research questions, scope and limitation of the study, and hypothesis. The second chapter deals with theoretical and empirical literature review. The third chapter deals with the research methodology. Chapter four covers data 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 Theoretical Review of Literature

The purpose of this section is to explore the theoretical underpinnings and empirical studies that explain the relationship between exports and economic growth of the nations. Specifically, the study first presents the theories, such as the theory of comparative advantage and Huckster - Ohlin theory with their assumptions and limitations. Adam smith attacked the main mercantilists' views and proposed the classical theory of international trade based on the concept of absolute advantage model. Classical Theories In accordance with the theory of absolute advantage (Adam smith,1776), nations should specialize and export the good that is produced more cheaply and efficiently and import that which is produced expensively and efficiently. As opposed to this theory, (Ricardo, 1817) argued that countries needed to merely have a lower opportunity cost (comparative advantage) in the production of a commodity in order to specialize and export while importing that which necessitate a higher opportunity cost (comparative disadvantage). The concept of comparative advantage provided a pedestal for the reformulation to a more standard international trade theory, (Heckscher,1919, Ohlin,1924) that centred trade on factor endowments and factor prices. The proposition is that countries should specialize, export a commodity that utilizes the relatively abundant and cheaper factor of production (labor, capital), and import the commodity that it is expensive and less abundant in. These relative differences in factor prices and endowments determine trade among nations.

International marketing is the process of identifying goods and services that customers outside the home country are interested in and providing them at the right price and location. In the international marketplace, this process is similar to that carried out at home, but with some important modifications that can adapt marketing efforts to the needs of the specific country or

geographic locality (Rugman, A.M., Collinson, S. &Hodgetts, R.M, 2006). The initial export performance literature adopted an economic perspective using industrial organization theory or structural conduct performance. Such a framework suggests that competitive advantage and superior export performance are derived from a firm"s ability to react successfully to the interplay of internal and external forces of the firm"s objectives, by developing and implementing an appropriate marketing strategy (Aaby et al.,1989).

The starting point of conventional economic growth theorization is the neoclassical model developed by Solow (1956) and Swan (1956) which involved a series of equations showing the relationship between labour-time, capital goods, output, and investment. This model was the first attempt to model long-run growth analytically. This model assumes that countries use their resources efficiently and that there are constant returns to scale, diminishing marginal productivity of capital, exogenously determined technical progress and substitutability between capital and labour. According to this view, the role of technological change is very important. The role of technological progress as a key driver of long-run economic growth proposed by Solow-Swan has been put to scrutiny by some economists, who accept constant and increasing returns to capital(Romer,1990,Grossman and Helpman,1991). Unsatisfied with Solow-Swan explanation, they worked to "endogenize" technology.

2.2. Export and Economic Growth

The relationship between export performance and economic growth is an area that has been given much attention by development economists. The results of different studies on export expansion and economic growth has broadly classified economists into those that support the Hypothesis that export growth has a positive impact on economic growth and those that doubt the existence of such relationship. Adam Smith's theory of international trade assumes that a previously isolated country about to enter into international possesses a surplus productive capacity above the requirements of domestic consumption. With trade the country is able to reallocate the given resources as to provide the new effective demand for the output of the surplus resources. Hence, a surplus productive capacity suitable for the export market appears as a costless means of acquiring imports and expanding domestic economic activity (Meier,1995 and Myint,1958). One of the export-based models formulated to present a dynamic view of how an

economy's growth can be enhanced by expansion of its exports is the staple theory of growth.

The Ethiopia economy is agricultural commodities dominate the export basket, basically, coffee. Although the focus of the economic reform program has been to make exports as an engine of growth, it does not seem that the government's attempt has brought the required results and thus whether exports determine GDP growth to be empirically probed (Tadese,2016). The 2018/19 has been a challenging year for the Ethiopian external sector particularly exports. The export structure is dominated by few primary agricultural export products. Not only primary exports capture the export structure, but also a high level of market concentration is observed. The top export products such as coffee, oilseed, pulses, and hides and skins accounted for 75% of total exports, where coffee alone had an average share of 6% in the country's GDP. Exports are a major factor in growth fluctuations and strongly influence development trajectories. In the short term, exports are a crucial source of foreign exchange, promoting economic growth and reducing balance-of-payments constraints. In the medium term, the diversification of exports leads to higher and more sustainable growth, and exports are also crucial to productivity growth through "learning by exporting"(World Economic Situation and Prospects 2020).

Export performance is regard as one of the key indicators of the success of a firm's progress. Research into export performance has grown considerably during the past few decades. While numerous studies have been conducted to explain coffee export performance and its antecedents, there is no generally accepted conceptualization. Export performance can also be defined as the outcomes from the firm's international output. Export performance is the extent to which the firm achieves its objectives when exporting a product to a foreign market. The economic growth in the long-run is the growth of potential output, which refers to the highest level of production that could be produced by an economy if all its resources were fully employed, including the current level of technology. Potential output can be attributed to the highest level of real GDP that can be maintained over the long term (Theodore, 2019).Most recent studies assessing the effects of agricultural export on economics have started to gain interest among economists. Thus agricultural export is considered as a very important one among economic growth contributors.

Some economists seem to generally have agreed that exports can have high added value on economic growth, while others did not find much support to the export led economic growth hypothesis. Several studies have addressed the links between exports and the national GDP by using Granger causality test which examined the causality relationship between growth of export and economic growth. Most of the previous researches focused on the total exports as the only source of growth, ignoring agriculture's share to total exports. This happens during the time in which agriculture exports play substantial role in underdeveloped economies. (Osama and Walid, 2016).

Ethiopia is a price taker in almost all of its export commodities. The world price for Ethiopian coffee usually depends on the price performance of the major coffee suppliers (like Brazil and Colombia) in the world market. In most cases, Ethiopian coffee-price booms have been associated with some form of supply shortfalls from major coffee suppliers. The price of Ethiopian coffee has been characterized by erratic fluctuations over the years. This measure was taken to raise the profitability of export production and to make exports competitive thereby promoting exporters and redirect from unofficial to official channel market, in addition a biweekly foreign exchange auction market introduced since May 1993 which was open for licensed importers . The marginal rate that is the lowest exchange rate at the auction was used as a secondary rate applicable to all current and capital account transactions until the next auction with the exception of a limited number of payments for which foreign exchange was made available at the official rate. The export sector is characterized by over-dependence on a few commodities such as coffee, which on the average constitutes nearly 65 percent of export earnings, followed by hides and skins. On average the combined share of six major export items constitutes more than 85 percent of total exports. Recently the contribution of chat came to be very important; it is now the second highest export item next to coffee (Alemayehu,2016).

Export performance has been critical for the economic development of many developing countries in recent years. It has contributed to faster growth and poverty reduction. Exporting has produced economic benefits deriving from efficiency gains associated with exploiting comparative advantages and improved allocation of scarce resources (Gachena et al., 2020). There are also dynamic gains in the export sector driven by greater competition, greater economies of

scale, and better use of capacity, dissemination of knowledge and know-how, and technological progress. A comprehensive and clearly articulated approach to trade policy and regulatory practices, with buy-in by all stakeholders, is vital to the success of an export strategy. When different government departments handle trade-related policies in isolation rather than in an integrated manner, it is difficult to develop and implement a coherent policy framework to support an export strategy. A coherent trade policy framework bridges government departments, public and private sector trade-related programmers, and private-sector actors. The result is an overarching set of prioritized objectives prepared in a holistic fashion by bringing together all relevant stakeholders and driven by the common goal of export impact for good. Awan et al (2014) tried to investigate the impact of key macro-economic variables on economic development after structural adjustment program in Pakistan and attempted to explore some of the necessary factors for sustained economic development in Pakistan.

2.2.1 Export Performance

Export performance is a relative success or failure of the efforts of a firm or nation to sell domestically produced goods and services in other nations. Export performance can be described in objective terms such as sales, profits, or marketing measures or by subjective measures such as distributor or customer satisfaction(Agena,2015). Determinants of export performance can be split into external and internal components. External components include market access/entry conditions and a country''s location, which include international markets. As economies like Ethiopia's grow, they develop a structural thirst for imports. Export earnings are a more reliable way of addressing the balance of payments constraint than relying on foreign aid or the whims of global capital flows. (Mechal,2013). Expansion of exports is often behind spurts in economic growth. A thriving export sector help 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, adopting 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(Sylvio,2016). The challenge of development has become more complex since the rapid

growth experience of the East Asian economies. While East Asia relied on manufactured exports for its growth, this course alone will not suffice for Ethiopia during an era of fast-changing modes of trade and production in the world economy. Growth and competitiveness today is increasingly linked to a tight complementary potential of exports and imports, as well as capital inflows, outflows, and domestic investment to enhance productivity in agro-based as well as classical manufacturing that increasingly draws on modern, competitive services as intermediate inputs(Athanasia,2020).

The relationship between coffee export performance and economic growth has been the focal attention of development economists and will continue to generate controversies as to whether or not export growth performance has a significant impact on economic growth of a nation. Argue that an increase in foreign demand for domestic exportable products can cause an overall growth in output via an increase in employment and income in the exportable sectors (Adeleye et al, 2015). Otherwise, exports have the ability to minimize the impact of market volatility, by working in global markets, companies become more captive to economic changes, changing customer demands and seasonal fluctuations in the local economy. Finally, and with regard to the advantages of exports, it can be summarized that an increase in exports leads to an increase in the access to the currencies, which increases the national income, the turnover and the surpluses of the state. This leads to an improvement in the standard of living. Despite the potential positive effect on growth, exporting may represent a very risky venture that can generate losses and affect the long-term survival of a firm (Sayef and Mohamed, 2017).

In the cases of very high international expansion, the costs of coordination, information processing and the complexity of management process are prone to offset the positive outcomes of the international development, and are likely to result in net costs. In addition, exporting firms tend to pay higher wages generating supplementary costs (Mihai, 2020). Ethiopia is a leading Arabica Coffee producer in Africa, ranking the fifth largest Arabica Coffee producer and tenth in Coffee export worldwide. Besides, the livelihood of a quarter of Ethiopian population directly or indirectly depends on different processes of production and marketing along the Coffee value chain. The performance of a country's export trade is highly dependent on its exchange rate regime, and more specifically the real exchange rate. Various studies have shown that the

demand for a country's exports increases when its export prices fall in relation to the world prices. The depreciation of its currency compared to other currencies makes its exports cheaper on the international market. Sharma (20014) discovered that the demand for Indian exports increased when its export prices fell. Jimma Agricultural Research Center as a mandate and center of excellence for coordinating coffee Research projects to be implemented nationwide, has generated and released a lot of improved coffee production technologies and packages over the last four Decades and also has been disseminating, popularizing and extending these technologies to the end users, farmers. However the level and extent of adoption of these technologies and its impact on the livelihood of farmers in a range of coffee production areas not well known. Considering this gap this work tried to analyze, assessed and viewed Adoption of Coffee technologies and its impact in Western coffee growing areas of Ethiopia (Misganaw and Bezabih , 2015).

It has been theoretically argued that both export and import may play a crucial role in economic development. The theoretical and empirical studies mainly concentrate on either the relationship between export and growth or between import and growth or the association between export, import and economic growth. Exports of goods and services are seen as an engine of economic and social development for a number of reasons, including exports that require companies to innovate and improve to maintain market share. On the other hand, exports ensure increased sales and profits (Sayef and Mohamed, 2017). Coffee is Ethiopia's largest export crop. Ethiopia produces only Arabica coffee which is considered as superior to Robusta coffee due to its fine aroma, strong body, and pleasant acidity. The country produces premium quality Arabica coffee in Africa and is the third largest producer in the world. A quarter of the total population of Ethiopia is directly or indirectly dependent on the income they generate from growing coffee for their livelihood. The change in consumer behavior and the increasing consumption of high-quality coffee is an opportunity for the coffee producing countries like Ethiopia. Improving coffee quality is a key prospect for increasing coffee exports and may be a good strategy to get better prices for the coffee (Habtamu, 2019).

The major export commodity of Ethiopia, coffee, contributes an average of 65% to total export earnings and provides a source of livelihood for a substantial number of farmers. The volume of

coffee export, prices and farm income are largely dependent on both national and international market and trade policies. Export performance cannot be only the good fortune to be producing goods in high demand. It is likely to be the outcome of the combination of various elements framing the production environment and export products' access to international markets. Therefore foreign market access and supply side factors are important determinant of an export supply of a commodity (Hassen, 2015).

The export sector of most eastern and central African countries is dominated by coffee, which accounts for over 70 percent of foreign exchange earnings from total exports. However, coffee output and quality in the sub-region have declined due to internal and external factors. More recently, it was noted that coffee production decreased by 45 percent in 2011 compared to that in 2010 in Burundi alone. This was due to the decline in coffee prices that triggered poor coffee husbandry practices and crop over maturity (Ndayitwayeko et al, 2014).

Ethiopia's largest export crop is the backbone of the Ethiopian economy. Ethiopia has not yet fully exploited its position as the producer of some of the best coffees in the world. Coffee sector is highly dependent on international prices and affected by the structure and workings of the world coffee market. Ethiopia is one of the countries mostly affected by the crisis in world coffee prices (Jima, 2020). Exporting also might force the nations to identify their areas of comparative advantage and re-channel their output from less productive sectors to higher productive export sectors. It is important to note that the extent to which exports impact the economy may vary with the type of commodities exported. The need to understand the effect of non-mineral exports (agricultural and manufacturing), along with the impact of mineral exports, on economic growth is a timely issue as Angola is in the process of implementation of its economic diversification policies (Titus et al, 2020).

Consequently, Ethiopian government took the initiative to establish Coffee Farmers Cooperative Unions since 1999 to manage coffee export business on behalf of primary coffee cooperatives that lacked human resources and logistical capacity. As a result, today coffee farmers are in a situation where lack of information and infrastructure make them victims of market failure such as creation of cartels. Considering their weak financial condition, it is too early to judge the sustainability of the cooperatives because international prices have been high recently, and it is

not yet clear how they would survive. For this reason, to achieve success in export markets due largely to the multiple indicators such as environmental factors especially in foreign environments, managerial characteristics and marketing strategies of firms. Improving the understanding of these factors impacting export performance is an important strategic concern in view of the rapidly changing global scope of business (Tamiru, 2016). Economists have called for export diversify cation by promoting and stimulating other sectors (i.e. agricultural commodities) of the economy for maximum domestic production and exports (Nahanga and Věra, 2016).

Accordingly, many farmers and global organizations have been working to promote sustainable coffee production to increase the resilience of farms to changing conditions. This includes increasing the biodiversity of farms through intercropping, decreasing reliance on pesticides and fertilizers, increasing shade trees on farms, and introducing natural fungicides and insecticides to combat common pests. Intercropping, or the planting of several varieties of crops in a given area, improves land efficiency through the increased nutrient distribution and uptake, effective use of water resources, and increased soil stability (Quan et al,2020). Ensuring a rapid and sustainable economic growth and development has been the major goal of most economies of the world of which developing countries, to be more specific, West African countries are not left out in the pursuit. To this end, trade has been found in development theory as an engine of economic growth. Trade contributes to optimal allocation of resources within countries and the transmission of growth from one part of the world to another. These stem from the static and dynamic gains associated with international trade. The former is referred to as "allocative or efficiency effect", while the latter is known as the "growth effect" of international trade (Odike and Jerome, 2020).

Certification of Voluntary Sustainability Standards (VSS) is rapidly increasing in global value chains. While consumers, mostly in developed countries, are willing to pay significant premiums for the certification of such standards, it is not well understood how effectively these incentives are transmitted to producing countries. We study VSS more in particular Fair Trade and Organic certification in Ethiopia's coffee sector, the country's most important export commodity, using a unique census of transaction data at the export level and large-scale data at the production level.

We find that transmission of export quality premiums to coffee producers is limited, with only less than one-third of this premium being passed on, and we find limited evidence of effects due to communal investment (Bart et al,2018).

Quality: The quality of a product or service is what the customer demands. New look at the quality can be said that has hurt the quality of the product entering from market. This definition seems incomprehensible at first glance, but when it can add value to a product that meets customer demands Performance.

Efficiency: To measure performance, the costs of inputs required to produce a given output can be calculated. When a company is more efficient, cost of inputs to produce an output that is less clear.

Innovation: Innovation development and application of new ideas in product, process or service that is new to the dynamic growth of the national economy and increase employment is to generate interest in innovative companies. New ideas are needed to understand new customer or new production techniques and the information collected will be developed with an entrepreneurial vision.

The coffee export sector in Ethiopia is one of the highest contributors to the government treasury through taxation, social services, and trade. It also plays a crucial role in Ethiopia's economy by influencing economic growth and employment. Moreover, the most dynamic growth in African coffee production was observed in Ethiopia, which has recorded an average annual growth rate of 2.2% over the past 50 years, increasing to 2.7% since crop year 1989/90. Ethiopia is also unique in Africa in so far as it has a strong domestic coffee consumption culture, which frequently accounts for over half of production (Wondesen and Fekadu, 2019). First, in Keynesian arguments, export growth leads to income growth via the foreign exchange multiplier in the short run. Second, more foreign exchange is obtained from raising exports, which manufactured goods, capital goods, and technology. Third, competition leads to economies of

scale, technological development, and growth. Fourth, the export sector may produce positive externalities, such as more efficient management, better production techniques, and technical expertise about product design which lead to economic growth. Agriculture is an important engine for growth, especially for low-income developing countries in their journey of economic development (Syed and Ali, 2015).

In order to examine the relationship between exporting and economic growth, several studies employ a conventional approach such as the Solow residual method. This approach is based on a classical assumption that all firms are operating efficiently and have constant returns to scale (Huong et al, 2016). In an open economy, countries are focused on the improvement of the quality of life of their citizens, and quality of life is an indicator of economic development. Investigated the dynamic relationship between exports and economic growth in India (Ali et al, 2018).

2.2.2 The role of export on economic growth

Export-led growth is a trade and economic policy aiming to speed up the industrialization process of a country by exporting goods for which the nation has a comparative advantage. Export-led growth implies opening domestic markets to foreign competition in exchange for market access in other countries. Export-led growth is important for mainly two reasons. The first is that export-led growth can create profit, allowing a country to balance their finances, as well as surpluses their debts as long as the facilities and materials for the export exist. The second, much more debatable reason is that increased export growth can trigger greater productivity, thus creating more exports in an upward spiral cycle.(Gorg $ David, 2003: pge117 -135). Exports may benefit economic growth by generating positive externalities on non-exports (Feder 1983), bringing about technological progress through foreign competition (Kavoussi1984; Moschos 1987), improved allocate efficiency, and better ability to generate dynamic comparative advantage (Sharma and Panagiotidis 2004).

2.2.3 Export supply capacity

Supply conditions are fundamental in defining the export potential of an economy ,and for a given level of access to international markets, countries with better supply conditions are expected to export more (Fugazza, 2004). The agenda for assessing export supply constraints

needs to consider both constraints to traditional export supply as well as constraints to shifting resources into new export activities (Biggs, 2007). Key determinants of supply side conditions are classified into four major components: domestic transport infrastructure, macroeconomic environment/real exchange rate, foreign direct investment and institutional quality (UNCTAD, 2005). Each of these factors are briefly discussed below.

One of the major factors affecting export supply capacity is the domestic transport infrastructure. It is likely to play an important role, especially at the early stages of export sector development (UNCTAD, 2005). Most African countries are characterised by poor transport infrastructure, which is a major impediment to trade, competitiveness and sustainable development (UNCTAD, 2005; Mbekeani, 2007; Bacchetta, 2007), and isolates countries, inhibiting their participation in global production networks (Limão and Venables, 2000). Due to poor internal transport infrastructure, African transport costs are high making their exports expensive and uncompetitive (Radelet and Sachs, 1998; Matthee, Grater and Krugell, 2007), and reducing foreign earnings from exports (UNCTAD, 2003; Matthee, Grater and Krugell, 2007).

Economic globalization and the opening of export markets have increased the need to raise the competitiveness of countries to increase their share of exports, and therefore foreign direct investment here plays an important role in narrowing the technological gap between developing and developed countries through technology transfer. It also helps it reach overseas markets as a base for exporting and distributing products abroad. Because of the multiple benefits, developing countries have put in place a number of policies to facilitate the flow of foreign direct investment, such as encouraging investment, facilitating foreign trade procedures, and developing export areas.

Furthermore, economists differed on the interpretation of the relationship between foreign direct investment and economic growth, as there are those who consider the level of economic growth as the determining factor for foreign direct investment(Mohamed et al., 2021). The large influx of foreign direct investment inward leads to high economic growth, and the opposite is true, and through this reference is made to several relationships that explain the relationship between foreign direct investment and economic growth.
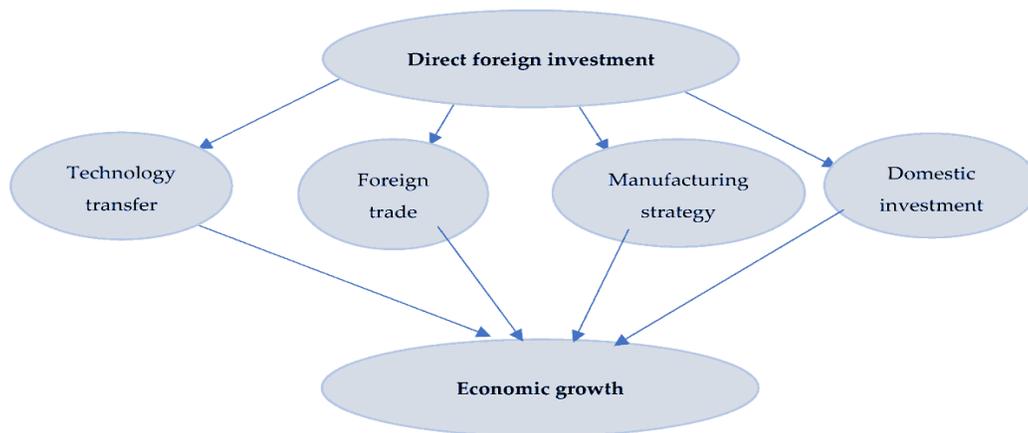
Figure 1. Link of direct foreign investment

Source: Compiled by the authors based on previous studies

Foreign direct investment (FDI) is another important factor affecting the export supply capacity of a country. There is a consensus among development economists that FDI inflows are likely to play an important role in explaining growth of recipient countries (De Mello,1997,Khadaroo,2007) . By increasing capital stock, FDI can contribute to a more efficient use of existing resources and absorb unemployed resources; and thus, increase a country"s output and productivity (De Gregorio, 1992; Seetanah and Khadaroo, 2007). FDI in export promotion depends crucially on the motive for such investment. If the motive behind FDI is to capture the domestic market (tariff-jumping type of investment), it may not contribute to export growth.

2.2.4 Internal and external barriers to exporting

Internal barriers refer to availability of international market information. Likewise, some firms might face difficulties when striving to satisfy the needs of oversees customer for before or after-sales service or arranging. Several approaches have been used as theoretical foundations for assessing export performance and its determinants. We recognize four elements as determinants of export performance, namely external and internal export barriers, export motives, and exporters' advantages. Internal barriers include issues such as lacking market information and difficulties in providing after-sales service or arranging the mechanics of exporting (e.g., documentation). External barriers include issues such as perceived trade and non-trade barriers (e.g., required standards). Export motives in this study refer to several sets of motives. They

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include possible motives to internationalize such as using international operations as a risk distribution mechanism. Alternatively, a firm might have idle capacity, which it can utilize to expand sales outside its home market. Firms differ on these internationalization motives. The motives firms become international should be based on the resources available to them (Nihat,2016).

2.2.5 Export participation and the age-size profile

The relation between firm size and export propensity has been much investigated in the literature, and the empirical consensus of a positive relationship is well accounted by existing theories of sunk costs for export market participation. On the contrary, the positive role of firm age in explaining firm propensity to export has received a less clear-cut support from the empirical evidence (Grazzi et al, 2016).

2.3. Exports and Economic Growth from the Perspective of International Trade Theories

The relation between trade and economic growth has been thoroughly and extensively analyzed. The initial wave of favorable arguments in relation to trade can be traced from Adam smith's classical economic thought. As pointed out by Van den Berg and Lewer, since Adam Smith's explanation of the concept of absolute advantage in the late eighteenth century, over the past two centuries the economic literature has built strong arguments to justify free trade policies. Smith stated that a country that has an absolute advantage produces greater output of goods or services than other countries using the same amount of resources. Smith stated that tariffs and quotas should not restrict international trade; it should be allowed to flow according to market forces. Contrary to mercantilism, Smith argued that a country should concentrate on production of goods in which it holds an absolute advantage. No country would then need to produce all the goods it consumed. The theory of absolute advantage destroys the mercantilist idea that international trade is a zero-sum game. According to the absolute advantage theory, international trade is a positive-sum game, because there are gains for both countries from an exchange. He further argued that increasing specialization and the division of labor, coupled with international exchange, would contribute to welfare and growth of a nation. He, therefore, saw international trade as a welfare enhancing mechanism.

2.4 Effect of Import on Economic Growth

This implies that the import-led growth hypothesis (I LG) does not hold for Ethiopia. The main explanation that can be given for this is that in Ethiopia, most of import expenditure is on consumption goods and not on machinery and productive capital or technologies. This can be seen in her import bill which is heavily dominated by food items, petroleum and medicines. Therefore this increased expenditure on imported consumables reduces the country's capital which depresses Ethiopia's national productive capacity and thus reduces GDP in the long run. Over and above this, the above indicated negative relationship between imports and GDP is supported by standard macroeconomics theory. In Macroeconomics, imports are considered as a leakage to the circular flow of national income i.e. Expenditure on imports reduces spending on domestic goods and services and thus total aggregate demand in the economy.

Now, with a reduction in aggregate demand national production goes down and hence economic growth slows down as well(Birhanu,2021).

2.5 GDP determination in an Open Economy

Introducing international trade requires that modify the national account identity. (Henderson& Pool ,1991)

GDP=C+I+G+X-M………………………………………………………….1

Where, X=stands for Exports, M=Imports, GDP=National income, C+I+G=Measure spending by domestic residents on these three categories of goods and services. Aggregate demand Decomposed according to the source of demand with in time consideration.

$Y_t=C_t+I_t+G_t+ (X_t-M_t)$…………………………………………………..2

Where, Y_t =Output, C_t =Consumption, I_t = Investment, G_t =Government spending,

X_t = Export, M_t =Imports. (X_t - M_t) is the net Exports. This contrasts with the alternative modeling growth from the supply side as in a neoclassical setting where growth is a function of factor inputs &TFP. Even if, the research focus on both demand & supply side Export performance & Economic growth. The researcher selects the demand model rather than the

supply due to actual data computed the country Economy is found Expenditure approach Measure to GDP.

The expenditure approach generates final sales of domestic product to producers, and it is calculated by using the formula provided below.

Y (GDP) =C+I+G+X-M--------------- (1.a)

Domestic consumption is partly autonomous and partly determined by the level of national income.

C= Ca +cY------------------------------- (1.1b)

Where Ca= autonomous consumption, C=marginal propensity to consume. i.e the fraction of any increase income that is spent on consumption.

-An increase in consumer's income induces an increase in their consumption.

Import expenditure is also assumed to be partly auto nous and partly a positive function of the level of domestic income:

M=Ma+mY-------------------------------------- [1.2c]

Where Ma=autonomous import expenditure and m is the marginal propensity to import, that is the fraction of any increase income that is spent on imports. In this simple formulation import expenditure is assumed to be a positive linear function of income Government expenditure and Export are assumed to be exogenous.

Substituting equation (2) and (3)in to equation(1)

Y=Ca +cY+I+G+X-Ma+mY………………………….. …….[3]

Rearranging

Y-Ca+cY+I+G=X-Ma+mY………………………………… [4]

Y-AD(Y)=Nx(Y)…………………………………………..[5]

AD= Aggregate demand which is equal to Ca +cY+I+G and Nx is net export defined as X-Ma+mY

This shows that the economy would be in equilibrium where the domestic balance is equal to external balance. Macro Economics textbooks (Henderson& Pool ,1991:259 -297 ,and Mankiw, 2009: PP, 325-338)

The relationship between exports and economic growth has long been discussed in economic development literature. When exports have a positive impact on economic growth, the exporting country is said to experience an export-led growth. Published literature indicates that export-led

growth is associated with enhanced factor productivity. More specifically, exports stimulate productivity by expanding a country's market base, through learning by exporting and the diffusion of technology into the exporting country (Rakhmat,2019). For the purpose of this study, we will consider the concept of economic growth regarded as extensive economic growth by which says economic growth is the expansion of a nation's output as measured by real gross domestic output (GDP) regardless of whether output percapita increases or not. Explicitly, a society will be seen to have experienced economic growth when there is an increase in its real amount of goods and services produced over a period of time(Jerome,2020). In an open economy, countries are focused on the improvement of the quality of life of their citizens, and quality of life is an indicator of economic development. Investigated the dynamic relationship between exports and economic growth in India. Time series data from 1970-2009 were used vector error correction and co integration estimations were applied(Ali et al,2018).

2.6 Trade Balance Impact on Economic Growth

The idea that international trade brings economic growth and increases the welfare of a nation started during the 17th century by a group of merchants, government officials and philosophers who advocated an economic philosophy known as mercantilism. According to mercantilists, for a nation to become rich and powerful, it has to export more than it imports where the resulting export surplus is used to purchase precious metals like gold and silver. Thus the government in its power has to control imports and stimulate the nation's exports (Gemuchu,2015).The assessment of the trade balance impact is widely discussed in the scientific literature. Economic theory identifies well-known channels through which trade can influence economic growth: trade promotes efficient resource allocation, enables the country to realize economies of scale, facilitates knowledge diffusion, promotes technological advancement as well as fosters competition in domestic and international markets and new product development. Identified the channels through which international trade may affect the economic growth: (i) it provides access to foreign intermediates and technologies; (ii) it facilitates the dissemination of knowledge internationally; (iii) it expands the market size for new product varieties. The Thirlwall Law defines the traditional explanation of why the trade balance should be linked to economic growth. Empirical studies have strong evidence that international trade has a positive

impact on economic growth by facilitating capital accumulation, modernization of industrial structure, technological and institutional progress. More specifically, increased imports of capital and intermediate products not available on the domestic market may increase the productivity of production (Deimante et al , 2020).

Export expansion is expected to be an important factor fostering output growth through raising capital formation by increasing opportunity to finance imports of capital and intermediate goods. Furthermore, export growth causes countries to expose to raising foreign market competition, knowledge transfer and new production technologies. This in turn leads to more efficient allocation of resources, utilization of scale economies and greater capacity exploitation and thus stimulates productivity growth. Exports can also directly affect economic growth by increasing level of employment and income via multiplier effect. The relationship between export expansion and economic growth has been extensively studied over the past decades, yet the channels and even the direction of causality have remained unresolved in theory and empirics. Broadly speaking, there are two competing hypotheses on the nature of the causality between exports and growth: the export-led growth (ELG) hypothesis suggests a causal flow from exports to productivity, while the growth-led export (GLE) hypothesis asserts that causality runs from productivity growth to exports (Muhammed, 2018).

2.7 Trade and Employment

At the micro or sectoral level is the firm-level theory, which emphasize firm-level factorsóe.g. in determination of exporting behavior and productivity. Generally, exporters (exporting firms) have been found to have higher productivity and more human capital than non-exporting firms do. One argument has been that increased openness through trade liberalization in a developing country affects the skill structure of labor demanded. Due to changing the production technology through importation of advanced capital goods, which increases productivity and raises demand for skilled labor. Supplying the international market require manufacture of high quality products, implying need for investment in modern technologies, capital-intensive methods, as well as managerial and technical expertise that are not available to firms producing for the domestic market. This also implies that the demand for more educated and skilled labor in the

export sector is likely to be higher. Trade liberalization may also affect the efficiency with which firms use factors; thereby reducing labor demand (Maureen, 2014).

2.8 National Competitive Advantage

Factor conditions do not refer to the conventional pool of resources, such as land, labour, capital, raw materials, but rather those "created" and continually upgraded such as highly specialised skilled labor, and world-class scientific institutions most suited to the industry's needs. Firm strategies, structure and rivalry refer to managerial, organizational as well as the existence of competitive forces/challenges from other firms within the industry. While the managerial/organizational modes must be compatible with other sources of competitive advantage, existence of domestic rivalry is considered sine-qua-non as well as an integrating force in the "diamond". Porter presents these forces in the form of a "diamond" depicted in Figure 2 (adapted from Porter 1990a, p.77).

 As is obvious from the description and operation of the forces in the "diamond", the competitive advantage of an industry is driven by firm-specific factors, the competitive environment, and the push towards innovation and upgrading. The basic differences in the framework of competitive advantage factors influencing comparative advantage are (1) an emphasis on "created" factors of production and innovation by the firms in competitive advantage. (2) an emphasis on demand side, particularly firm's success in creating a differentiated product. (3) an emphasis on gaining monopoly or niche by successful firms in markets for their products in competitive advantage versus emphasis on traditional models of competition in comparative advantage; and (4) an emphasis on explaining intra-industry trade in advanced industrialized economies in competitive advantage versus inter-industry trade in comparative advantage(Satya, 2015).

The central focus for analyzing of the determinants of the real exchange rate and the effects of real exchange rate misalignment is the desire to determine an appropriate concept of equilibrium exchange rate and to estimate its value. Since the real exchange rate reveals the relative

competitiveness of the exported goods from the domestic economy to the rest of the world, it is desirable to characterize its behavior and test its fundamental determinants. Different economists develop various models to identify theoretically potential determinants of real exchange rate. Additionally, they come up with some empirical evidences and found the determinants of real exchange rate for different case studies. The aim of this chapter is revising these theoretical and empirical backgrounds of real exchange rate to underlay the fertile ground for upcoming analysis. In the first section of this review the theoretical back ground including definitions of real exchange rate, its type, views of different economic thoughts, different methods of measuring exchange rate particularly real exchange rate and the like concepts will be presented. In proceeding section of empirical reviews the works of different researchers, evolution of exchange rate management in Ethiopia, the exchange rate regimes in Ethiopia and other related

ideas will be revised(Nandeeswara and Tassew,2016).

2.9 The impact of coffee certification on small-Firms

The volatility of coffee markets in combination with poor production infrastructure and services have sunk the majority of coffee producers in developing countries in low-input-low-output cycles and structural poverty. In the recent past, due to the interplay between increasing poverty of coffee smallholders in major producer countries and growing demands for healthier and more socially and environmentally friendly produced coffee in larger consumer countries, certification of cooperatives has gradually gained wider significance worldwide. Especially Fairtrade certification is expected to significantly contribute to better livelihoods of smallholder coffee farmers by enhancing their income through premium prices and stabilizing it through minimum prices (Pradyot et al,2012).

2.10 Consumption

Ethiopians are heavy coffee drinkers, ranked as one of the largest coffee consumers in Sub Saharan Africa. Nearly half of Ethiopia's coffee produce have locally consumed. Coffee in Ethiopia has both social and cultural value. It mainly consumed during social events such as family gatherings, spiritual celebrations, and at times of mourning. Coffee on the local market is mainly coffee destined for export through the Ethiopian Commodities Exchange (ECX) market

but rejected for failing to meet ECX's quality standards. An interesting new development in Ethiopian major cities regarding coffee consumption is the emergence of small roadside stalls selling coffee to passer by customers. The small road side stalls serve coffee in a traditional manner. They have emerged and flourished in Ethiopia's major towns, growing very popular among coffee consumers who are frustrated by the escalating price of coffee and the deteriorating quality of coffee served in cafes and coffee shops (Alemayehu , 2014).

2.11 Ethiopian Coffee Industry

The story of coffee has its beginning in Ethiopia- the original home of the Coffee Arabica plant, which still grows wild in high land forests. In terms of varietals, all coffees from Ethiopia are typical Arabica; the country is the original homeland, and over the years has developed numerous varieties. Amongst these is the known Gesha variety, which is indigenous to Ethiopia (but best known as Panamanian Geisha after it was transported to Panama after the 1930s). The existence of genetically diverse strains of coffee places Ethiopia at the center of origin, diversity and dissemination of the plant. The cultural heritage of coffee consumption has significantly contributed to the sustainable production of the crop for centuries in Ethiopia. Coffee in Ethiopia has a unique slow ceremony that takes more than an hour. The ceremony has a great value in human relations and stimulating discourse. During the session different social, political and economic issues are raised, discussed and solved.

Ethiopia is the first country where coffee was sold according to the location from which it was produced. The known coffee types are produced and exported from Ethiopia include Yirgacheffe, Sidamo, Limu, Teppi, Bebeka, Djimma, Lekempti, Kaffa and Harrar. These are found growing in the southern, south-western and eastern parts of the country. New coffee types emerging from the northern producing region include Zege and Ayehu. The reason is the distinctive and inherent quality profiles of coffees coming from individual growing regions. These distinctive and inherent quality profiles of coffees matched well with the interest of customers who chose to buy certain and selected qualities only(Assefa,2018).

Coffee is the leading export commodity in Ethiopia. Ethiopia stands as the biggest coffee producer and exporter in Africa and amongst the leading in the world. On top of its significance as a major export commodity it provides a means of livelihood for millions of people and plays a vital role in their socio – economic and cultural values. Since smallholders' farmers produce 90% of the coffee in Ethiopia, coffee is an important source of income and employment at farm level.

2.12 Empirical Literature Review

The Ethiopia export performance, the contribution of Export to economic growth to has been Tested by different economist's empirical test using time series different econometric techniques reviewed. There are various literatures, which argue about the impact of export on economic growth, price and output. The contribution of export growth to economic growth has been tested by different economists using different econometric techniques. The empirical evidence on the relationship between export and economic growth is generally diverse with the conclusions differing depending on the nature and timing of the economies and countries investigated, the type of methods, methodologies and models employed, and/or the sample size and data frequency used in the specific study. This part dwells on previous or existing literature related to the area under study and tries to relate these existing literatures to the study at hand. It is focused mainly on the researches and arguments made on the effect of coffee export on economic growth in Ethiopia.

2.12.1 An overview of Ethiopian economy

For the purpose of reviewing and analyzing trade strategies with special emphasis on efforts on export diversification, structure and performance of exports during the three successive regimes, the researcher tried to categorize the three periods based on the life span of each regime. These are the Imperial(pre 1973/74),The Dergue(1974/75-1991/92 and and the EPRDF(post 1991/92). Ethiopia's economic growth alternates with different changes in different municipalities and different political systems. These changes in the structure of the government have created the

problem of inconsistencies in the implementation of the policies of the previous administration. had to suppress effect in story of country economic growth. Modern Ethiopia, features political centralization and modern state institutions, and emerged in the mid-19th century. The Ethiopian economy relied primarily on agriculture, especially coffee production.

These are the pre-1974 period (monarchy), 1974 1991 (military junta) and 1992 to current (EPRDF regime). Ethiopia Economy Politics History is characterized by Radical Politics Changes and Strokes. During, Monarchy (before , 1974) Economic Policy was known primarily as a market-oriented economic system. However, the period of 1974-1991 characterized by the Centralized and 444 Economic systems. 1992 EPRDF officially condemns. Socialist Systems and support market-oriented economic systems.

2.12.1.1 The Imperial Regime (1930-1974)

Emperor Haile Selassie I (19301974). During this time, attempts to modernize the country (modern school and medical facility extension , first constitution, infrastructure development, start of medium-term plan, etc. are mentioned). Under Haile Selassie's rule, agricultural production was forced during the period of land ownership of was very unfair and the majority of Ethiopians were forced to the fields of wealthy landowners. It was similar to the feudal system. Many of the existing marginal industries were concentrated in the hands of foreign owners.

2.12.1.2 The Socialist (Derg) Regime: (1974-1991)

During the Derg administration (1974 / 75- 1990/91), real export growth was lower than the previous system,1974 Revolution eventually led to at a distance of and to Emperor with power. Kaiser Heile Seracier immediately after being defeated. The Military Commission was formed from several 4,444 divisions of the Ethiopian Army. As a result, the government installed the socialist (command) economic system , the market system 444 intentionally suppressed , and the socialization of followed the process of production and distribution of . Derg's Land Reform Policy was the most successful in history, gaining recognition from the socialist government and public recognition. Delg did not give domestic or foreign investors the opportunity to privatize. After the revolution, the role of government in making economic policy decisions has changed dramatically. Government nationalized or in 1975, gains partial control of most

businesses.including additional housing, financial companies, manufacturing, etc. The growth rate of total export revenue of recorded a decrease of more than 42. Percentage compared to the growth rate of the imperial system. This could be primarily due to poor performance legumes and oilseed exports . came from the export of commodities , which grew at an average annual rate of 13.1% during the Imperial administration, and fell to 2.4% during the Derge administration. During this regime, the export revenue of from Chat showed an average annual growth of 69.8% compared to -0.8% during the imperial regime.

2.12.1.3 The post -1991 EPRDF

The post-1991 period begun, with the coming to power of Ethiopian People Revolutionary Democratic Front (EPRDF) and the government removed the Derg regime that had ruled the country for seventeen years. In contrast to the previous policy regime of hard and command control, EPRDF initiated a wide range of reforms that covered the exchange rate, interest rates, liberalization of trade, domestic production and distribution, devaluation of currency, eliminating structural distortion, improving the country's human capital and infrastructure as well as poverty reduction. Under the period of Ethiopian Peoples' Revolutionary Democratic Front (EPDRF), that is 1991/92-2000/01, the growth rate in the real value of total exports has shown a significant increase. In real value, total exports grew by 22.5 percent.

The autoregressive distributed lag (ARDL) model deals with single equation modelling and was introduced by Pesaran et al. (2001). The autoregressive distributed lag (ARDL) approach is a co-integration technique for determining long-run and short-run relationships among variables under study simultaneously. The autoregressive distributed lag (ARDL) is a technique that allows us to simultaneously estimate the short-run and long-run coefficients of our model. In order to examine the long -run and short-run relationships between economic growth and its focus variables, the parametized version of ARDL model (Pesaran et al., 2001) with lag four is estimated. The diagnostic tests like Breusch-Godfrey serial correlation LM test, the ARCH test for heteroscedasticity, Jarque-Bera test for normality of the residual term, are performed on the model. The application of economic models in explaining the dynamics

of economic growth will enable economic decision makers to exercise their judgmental analyses in a much more structured and quantified manner and to develop a more adequate understanding of macroeconomic time line. This study attempted to do this by identifying and estimating a linear dynamic model based on Pesaran et al. (2001) multivariate autoregressive distributed lag (ARDL) approach(Chinwuba and Ibrahim,2016).

Tadese(2015) The investigating the major determinants of coffee export supply in Ethiopia for the period of 1981-2011. It employs Vector Auto Regressive and Error Correction approach to identify the major determinants. The empirical result obtained from this study indicates that among the price factors, export price and world price of coffee are found to be statistically significant with their respective expected sign that is the supply of coffee export responds positively to the change in real export price of coffee and negatively to world supply of coffee. However, the short run as well as long run effect of both variables to the total export of coffee are inelastic.

Theodore and Qiang (2018) the investigate the impact of coffee exports on long-term economic growth in an open economy for 32 countries exporting coffee over the period of 1994–2013. The empirical findings of the study suggest policy implications, promoting the coffee sector to boost the countries' economy. The results from the ARDL approach to co integration with PMG estimator confirmed that all the variables have a long-term positive, highly significant impact on economic growth. Like other exports, the long-term effect of coffee exports on economic growth was positive and significant.Muhammad et.al, (2018) comparatively investigates coffee export dynamics in Indonesia a based on monthly data starting from September 2010 to December 2015 by using the vector error correction model (VECM). The result of this finding forwarded the argument that, international coffee price in the long run positively and significantly impacts volume of Indonesian coffee exports consistent with (Ahmed et.al,2018:Gebretsadik,2018).

Zekarias & Degye (2019) due to long gestation period in production system and fear of continuous low price for domestic producers hence, came up with debatable result by showing increase in domestic production decrease volume coffee export in Ethiopia.

Hussain et.al. (2020) examined study and investigation on the impact of supply-side factors on the export performance of Pakistan with time-series data set of from 1971 to 2014 using ARDL model with bound testing approach. The empirical analysis of this finding reveals that domestic production capacity is positively and significantly influence primary export performance both in short run and long run. This result was analogous to (Boansi, 2013:Boansi et.al,2014:Tadesse, 2015:Abolagbaet.al,2016) who deep-rooted positive significant relationship between domestic production and export performance.Ethiopian coffee export supply in the short run is determined by real exchange rate, foreign capital inflow, real income and term of trade. In the long run it depends on domestic price, real exchange rate, real income and term of trade. In the long run there is high price elasticity but in the short run it is low (Hussien, 2015).

Deresse(2020) export plays a vital role in an economy, there have been wide variations in countries export performance. The objective of this study was examining the determinants of export performance in Ethiopia using time series data running from 1981 to 2018 through employing Autoregressive Distributed Lag (ARDL) model. The long-run coefficient result for our model evident that foreign direct investment and per capita GDP are positively associated with exports in Ethiopia while rate of inflation has negative and significant effect.

Israel (2020) identified some of the main determinants of export in Ethiopia for the period 1977-2016 G. C. Also the paper tried to include new variable such like export diversification index and financial development as one determinant which are not considered in the most of the previous research conducted under this area, moreover the study used a bound test approach. To test empirically the relationship between export performance and its major selected determinants such as: real gross domestic product, real effective exchange rate, financial development, export diversification index, terms of trade, total investment, trade openness and major trade partner GDP per capita i.e. China.

Yared & Birhanu (2021) examine the impact of agricultural export performance on economic growth of Ethiopia. The study employed both descriptive analysis and econometric technique. In particular, the study sets out to assess the trend of agricultural export and economic growth in Ethiopia using yearly time series data covering from 1989/90 to 2018/19 years. The positive sign indicate the direct relationship between capital and economic growth by

confirming the theory mentioned in theoretical framework. The positive relationship between the capital stock and GDP growth is also supported by general macroeconomic and economic growth theory.

Belayneh and Wondaferahu(2014) Despite encouraging improvements in recent decades, Ethiopia's export performance has typically been portrayed as poor compared with other sub Saharan African countries. The major objective of this paper is to investigate factors that determine the export performance of the country by using an econometric model for the period 1970/71-2010/11. In order to know the long run and short run determinants, Johansson co-integration methodology is employed. The empirical finding on Ethiopian export determination model confirms that, real GDP of home country, real effective exchange rate, financial development, trade liberalization, infrastructural development are positive and significant determinants of country's export.

2.13 Conceptual Framework

The conceptual framework in figure 1 shows the relationship between agricultural exports and economic growth in Tanzania. Many literature shows that causality from exports to economic growth in terms of real output is recognized as Export Led Growth hypothesis. Export expansion directly accelerates output growth as a component of aggregate output in a country (through the Keynesian multiplier). This indirectly stimulates economic growth with advanced technology, which results in efficient allocation of resources and higher productivity (Balassa 1978,Grossman and Helpman 1991,and World bank,1993) and greater capacity utilization and exploitation of economies of scale due to foreign market competition and large markets. In addition, the generation of foreign exchange from exports allows not only for increasing levels of imports but the import of high quality inputs including capital and intermediate goods, which in turn raise domestic production and thus stimulate output growth (Alam & Myovella, 2019).
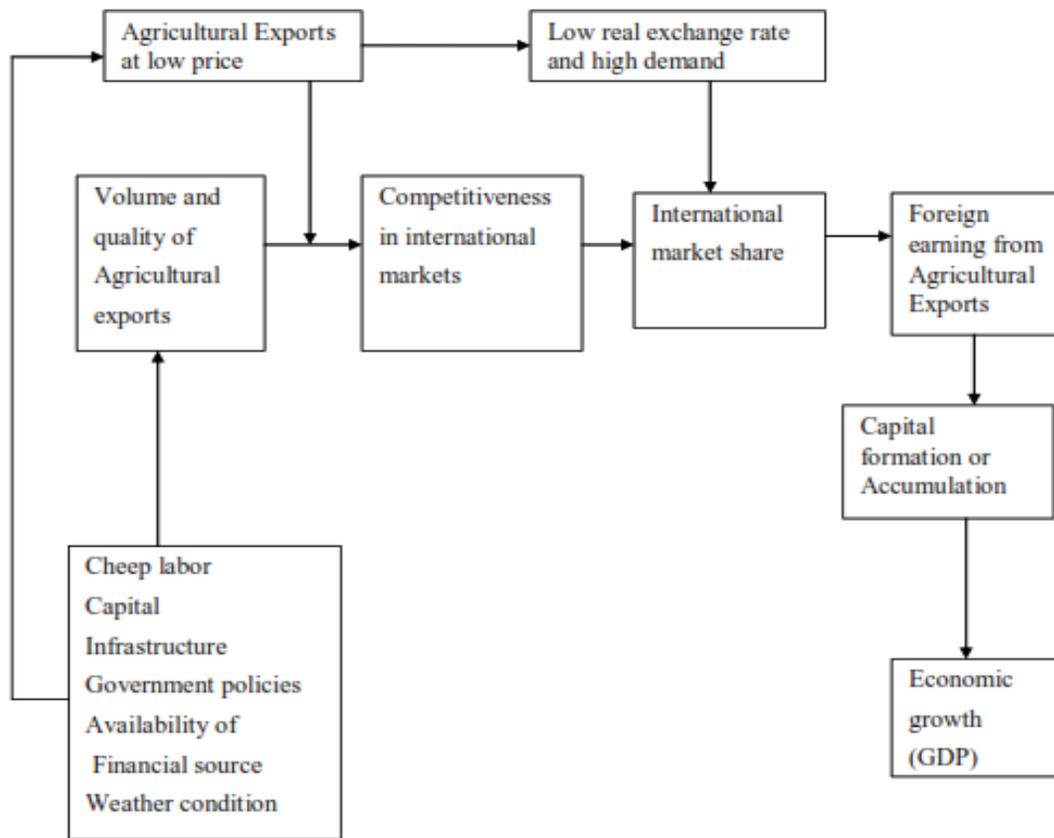
Figure 2. Conceptual framework Coffee Export Led Growth hypothesis

CHAPTER THREE

3. METHODOLOGY

3.1. Research approach and design

This research paper was aimed to identify effect of coffee export expansion dependent on different variables, which is the Coffee export performance of major products, and the dependent variable that is economic growth in Ethiopia. Therefore, quantitative approach is more appropriate to fulfill the purpose of this research. In addition, those variables can be easily quantified and the quantitative method was used to measure the relationship between dependent variables and explaitory variables. In the data analysis, both descriptive statistics and time series econometrics analysis was used. The study was investigated the short run and long run relationship between the variables via Autoregressive Distributed Lag (ARDL). Furthermore, the causal relationship between Coffee export and economic growth variables was performed through Granger causality test method. The econometric part was analyzed using Eviews 10 statistical software package(Meo, 2016).

3.2 Data Source and Type

This study was used secondary data and were obtained from National Bank of Ethiopia (NBE), Ministry of Finance and Economic Development(MoFED), Ethiopia coffee and tea Authority, Ministry of Finance Economic Development of Ethiopia and Central Statistics Agency. The research method was used both descriptive statistics and time series econometrics analysis which employed secondary data limited from 1981/82-2019/20 (40 years data). The dependent variable is economic growth (GDP) and the explanatory variables are Coffee export, Coffee Export values, gross capital information(investmement),Consumer price index, Inflation (Infl), total labor force (TLF), Real effective Exchange Rate (REER), Trade Openness (TOP), *Foreign direct investment (FDI)* and import. The export equation in this study has been estimated using time series data for the period 1981/82-2019/20 G.C. Time series secondary data would be used in this study effect coffee exports expansion on economic growth in Ethiopia

3.3 Model Specification

Autoregressive Distributive Lag (ARDL) model proposed by Pesaran, Shin & Smith (2001) has great merits over the well-known residual-based approach proposed by Engle and Granger (1987).The maximum likelihood-based approach proposed by Johansen and Juselius (1990) (Al-Assaf & Al-Abdulrazag, 2015; Zmami & Ben-Salha, 2019). There are numerious advantage of ARDL model such as (i) more efficient in case of small and finite sample size, (ii) used when the variables are integrated in different orders either I(0) or I(1), (iii) free from the residual correlation, (iv) producing the speed of adjustment with the long run equilibrium without losing the long run formation, (iv) capturing the co-integrating vector from the multiple co-integrating vectors (Nkoro & Uko,2016). To estimate the long term relationship between dependant variable and other explanatory variables; Engle Granger and Johansen and Juselius error correlation model were applied as it shown in their reports. But due to constraints in this model; Pesaran and Shin (2001) confirmed that ARDL was more appropriate techniques compared with other models. This approach involves two stages, Firstly, it examines if there is or no long run relationship between the variables under investigation and secondly it estimates the Coefficient of the long run relations and the associated error correlated models.

Moreover, various economic growth theory have been discussed in this study under theoretical frame work, such as Classical growth theory which assumes noneconomic factors of production like population growth, political instability, the security of private property and the role of law and institutions in addition to economic factors of production land ,labor, capital and technology. This theory use the simple production function Y=AK where Y is output, A is technological progress and K is capital. This study used the Solow-Swan production function, an economic model of long-run economic growth set within the framework of neoclassical economics as a base to develop the economic growth model for this study. The Solow's neoclassical growth theory looks at economic growth as occurring through a Cobb Douglas aggregate production function which looks at growth in national output as emanating from several factories such as labor force, capital, level of technology and other exogenous factors such as government policy, international trade and market concentration. Studies by ram (1987 and 1990) and feder (1983)

clearly demonstrated how international trade impacts on the level of economic growth in the neoclassical framework(Calderon et al., 2020).

Ram and feder did this by incorporating exports and imports in the neoclassical growth function as follows: Y= f (L, K, EX, IM)…………………………………………………………….. (1)

Yt = f (Lt, Kt, Ext, IMPt)……... ……………………………………………………..(2)

The study initiated to prudently identifying both demand and supply-side factors that is explaining export behavior of Ethiopia. A log-linear function used to determine Ethiopia's total coffee export performance for the reason that it fits the model based on having the highest number of significant variables affecting coffee export which is analogous to (Tadesse,2015 and Ahmed et.al, 2018) in analyzing export performance sector in Ethiopia.

This model could be rewritten by including, exchange rate as control variable and coffee export instead of export as follows:

RGDPt =f (CEXt, CPIFt, FDIt, GCIt, IMDt, INFLt, RERt,TLFt,*TOPt,*,

μ)……………………….(3)

 RGDPt= β1CEXt + β2INFLt + β3TLFt + β4RERt + β5IMt+ U ……………. ……………………(4)

Where; RGDP is the annual real gross domestic product, CEX is Coffee export, INFL is Inflation, TLF is the Gross labor force, *FDI is Foreign direct investment ,* REER is real effective exchange rate,CPI is Consumer Price Index,TOP is Trade Openness and IM is import, t is the time and U is error term. Finally, from equation 4, equation 5 is derived by taking natural logarithm on both sides of equation 4 in order to discard the differences in the units of measurements for the variables and to minimize the gap between independent variables and dependent variables.

LOGRGDPt= β0 + β$_1$LOGCEXt + β$_2$LOGGLFt + β$_3$LOGREERt + β$_4$LOGINFLt + β$_5$LOG *FDIt* ++ β$_6$LOG *CPIt* + β$_7$LOG*TOPt* + β$_8$LOGIMt + Ut……………………………………………… (5)

 Where; LOGRGDPt is natural logarithm of real gross domestic product, LOGCEXt is natural logarithm of Coffee export, ; LOGLFt is natural logarithm of labor force, LOGRERt is natural logarithm of real effective exchange rate, LOGInflt is natural logarithm of Infl is Inflation, LOG *FDIt is the natural logarithm of Foreign direct investment,LOG CPIt is the natural logarithm*

of Consumer Price Index, LOGTOPt is the natural logarithm of Trade Openness, LOGIMt is the natural logarithm of import, Ut is error term, $\beta 0$ is the constant term and $\beta 1$-$\beta 8$ are the parameters of independent variables to be estimated.

3. 4 Definition of variables and their expected sign

In this, study the variables considered as independent and dependent have the following Contextual meaning and sign.

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 e xport 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.

Coffee Exports (CEX): Coffee is the leading export commodity in Ethiopia. Export expansion is a significant catalyst in improving productivity growth. Therefore, export expansion helps to concentrate investment in agricultural sectors, which in turn increase the overall total productivity of the economy. Additionally, export growth may also relieve the foreign exchange constraint, allowing capital goods to be imported to boost economic growth. Therefore, positive relationship will be expected on economic growth.

Total Labor Force (TLF): The labor force, or currently active population, comprises all persons who fulfil the requirements for inclusion among the employed (civilian employment plus the armed forces) or the unemployed. The employed are defined as those who work for pay or profit for at least one hour a week, or who have a job but are temporarily not at work due to illness, leave or industrial action. The armed forces cover personnel from the metropolitan territory drawn from the total available labor force who served in the armed forces during the period under consideration, whether stationed in the metropolitan territory or elsewhere. The unemployed are defined as people without work but actively seeking employment and currently available to start work. This indicator is seasonally adjusted and it is measured in persons.

Gross capital formation (investment) is also known as investment expenditure. it consists of the following two components:

I.   **Gross fixed capital formation**: GFCF is called "gross" because the measure does not make any adjustments to deduct the consumption of fixed capital (depreciation of fixed assets) from the investment. Including, all expenditure by producers on production goods such as new building, new machines and breeding livestock.it include new capital foods of the private as well as the public sections, new lecture buildings at poly will be included in this category.

II. **Change in inventories:** include raw materials, semi-completed and completed products owned by business. These inventories change as goods bought and sold.

Real effective Exchange Rate (REER): It represents the nation's nominal effective exchange rate adjusted for inflation in the home country and used as a proxy to measure macro-economic stability.It is a measure of the value of a currency against a weighted average of several foreign currencies‖. It is an indicator of the external competitiveness of a country's currency. An increase in real effective exchange rate implies that exports become more expensive and imports become cheaper which indicates a loss in trade competitiveness and a strengthening of the home currency with respect to other currencies. However, the effects of the   real exchange rate either appreciation or devaluation of local currency on private investment   is ambiguous. The real exchange rate can influence the level of private-sector investment via determining the real cost of imports and on other hand via promoting export. For instance, real exchange rate depreciation increases profitability in export-oriented sectors and therefore promotes investment in these sectors. On the other hand, depreciation of the exchange rate increases the cost of imported capital goods, and thus decreases investment in import-dependent production sectors (Branson and buffy,1986)

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. (Keho, 2017) Some of the trade policy decisions made by nations that empower outward or

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inward orientation are trade barriers, import-export, infrastructure, technologies, scale economies and market competitiveness.

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

$$\text{TOP} = \frac{Export + Import}{GDP}$$

Inflation (Infl): Inflation is the general rise in the prices of goods and services over long term of time (Eftekhari & Kiaee, 2015). It is a quantitative measure and can be estimated by the annual growth rate of the GDP implicit deflator, which shows the rate of price change in the economy as a whole. In computing, the GDP implicit deflator is the ratio of GDP in current local currency to GDP in constant local currency. Inflation can be measured by two ways (AlMutairi et al., 2020): (i) it is the annual percentage change in consumer prices, i.e, Infl = (Pt – Pt-1)/Pt-1*100. Pt is the consumer price index (CPI) at time t and Pt-1 is a consumer price index at last year (t-1). CPI by itself defined as an indicator that measures average change in price over time paid by consumers for a given representative basket of goods and services (Qaiser & Shabbir, 2016). (ii) It is meaasured by annual percentage change in GDP deflator (GDP deflator = (Nominal GDP/Real GDP)*100). Nominal GDP is a GDP in a given year when valued at the price of that year while Real GDP is a GDP when valued at the price of a reference base year (Mankiw, 2016). CPI has been calculated from fixed weighted consumption bansket whereas GDP deflator is considers all domestic productions and it is macro rather than micro-indicator (Romer, 2012; Mankiw, 2016). So, for this study, inflation was computed by GDP deflator. Based on this concept, high inflation implies that low nominal wage hence it is expected to be positive(Bassa & Goshu, 2019).

Consumer Price Index (CPI) The consumer price index is used as a proxy for inflation Since our data on the three agricultural exports is in terms of their exchange value over years. So in order to compute the effect of inflation a consumer price index is employed. Consumer price index reflects changes in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly. Therefore consumer price index is expected to have negative relationship with economic growth.

Foreign direct investment (FDI) is the inward stock of foreign direct investment into the exporting country. Foreign direct investment does contribute to the technological upgrading and structural evolution of the export sector, the structure and effectiveness of the sector is an important force to increase the export performance and foreign earnings. Thus, export performance positively responds to FDI in the long run. The experience in a number of countries suggests that FDI strongly contributes to the transformation of the composition of exports. For instance, it has been well documented that FDI inflows to Singapore or more recently China, have helped to increase significantly the technological content of exports by supporting strongly the development of export supply capacity. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. FDI is another important factor affecting the export supply capacity of a country (UNCTAD, 2018) and it represents foreign direct investment stock in Ethiopia (in USD million) at time t.

Import (IM)

Imports are the goods and services that are purchased from the rest of the world by a country's residents, rather than buying domestically produced items. Imports lead to an outflow of funds from the country since import transactions involve payments to sellers residing in another country.

3.5 Method of Data Analysis

Before Econometric data analysis would be carried out, all necessary data were organized and made ready for analysis by excel sheet 2007. Excel 2007 also used for graphical and tabular presentation of time series data. For Econometric data analysis and diagnostic checking of the model of the specific time series data, statistical software adopted was Eviews version 10. The descriptive data analysis was to provide basic information about variables and to highlight potential relationships between coffee exports and economic growth over time in Ethiopia. Time series data techniques was used to examine whether the coffee exports have short run or long run effect on economic growth of Ethiopia. And also the order of integration was known by unit root test consisting of the augmented dickey fuller (ADF) and the Phillip Perron (PP) tests. In line with, it was used to investigate the possible existence of a long-run relationship between the variables via ARDL co-integration analysis. ECM was applied to examine the short run effect of

the variables on economic growth. Moreover, the study was explored the causality test which explains the causality between economic growth and Coffee export using granger causality test.

3.6 Non-Stationary and Stationary

3.6.1 Non-Stationary

Regression of non-stationary time series may cause a spurious or non-sense regression. On the other hand, a series is said to be stationary if its mean and variance are constant over time and the value of the covariance between the two time periods depends only on the distance or gap or lag between the two time periods and not the actual time at which the covariance is computed(Guajarati, 2004). Therefore, the first thing in an econometric work is to check whether a series is stationary or not since non-stationary series behavior could only be studied only for the period under consideration. Each set of time series data would be for a particular episode. Consequently, it is not possible to generalize to other time periods.

Dickey and Fuller (1979, 1981) constructed a method for formal testing of nonstationary. The Dickey – Fuller (DF) is suitable, if the error term (μt) is not correlated and it becomes inapplicable if error terms (μt) are correlated. To allow for the various possibilities, the DF test is estimated in three different forms:

$\Delta Y_t = \delta Y_{t-1} + Y\mu_t$ ……………………………………………………..(6)(Without drift and trend)

$\Delta Y_t = \beta_0 + \delta \mu_{t-1} + \mu_t$ ……………………………………………..(7)(with drift)

$\Delta Y_t = \beta_0 + \beta_1 t + \delta Y_{t-1} + \mu_t$……………………………………….(8)(with drift and trend)

Where t is the time or trend variable. In each case the null hypothesis is:

$H_0 = \delta = 0$; that is, there is a unit root (the time series is non-stationary), and

$H_1 = \delta < 0$; that is the time series is stationary

But in case μt is correlated, Dickey and Fuller have developed a test, known as the Augmented Dickey–Fuller (ADF) test. This test is conducted by augmenting the preceding

three equations by adding the lagged values of the dependent variable Yt

The ADF test here consists of estimating the following regressions:

$$\Delta Y_t = \delta Y_{t-1} + \alpha_t \sum_{t=1}^{m} \Delta Y_{t-1} + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..(9)(\text{Without drift and trend})$$

$$\Delta Y_t = \beta_0 + \delta \mu_{t-1} + \alpha_t \sum_{t=1}^{m} \Delta Y_{t-1} + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots..(10)(\text{with drift and no trend})$$

$$\Delta Y_t = \beta_0 + \beta_1 t + \delta Y_{t-1} + \alpha_t \sum_{t=1}^{m} \Delta Y_{t-1} + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.(11)(\text{with drift and trend})$$

Where, β_0 and t are the constant and the time trend, respectively.

If the ADF test statistic is greater than the critical value, then the series is stationary and if the ADF statistic is less than the critical value the series is non-stationary. The following hypotheses would be used to test for stationarity:

$H_0 = Y_t$ has unit root or not stationary.

$H_1 = Y_t$ is stationary or does not have unit root.

3.6.2 Test for Unit Root (Test of Stationarity)

Undertaking Augmented duck fuller test (ADF), Afriyie et al.(2020) for model specification the stationary of variables defined in the model is prerequisite and the unit root teste has different at level one done for the purpose. Before proceeding to further analysis with a time series data, the order of integration of the variables should examined by using the Augmented Dicker fuller (ADF) or Philips Peron unit root test to ensure that none of the variables has a unit root or is stationary at second difference and then avoid spurious results. Even if the ARDL model doesn't require pretesting variable for stationarity, because it is important to know the stationarity properties of the variables. The tabulated F-values (pesaran and shin 2009) have upper and lower bound; where the upper bound assumes all the variables are I(1) stationary and the lower bound assumes all the variables are I(0) stationary. Therefore, examining a variable weather it is I(1) or I(0) stationary was helped the calculated F-statistics value lays with the upper and the lower which come up with a conclusion. The Augmented Dickey–Fuller (ADF) tests the null hypothesis of the series is integrated of order one against it is integrated of order zero. The test is based on the estimation of a test regression which was stated below in a general form where an intercept and trend is included.

$$\Delta Y_t = \beta_1 Y_{t-1} + \sum_{i=1}^{n} \alpha_i \Delta Y_{t=i} + \varepsilon_i \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.(12)$$

Where ε_i is a white noise error term and $\Delta Y_{t-1} = (Y_{t-1} - Y_{t-2})$

The testable hypothesis is:

H_0: Both β_1 and α_i are equal to zero (β_1 and $\alpha_i = 0$)

H_1: β_1 and α_i are less than 0 (β_1 and $\alpha_i < 0$)

If we reject H_0, we conclude that there is no unit root in the series.

3.7 Lag length Determination

Akaike Information Criterion (AIC), Schwarz Information Criterion (SIC) and Hanna Quinn Criterion (HQC), were the most common techniques to determine the Lang length of a time series data. In this study, we have employed the Akaike Information Criterion (AIC) to select the smallest possible lag length. Since ARDL model estimates (p+1)k number of regression in order to find optimal lag length, where p is the maximum number of lags to be used k is the number of variables in the equation, this criteria was helped us to arrive at a given fit with smallest.

3.8. Co-integration Analysis

3.8.1 Co integration

Granger (1981) was introduced the concept of co-integration and focused on when two non-stationary series have the same stochastic trend in common. Co -integration is the statistical implication of the existence of long run relationship between the variables which are individually non-stationary at their level form but stationary after first difference (Gujarati, 2004).The theory of co integration could be used to study series that are non-stationary but a linear combination of which is stationary. The Engle and Granger (1987) test and the Johansen (1988) are the two main procedures which were used to test co integration. The Engle and Granger test is a two-step test which first requires the variables be integrated of the same order. The first step consists of estimating the equation in level form while the second step consists of testing the stationarity of the residuals of the estimated equation. The existence of co-integration was confirmed if the residuals are stationary at level form (Engle & Granger 1987) and based on the following residuals:

$\varepsilon_t = Y_t \text{-} \beta_0 \text{-} \beta_1 X_t$ ……………………………………………………………………………….(13)

For testing co-integration, we use the following equation:

$\Delta\varepsilon_t = \mu + \varphi\varepsilon_{t-1} + \varepsilon_t$…………………………………………………………............(14)

To test for co-integration we set:

$H_0 =$ no co-integration ($\varphi = 0$)

$H_1 =$ co-integration ($\varphi \neq 0$)

The Autoregressive Distributed Lag (ARDL) or Bound Test approach to co-integration has become popular in recent years which is developed by Pesaran and Shin and further extended by Pesaran et al. There are various reasons to adopt the ARDL procedure used for time series data analysis. Firstly, the bounds test procedure is simple as opposed to other multivariate co-integration techniques like Johansen and Juselius (1990). The ARDL bound test approach would be allowed the co-integration relationship to be estimated by OLS once the lag order of the model was identified. Secondly, the bounds testing procedure does not require the pre-testing of the variables included in the model for unit roots unlike other techniques such as the Johansen approach. It is applicable irrespective of whether the regressors in the model are purely I (0), purely I (1) or mutually co integrated. Thirdly, the ARDL bound test is relatively more efficient in small or finite sample data sizes. Estimates derived from Johansen-Juselius method of co-integration are not robust when it comes to small sample sizes as compared to bounds test. Lastly, as the name suggests, this approach allows both the dependent and independent variables to enter the model with lags, thereby allowing the past values of variables to determine its present values. As opposed to co-integration VAR models, different lags for different variables were also permitted. This flexibility in terms of the structure of lags of the regressors is particularly plausible because reactions to a change in each variable may be different depending on various factors and in some cases they might respond to the changes in underlying factors with a lag. The other benefit of using ARDL is that one could be included dummy variable in the co integration test process. The long-run ARDL model assumed the form;

$\ln RGDPt = \quad \alpha \quad + \sum_{i=0}^{m} \beta_{1i} \ln RGDPt\text{ -}1 \quad + \quad \sum_{i=1}^{n} \beta_{2i} \ln AEXt\text{ -}1 \quad + \sum_{i=1}^{n} \beta_{3i} \ln GCFt\text{ -}1$

$+ \sum_{i=1}^{n} \beta_{4i} \ln LFt\text{ -}1 \qquad\qquad + \sum_{i=1}^{n} \beta_{5i} \ln RErt\text{ -}1 + \qquad\qquad \sum_{i=1}^{n} \beta_{6i} \ln IMt\text{ -}1$

$+ \varepsilon_t$……………………………………………………………………………………….(15)

The lag optimum of the variables concerned was selected based on AIC criterion.

3.9 Long run and short run model specification

The long run and short association between independent and dependent variables estimated for specific times. The coefficients of error coefficients confirmed that the existence of long run association between coffee Export, Gross capital information, Total labor force, inflation, consumer price index, trade openness and worked export supply of coffee to Ethiopian coffee export. The joint short run association between defined explanatory variable and dependent variables examined by undertaking Wald test and it confirmed the existence of short run association between variables toward equilibrium (Mwaanga & Njebele, 2017)

3.10 Error Correction Model (ECM)

In order to examine the short run relationships of the model, the error correction model was used. Error correction term included in the model, explains the speed of adjustment towards the long run equilibrium. Initially, if the variables confirm the existence of co integration, then the Error Correction Model (ECM) was estimated. Granger and Weiss (1983) and Engle and Granger (1987) pointed out that if two variables are co-integrated in first difference, their relationship can be expressed as the ECM by taking past disequilibrium as explanatory variables for the dynamic behavior of current variables. The ECM method corrects the equilibrium error in one period by the next period. Therefore, the deviation from the long run relationship should be included as an explanatory variable in an Error Correction Model. The higher the ECM, the more the speed of adjustments. Also, the error correction model was used to capture the short-run dynamics as follows:

$$\Delta \ln RGDPt = \sum_{i=0}^{m} Y_{1i} \ln RGDPt \text{-}1 + \sum_{i=1}^{n} Y_{2i} \ln AEXt \text{-}1 + \sum_{i=1}^{n} Y_{3i} \ln GCFt \text{-}1 + \sum_{i=1}^{n} Y_{4i} \ln LFt \text{-}1 + \sum_{i=1}^{n} Y_{5i} \ln RErt \text{-}1 + \sum_{i=1}^{n} Y_{6i} \ln IMt \text{-}1 \quad \theta ECMt \quad \text{-}1 + \varepsilon_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots.(16)$$

Where is the short-run coefficient of model's dynamic adjustment to the equilibrium, – 1 is error correction factor. It shows the estimate of short run disequilibrium adjustment of long-run equilibrium error term, is measures the speed of change to get to the equilibrium in the existence of shocks.

3.11 Diagnostic and Stability Test

3.11.1 Test for Serial Correlation

Kirchgassner and Wolters (2007) argued that serial correlation occurs when error terms from previous periods affect future times. To test for serial correlation of the residuals, the Breusch-Godfrey test, also known as the Lagrange Multiplier test, was used. This is a test of the null hypothesis that there is no serial correlation up to lag order p.

3.11.2 Test for Heteroscedasticity

Basically, heteroscedasticity refer to a situation in time series data where the error terms have different scatter plots irrespective of the value of the explanatory variable (X). ARCH test, which involves the auxiliary regression of the squatted residuals on the original repressors and all their squares, was used to test for heteroscedasticity. This test simply determines whether or not the estimated variance of the error (residual) terms is dependent on the values of the regressors explanatory variables.

3.11.3 Test for Correct Model Specification

In order to test for the likelihood of incorrect model specification, whether the model has omitted certain variables, has incorrect functional form, or there is correlation between explanatory variables and the residuals, the Ramsey Regression Error Specification test (RESET) was used.

3.11.4 Test for Normality

One important assumption that underpins classical linear regression is that of normality in the residual terms. As other parametric testes in statistic and econometric tests, the collected data was assumed to be normally distributed, i.e. Bell-shaped, symmetric density curved and single-peaked. Indeed, those error terms are expected to be normally distributed around a zero mean and constant variance. The Jarque-Berra statistic for normality was used to determine whether the sample data have the skewness and kurtosis matching a normal distribution.

3.11.5 Model Stability test

To check the stability of the long-run parameters together with the short-run movements

for the model, the study used cumulative sum of squares (CUSUM) and cumulative sum squares recursive (CUSUMSQ) tests. The CUSUM test is particularly important for detecting systematic changes in the regression coefficients, while the CUSUMSQ test is useful in situations where the departure from the constancy of the regression coefficients is arbitrary and sudden.

3.12 Causality Test

As stated in the previous parts of this paper, the main objective of this research was to examined the causal relationship between coffee export and economic growth in Ethiopia. In order to achieve this objective, Granger causality test was applied. Even though the bounds F–test for co integration test yields evidence of a long-run relationship between agricultural export and economic growth, it does not indicate the direction of causality between the variables. Granger causality test examines the causal relationship between a set of variables by testing for their predictability based on past and present values. For instance, given two variables X and Y; X is said to Granger causes Y if lagged values of Y predict X, then there is a bi – directional causality between X and Y. This could be stated as follow:

$$Y_t = b_0 + \sum b_j Y_{t-1} + \sum c_j X_{t-1} + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(17)$$

Then, if cj = 0 and j = 1, 2……k, Xt fails to cause Yt. We test hypothesis that H0: cj = 0 against H1 : cj 0 by using an F test. In this study, where the study examine if coffee exports granger causes economic growth (proxided by GDP) or vice versa.

$$\ln RGDPt = b_0 + \sum b_j \ln RGDPt - j + \sum c_j \ln CEXt - j + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots(18)$$

$$\ln AEXt = b_0 + \sum b_j \ln AEXt - j + \sum c_j \ln RGDPt - j + \varepsilon_t \dots\dots\dots\dots\dots\dots\dots\dots..\dots\dots\dots(19)$$

Where; ln RGDPt is the natural logarithm of real gross domestic product, lnRGDPt-j is lagged value of natural logarithm of real gross domestic product, lnCEXt is natural logarithm of Agricultural export, lnCEXt-j is lagged value of natural logarithm of coffee export.

From the above equation if cj = 0 and j = 1, 2…k then lnCEXt-j fail to cause lnRGDPt under the null hypothesis of cj = 0 against alternative hypothesis cj # 0 by using F - test , lnRGDPt-j fail to cause in equation (10) and (11). In the view of the granger, the

presence of co- integration vector shows that granger causality must exist in at least one direction.

CHAPTER FOUR

4. RESULTS AND DISCUSSION

4.1 Descriptive Analysis

Before conducting an econometric data analysis, it is very important to understand the systematic data and its statistical behavior. 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 be helped to identify the characteristics of the variables over the research period. Furthermore, a comprehensive observation of the data was helped to make meaningful interpretation of econometric results. Descriptive statistics has shown that basic feature of the data and represent quantitative descriptions in a manageable form and provide simple summaries about the data. The following section elaborates the preliminary analysis of the data and associated variables.

Table 1. Descriptive statistics summary

	CEX	CPI	FDI	GCI	IMD	INFL	RER	RGDP	TLF	TOP
Mean	5389.328	38.558	6.96E+08	152657	6.324	9.353	9.883	11.12837	76.50	31.88
Median	2112.713	16.694	2.22E+08	50811	2.034	9.465	8.327	11.03251	81.51	31.10
Maximum	18594.13	175.45	4.14E+09	1210978	19.99	33.54	31.342	14.07631	83.71	48.23
Minimum	168.3240	6.4510	0.000000	16066	0.755	-6.119	2.070	9.275379	53.60	16.10
Std. Dev.	6481.770	43.152	1.16E+09	241570	6.731	9.897	8.115	1.400126	10.425	10.74
Skewness	1.039495	1.5999	1.852571	2.792	0.962	0.659	1.035	0.539194	-1.45	-0.039
Kurtosis	2.323888	4.6461	5.174158	11.207	2.388	3.088	3.129	2.262877	3.286	1.60

Observations	39	39	39	39	39	39	39	39	39	39

Source: Own construction based on Eviews10 result, 2021

As the above table indicated that, the descriptive statistics and interprets that has the mean average of Coffee export, Consumer price index, Foreign direct Investment, gross capital formation, import, inflation, real GDP, total labor force and trade openness are 5389.328, 38.558, 6.96E+08, 152657, 6.324 , 9.353, 9.883, 11.12837, 76.50 and 31.88 million birr respectively. From this table some information about normality distributions of data criteria mentioned and skewness of total labor forces and Trade openness is to the left. Skewness is a measure of departure from symmetry. The skewness of a symmetric distribution is zero. 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 Eviews10 software for the period of 40 years (1981/82 to 2019/20) and result was obtained by the table. The Jarque-Bera test for the variables shows that all the variables are distributed normally since it is significance at 5%.Therefore the above table data analysis to inform basic informations about variables and to highlight potential relationships between coffee exports and economic growth over time in Ethiopia

4.1.1. Trends of Coffee export in Ethiopia (1981-2020)

Coffee is the oldest and the most highly marketed commodities. It has been exported from Ethiopia (the oldest exporter of coffee as a commodity in the world) for more than 1500 years(ECX,2008) to Germany, Saudi Arabia, the United States, and Japan (Network, 2020). It is also the country's top export commodity among the export items in Ethiopia. According to Ethiopia trade data (NBE, 2016/17) exports reached a record of almost 232,000 metric tons, valued at $897 million. Coffee accounts for nearly one-third of total exports by value. The result in Table 2 has shown that coffee export (CEX) has a positive and significant effect on economic growth in Ethiopia. This is due to different factors that has eliminated and increase coffee export standard. The increase of economic growth stated by different percent as times and stands less elastic.

Table 2. Trend of Ethiopia Coffee export values(1981-2020)

Years	Coffee export values (Millions Birr)
1981-1986	505.5598
1987-1990	452.7062
1991-1996	869.136299
1997-2001	2192.676609
2002-2006	2142.913554
2007-2011	6574.820693
2012-2016	15057.72732
2017-2020	17651.34912

Figure 3. Coffee export value
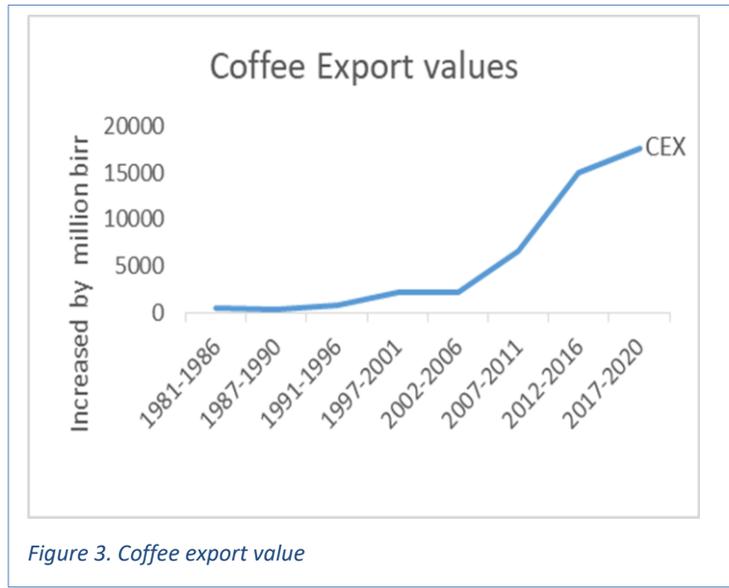
Source: author's own computation.2021 G.C

As data of table 2 .indicate at the above by average from 1981-1986 data values less than the others until to 2020 and also 2017-2020 highest values was recorded. So coffee export values were increased over times. in Ethiopia Coffee accounts for 60% of exports, and 80% create jobs for of total employment(Chauhan et al., 2015). As a result, the growth of the export share of Ethiopia in international market depends on the value and volume of total coffee exports of a country. Peer-reviewed (2021) According to the results of descriptive analysis, Ethiopia is ranked fifth in terms of both the production and export of coffee in the world. Besides, the mean annual coffee export of Ethiopia is only 10% of the mean coffee exports of Brazil.

4.1.2. Trends of Trade openness in Ethiopia (1981-2020)

The graph in the figure 4. Indicated that trade openness shown different values recorded across the regimes of Ethiopia. After fall of Derg regime trade opens showed increasing trend due to changes in structure of market policy and adoption different technology within the time.
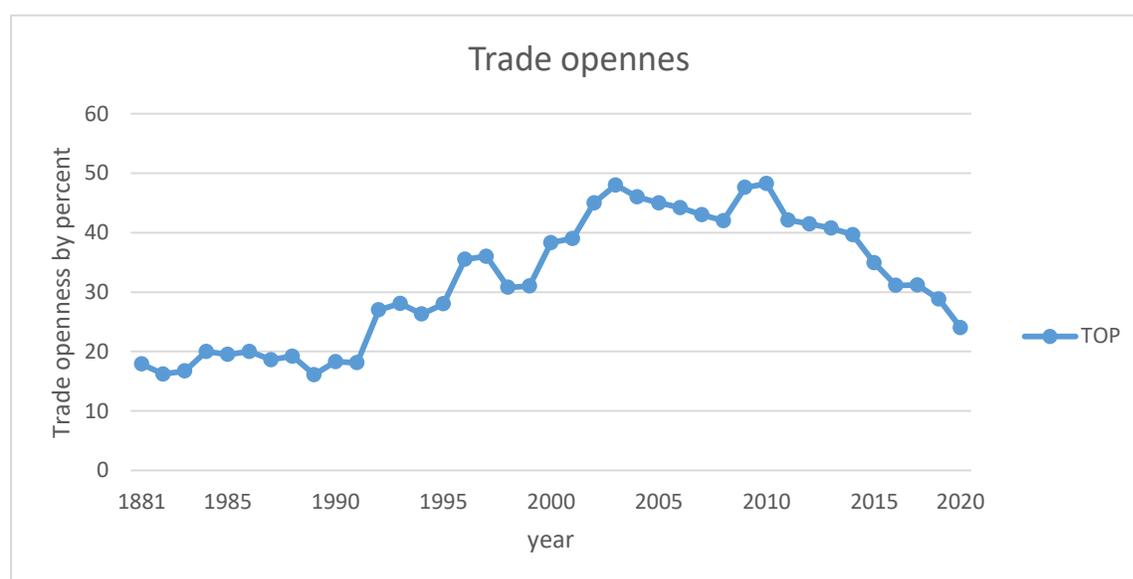
Source; own computation based on NBE data,2021

Figure 4. Trend of trade openness for Ethiopia across years

Trade Openness to international trade has influences on economic growth. Trade openness as showed on graph down and up from 1981/92-2019/20. However, from 1981 to1990 is slowly increased but from 1991-2004 trend is highly increased, then after 2011 year it was Declined. It has be positively relationship with Real GDP in the long- run. Furthermore, Ethiopia should also improve its trade openness and growth policies to increase the benefits from trade and the country should consider the adoption of common regional and international trade cooperation policies in order to enhance its economic growth in the long run (Asnake Getie; Liu Haiyun, 2019).

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4.1.3. Trends of Real Effective Exchange Rate in Ethiopia

The real effective exchange rate is a measure of the value of a currency against a weighted average of several foreign currencies. An increase in real effective exchange rate implies that exports become more expensive and imports become cheaper. A rise in real effective exchange rate indicates a loss in trade competitiveness because the increase in real effective exchange rate indicates a strengthening of the home currency with respect to other currencies and conversely, a decline in the effective exchange rate means a weakening of the home currency. A rising in a nation's real effective exchange rate means that consumers and businesses have to pay more for the products they export, while their own people are paying less for the products that it imports. It is losing its trade competitiveness(Rao & Tolcha, 2016).
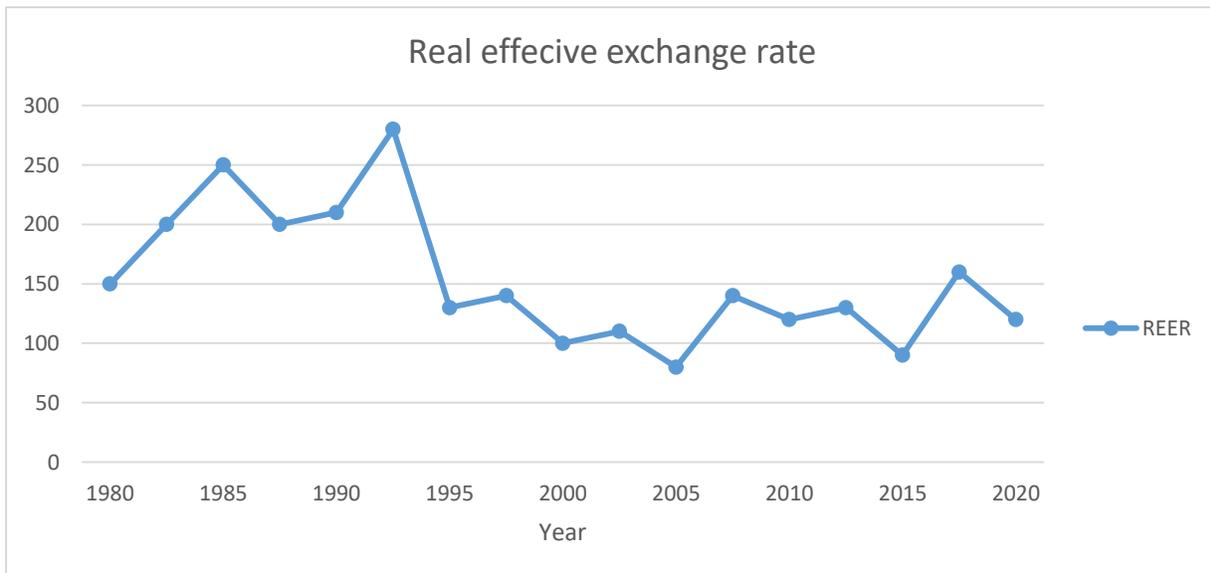
Figure 5. Trend of real effective exchange rate over time

Source: National Bank of Ethiopia and author's computation,2021 G.C

As figure 5 above has shown the trends real effective exchange rate of Ethiopia from the

Period 1981-2020. The real effective exchange rate REER) was decreasing from 1992-2005 due to transitional government and policy change.

REER has shown an increasing trend from 2005 to 2008 and 2015 to 2017 due to free market economy.The real effective exchange rate trends move up and down due to the price movement

currency devaluation. This is because the real exchange rate is a measure of the value of a domestic currency against a weighted average of several foreign currencies divided by a price deflator or index of costs.

4.1.4. Correlation between coffee export and real GDP

As Hussien (2015) has stated that the major export commodity of Ethiopia is coffee, which contributes an average of 65% to total export earning and provides a source of livelihood for a substantial number of farmers. Coffee contributes an average of 5.2 percent of GDP and 59.6 percent of total export for the period 1965-2005 in Ethiopia. Besides, Coffee has still remained to be the dominant export commodity, though its share in the value of total exports fluctuates from time to time. It has positive correlation coefficient that a variable one increases within each other and conversely as one decrease variable two also decreases. The idea behind measuring aggregate output of the country in terms of GDP is to show the total economic activity of the country. GDP measures the market value of final goods and services produced by a country in a given year. It shows what the country paid for the final goods and services in a year and the more the country can afford higher cost the more benefits it gets.
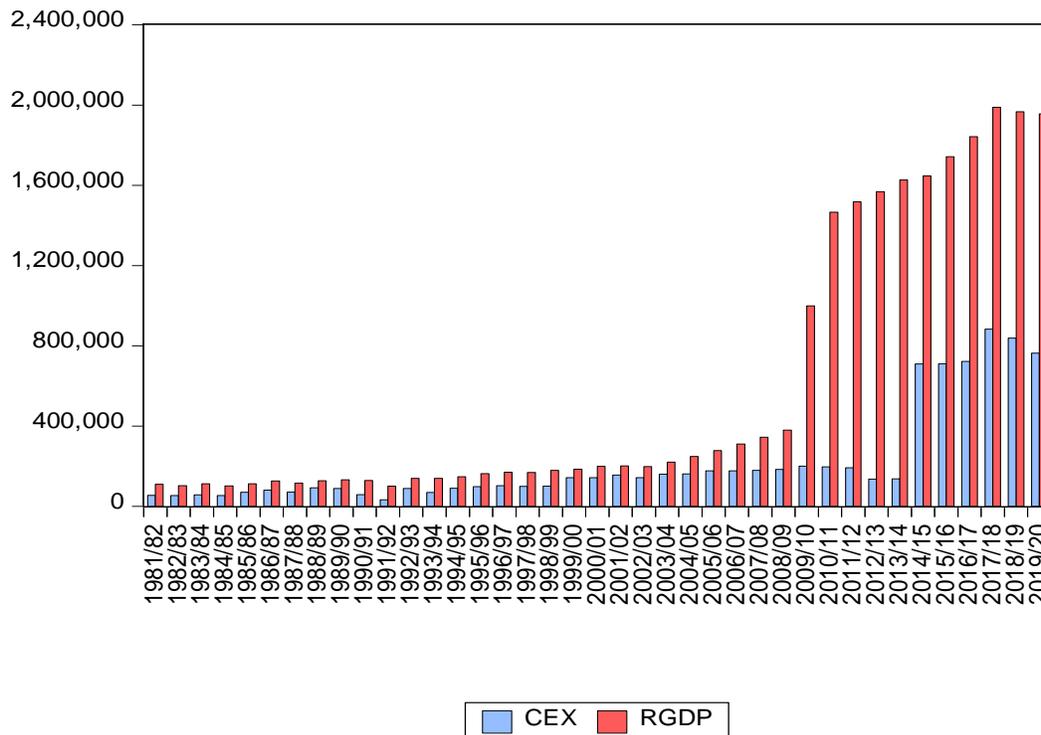
Figure 6. Correlation between coffee export and real GDP

As the above figure 7 has indicated the relationship between the real GDP and coffee export. That means the RGDP and CEX were strongly and positively correlated through 2002/03 to 2019/20 G.C. In other word, as coffee product increase, real GDP also increases and vice versa.

4.2 Econometric analysis

4.2.1 Unit Root (Stationarity) tests

Before conducting ARDL co-integration test, first test for the stationary status of the given time series data to was determined their order of integration. In order to evaluate the degree of integration of each variable, the researcher has used Augmented Dickey Fuller (ADF) test. A unit root test was carried out using Phillips Perron (PP) and Augmented Dickey-Fuller (ADF) test for each variable in the model. To apply ARDL approach the variables used in the regression model should not be stationery at an integrated of order two, because the computed F-statistics provided by (Pesaran, 2001) are valid only when the variables are I (0), I (1) or the combination of the two.

In order to achieve a meaningful regression with time series data, it is necessary to test the existence of unit roots in the variables. This study tests were performed on all series, such as; Real Gross Domestic Product, Coffee export, Gross Capital information, Total Labor Force, Real effective Exchange Rate, inflation, producer consumer index, Trade openness and Import by using the Augmented Dickey-Fuller (1978) and Phillips-Peron (1988) tests. The results of Augmented Dickey fuller test and Phillips-Peron tests were applied to the variables mentioned in the model of this study. ADF test is first level at difference level the Ho accept or not reject the Ho and PP tests is first level Ho accept or not reject the Ho, so based on thus both test first guide line of the unit root test method. In this study, the all variables were stationery at first level with all critical value at 1%, 5% and 10% were proved. The critical value and the second guide line of the unit root test his the total absolute value t- test value was greater than each critical absolute value. Finally, the third guild line of the unit root test all variables p- value less than 5% and significant at all level.

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Table 3. Augmented Dickey-Fuller (ADF) test result

Variable		lnCEX	lnCPI	lnFDI	lnGCI	lnIMD	lnINFL	lnRER	lnTLF	lnTOP	lnRGDP
T- statistic		-5.529339	-5.707782	-4.231118	-7.570659	-8.258900	-4.670995	-4.563993	-5.919392	-5.123646	-5.728389
Probability		0.0003	0.0002	0.0020	0.0000	0.0000	0.0006	0.0471	0.0001	0.0010	0.0002
Critical value	1%	-4.226815	-4.226815	-3.621023	-3.621023	-3.621023	-3.615588	-4.226815	-4.226815	-4.234972	-4.226815
	5%	-3.536601	-3.536601	-2.943427	-2.943427	-2.943427	-2.941145	-3.536601	-3.536601	-3.540328	-3.536601
	10%	-3.200320	-3.200320	-2.610263	-2.610263	-2.610263	-2.609066	-3.200320	-3.200320	-3.202445	-3.200320
Orderof integration		I(1)	I(1)	I(1)	I(1)	I(1)	I(0)	I(1)	I(1)	I(1)	I(1)

Source: own calculation using eviews 10,2021 G.C

The analysis of the ADF output presented in Table 3, looks at first level form with intercept the dependent variable lnRGDP is the absolute t-statics value (-5.728389) is greater than the critical value 1% (-4.226815),5% (-3.536601) and 10% (-3.200320) also the dependent variables the p- values 0.0002 which is less than 5%; so those variables were significant at order one level. The next nine independent variable for model specification the stationary of variables defined in the model is prerequisite and the unit root testing and differencing at level one done for the purpose. variables were the absolute t-statistics value lnCEX (-5.529339), lnCPI (-5.707782), lnFDI (-4.231118), lnGCI (-7.570659), lnIMD(-8.258900), lnINFL(-4.670995), lnRER(-4.563993), lnTLF(-5.919392) and lnTOP (-5.123646) are greater than the critical value 1%(-4.226815), 5% (-3.536601) and 10% (-3.200320) also these all variables are the p-value is less than 5% at significant level. But at I(0), T-test is greater than critical value at 1%,5% and 10% and also p-value is less than 5% for inflation variable.

Table 4. Phillips-Peron (PP) test result

Variable		lnCEX	lnCPI	lnFDI	LNGCI	LNIMD	lnINFL	lnRER	lnTLF	lnTOP	LNRGDP
T- statistic		-5.531060	-5.696522	-4.225751	-8.182038	-7.826086	-18.26606	-3.598324	-5.920030	-5.443724	-7.709302
Probability		0.0003	0.0002	0.0020	0.0000	0.0000	0.0000	0.0437	0.0001	0.0004	0.0000
Critical value	1%	-4.2268	-4.226815	-3.62102	-4.22681	-4.22681	-4.22681	-4.22681	-4.2268	-4.226	-4.226815

		15		3	5	5	5	5	15	815	
	5%	-3.536601	-3.536601	-2.943427	-3.536601	-3.536601	-3.536601	-3.536601	-3.536601	-3.536601	-3.536601
	10%	-3.200320	-3.200320	-2.610263	-3.200320	-3.200320	-3.200320	-3.200320	-3.200320	-3.200320	-3.200320
Order of integration		I(1)	I(1)	I(0)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)	I(1)

Source: own calculation using eviews 10, 2021 G.C

The analysis of the P output presented in Table 4 has shown at first level with intercept all the variables have the same critical value that is 1%(-4.226815), 5%(-3.536601) and 10%(-3.200320) and have less than the absolute t-statistics value which are lnRGDP(-7.709302), lnCEX(-5.531060), lnCPI(-5.696522), lnFDI(-4.225751), lnGCI(8.182038), lnIMD(7.826086), lnINFL(-18.26606), lnRER(-3.598324), lnTLF(-5.920030) and lnTOP(-5.443724). Moreover, all variables p- values is less than 5% so all the variables are significant at all level. Therefore, the above unit root test analysis has shown that the ADF test statistic and Phillips-Peron (PP) in absolute term is greater than the set of critical values provided by Davidson and MacKinnon (1993) at 1%, 5% and 10%. The dependent and independent variable of the t-statistics value obtained was compared with the critical value given at 1%, 5% and 10% and those indicated that the t-statistics values are greater than the critical values at 1%, 5% and 10%. The P-values were also less than the 5% which means it is significant.

4.3. Optimal Lag Length Selection Criteria

Because the computation of F-statistics for co integration is very sensitive to lag length, in the first step we need to select a lag order based on the SBC, AIC and HQ. Therefore, this based on the above criteria; the software was selected two lag length. Too many lags could increase the error in the forecasts; too few could leave out relevant Information. Experience, knowledge and theory were usually the best way to determine the number of lags needed. However, information criteria procedure was helped and come up with a proper number.

Table 5. Lag Length Selections

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-375.3318	NA	2472117.	20.39631	20.48339	20.42701

1	-248.2202	233.6104*	3186.230*	13.74163*	14.00286*	13.83373*
2	-246.7700	2.508552	3666.640	13.87946	14.31484	14.03295

Source: own calculation using eviews 10, 2021 G.C

 * indicates lag order selected by the criteria

 LR: sequential modified LR test statistic (each test at 5% level)

 FPE: Final prediction error

 AIC: Akaike information criterion

 SC: Schwarz information criterion

 HQ: Hannan-Quinn information criterion

This study was determined the optimal lag length order by AIC selection criteria; and hence, all Information criterion models were selected the same lag length, which means it is two.

4.4. Long run ARDL bounds tests for co-integration

Co-integration test was applied in order to test whether long run equilibrium relationship is exist among variables or not. Thus, Auto Regressive Distributed Lag (ARDL) bound testing technique of co-integration method is adopted to investigate the existence of co-integration relationship among variables. This technique was preferred based on its suitability for small samples and its applicability based on the fractionally integrated variables as confirmed by the unit root test results. The Bounds test was conducted using the ''F'' statistic. 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 F-test is used for investigating a level (long-run) relationship and it is then compared with the lower and upper bounds of critical value. If the F-statistic is greater than the upper bound, it is long run relationship among the variables. Conversely, if the F statistics less than the lower bound we can conclude that there is no long run relationship among the variables under consideration.

In other words, we reject the null hypothesis: $\delta 1 = \delta 2 = \delta 3 = \delta 4 = \delta 5 = \delta 6 = \delta 7 = \delta 8 = 0$ (no long-run relationship) accept the alternative Ha: $\delta 1 \neq \delta 2 \neq \delta 3 \neq \delta 4 \neq \delta 5 \neq \delta 6 \neq \delta 7 \neq \delta 8 = 0$ (a long-run relationship) (Jordan & philips,2018).

4.4.1 ARDL Bound-Co-integration Test

The bound test has confirmed that there is a long run relationship (co-integration) among

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variables because the null hypothesis has been rejected according to table 6.The results obtained from the ARDL co-integration test indicates the F-statistic is 10.87073, and the critical ARDL lower and upper bounds test values are 2.04 and 2.08 for the 5% significance level and 2.5 and

3.68 for the 1% significance level respectively. Based on the results above, the null hypothesis of no level effect is rejected due to the fact that the F-statistic is beyond the upper bound at a significant level of 1%. This means that there is a Long run relationship between real GDP and all the other independent variables in the model.

Table 6. ARDL Bound-Co-integration test

F-statistic	Level of significance	Lower bound I(0)	Upper bound I(1)
10.87073	10%	1.8	2.8
	5%	2.04	2.08
	2.5%	2.24	3.35
	1%	2.5	3.68

Source: Own Computation using Eviews10,2021 G.C

The bound test has confirmed that there is a long run relationship (co-integration) among Variables because the null hypothesis has been rejected according to table 6. Finally, different tests such as correlation, heteroskedastic, multi-collinearity normality and the stability of the model would be conducted.

4.4.2 Long Run Model

After co integration has checked the existence of among variables, the next step is to estimate the long-run model. The empirical results of the long run model were presented in the below table 7. Approach ARDL Selected Model: ARDL (1, 2, 2, 2, 2, 2, 0, 2, 2, 2) were selected based on Akaike Information Criteria.

Table 7. Estimated Long Run Model result using the ARDL Approach

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LNRGDP(-1)	1.298477	0.346434	-3.748120	0.0038*
LNCEX	0.000109	3.15E-05	-3.464164	0.0061*
LNCEX(-1)	5.72E-05	4.58E-05	1.249638	0.2399
LNCEX(-2)	5.53E-05	4.61E-05	1.199574	0.2580
LNCPI	0.094297	0.026691	3.532904	0.0054*
LNCPI(-1)	-0.104454	0.025288	-4.130553	0.0020*
LNCPI(-2)	-0.015797	0.016052	-0.984076	0.3483
LNFDI	1.57E-10	1.07E-10	1.471004	0.1720
LNFDI(-1)	4.17E-10	2.69E-10	1.550191	0.1521
LNFDI(-2)	9.37E-10	3.23E-10	-2.900360	0.0158*
LNGCI	2.57E-06	1.05E-06	-2.448133	0.0344*
LNGCI(-1)	-7.26E-06	1.58E-06	-4.601975	0.0010*
LNGCI(-2)	-2.65E-06	2.28E-06	-1.164204	0.2714
LNIMD	-0.135557	0.072358	-1.873431	0.0905
LNIMD(-1)	0.380140	0.082070	4.631913	0.0009**
LNIMD(-2)	0.270151	0.057993	4.658308	0.0009*
LNINFL	-0.014654	0.004308	-3.401832	0.0068*
LNRER	0.071762	0.059032	1.215649	0.2520
LNRER(-1)	0.100529	0.067845	1.481750	0.1692
LNRER(-2)	0.079568	0.055090	1.444314	0.1792
LNTLF	0.014476	0.007865	1.840637	0.0955
LNTLF(-1)	-0.013404	0.011645	-1.151069	0.2765
LNTLF(-2)	0.053184	0.011873	4.479245	0.0012**
LNTOP	0.019550	0.009724	2.010432	0.0721
LNTOP(-1)	0.000301	0.011113	0.027126	0.9789
LNTOP(-2)	0.015652	0.012350	1.267393	0.2337

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

Note: The signs *and** has indicated that the significance of the coefficients at 1% and 5% and 10% respectively significance.

4.4.2.1 Effect of Coffee export on Economic Growth

As above table 7 has shown in the long run coffee export has a positive and significant impact on RGDP. The estimated result has confirmed that the holding other variable constant, a 1% increase in RGDP was caused to increase in coffee export 0.0109 % also the sign of the RGDP was also expected. In the long run coffee export had 0.000109 coefficient which was statistically significant at 1% and 5% percent level of significance i.e. it has a smaller p-value (0.0061) relative to the critical value (0.05). The positive relationship between coffee exports and GDP was supported by macroeconomic theory which argues that exports are an injection or an addition to the circular flow of income, and an increase in their level results in the expansion of the aggregate demand and hence national output. The theory of economic growth which has stated that the gross capital formation is the major determinates of economic growth (Keynesian theory of growth, Solow"s theory of growth).

4.4.2.2 Effect of consumer price index on Economic Growth

The consumer price index coefficient was found to be negative (-0.015797) and also statistically significant at 5 percent level of significance. In other words, on average, a unit increase in the level of consumer price index causes a 1.57% percent decrease in the real GDP level other things remain constant. However, the strong statistical significance shows that there is negative relationship between consumer price index and GDP.

4.4.2.3 Effect of Foreign direct investment on Economic Growth

The Foreign direct investment coefficient was found to be positive relationship (9.37E-10) and also statistically significant at 5 percent level of significance. In other words, on average, a unit increase in the level of causes foreign direct investment 9.37E-10 increase in the real GDP level other things remain constant. However, the strong statistical significance shows that there is positive relationship between foreign direct investment and RGDP.

4.4.2.4 Effect of Gross Capital information (investment) on Economic Growth

The result in table 7 has revealed that the gross capital formation proxy for investment has positive sign and statistically significant in explaining the economic growth in the long run. Hence, a unit increase in gross capital formation causes 0.00025% increment in economic growth of Ethiopia other things remain constant. The positive sign indicate the direct relationship between capital and economic growth by confirming the theory mentioned in theoretical framework. The positive relationship between the capital stock and GDP growth was also supported by general macroeconomic and economic growth theory.

4.4.2.5 Effect of Inflation on Economic Growth

The inflation coefficient was found to be negative (-0.014654) and also statistically significant at 5 percent level of significance. Indeed, on average, a unit increase in the level of inflation causes a 1.46% percent decrease in the real GDP level other things remain constant. However, the strong statistical significance shows that there is negative relationship between inflation and GDP.

4.4.2.6 Effect of Total Labor Force on Economic Growth

The long-run result has shown that, total labor force directly influence economic growth. The relationship is positive and highly significant. This could be stated, in the long-run, on average, an increase in labor force by 1% would result in 0.053 % increase in economic growth controlling other things constant. The sign of this variable is due to the fact that a rise in the size of labor force presents an opportunity to drive economic growth expansion and increase growth domestic product. The explanation of the above result lies in the fact that since Ethiopia is largely an agro-based economy heavily reliant on a large labor force of smallholder farmers, therefore GDP would be obviously influenced by labor productivity.

4.5. Results of the Error Correction Model

The error correction coefficient tells us the speed at which our model returns to equilibrium after an exogenous shock. As a result, the error correction term should be

negatively signed to indicate a move towards long run equilibrium. The coefficient of error term shows that the system corrects its previous period dis-equilibrium at speed of (ECM-1) yearly, because the data is yearly data. The sign of ECM-1 should be negative and significant to indicate the validity of long run equilibrium relationship of the model.

A positive sign indicates a move away from equilibrium. The short term (Error Correction Model ECM) was calculated after the long run result has been analyzed and accepted. In the dynamic model, ECM denotes the rate of adjustment to restore equilibrium. It's a lagged period residual calculated from the dynamic long run model's predicted parameters. The short run error correction representation of ARDL has been regressed as follows, using the appropriate lag length. Hence, the result of the error correction term was presented in the following table with corresponding short run coefficients of the variables.

4.5.1 Short-run Result Coefficients Using ARDL Model

Dependent Variable: D(RGDP)

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

Table 8. Estimated short run coefficient, Dependent Variable: D(LNRGDP)

Variable	Coefficient	Std. Error	t-Statistic	Prob. *
D(LnRGDP(-1))	0.248216	0.109833	-2.259941	0.0502
D(LNCEX)	7.892771	1.794997	4.397095	0.0017*
D(LNCEX(-1))	12.93749	2.596598	4.982477	0.0008 *
D(LNCPI)	-4405.591	951.7475	-4.628949	0.0012*
D(LNCPI(-1))	-5846.846	1093.984	-5.344543	0.0005*
D(LNFDI)	1.77E-05	4.54E-06	3.884941	0.0037*
D(LNGCI)	0.251710	0.026741	9.412931	0.0000*
D(LNIMD)	17155.72	2249.515	7.626406	0.0000*
D(LNIMD(-1))	20055.24	2633.655	7.614986	0.0000*
D(LNINFL)	366.0081	212.1599	1.725152	0.1186
D(LNINFL(-1))	-663.8204	149.3318	-4.445270	0.0016*
D(LNREER)	3426.388	2606.002	1.314806	0.2211
D(LNTLF)	1318.400	528.6917	-2.493703	0.0342*
D(LNTLF(-1))	2341.707	694.5386	3.371601	0.0082*
D(LNTOP)	-2420.525	570.0189	-4.246394	0.0022*
D(LNTOP(-1))	-1486.412	477.7194	-3.111474	0.0125*
CointEq(-1)*	-0.227721	0.025465	-8.942581	0.0000*
R-squared	0.988126	Mean dependent var	51652.37	
Adjusted R-squared	0.977502	S.D. dependent var	52141.06	

Source: Own Computation using Eviews10,2021 G.C

The error correction coefficient, estimated at -0.227721 was highly significant. The negative sign, and imply a very high speed of adjustment to equilibrium. The error correction term is negative and significant; the coefficient indicates that 22.77% of the disequilibrium would adjust in a short time. In the short run, GDP have a positive relationship with the Coffee export, Foreign direct investment, Gross capital formation, Real effective exchange rate and total labor forces but CPI, INFL and TOP have inverse relationship with Economic growth but highly significant. The dynamic error correction model (ECM) could be derived from ARDL by a simple linear transformation. The error correction term (ECM) indicates the speed of adjustment to restore equilibrium in the dynamic model. It was a one lagged period residual obtained from the estimated dynamic long run model. Similarly, ECM integrates short-term dynamics with long-term equilibrium without losing long-term information, avoiding problems such as mis-relationships due to unstable time series data(Shrestha & Bhatta, 2018).

4.6. Diagnostic Tests

In this section, the researcher was going to verify some assumptions in linear regression, such as stability, linearity, serial correlation, and heteroscedasticity issue (Diakhoumpa, 2020). The diagnostic test for residuals was used considering the model's normalcy, heteroscedasticity, and serial correlation that are required to see if the classical regression hypothesis is correct. The truthfulness of the Residual and coefficient diagnostics were used to test the model. Linearity Test (using Ramsey Reset Test), Serial Correlation Test (using the LM test), Normality Test (using Jarque-Bera test), and Stability Test are the most important post-estimation tests for dynamic models (using CUSUM test). All of these tests are based on residuals and are run on the preferred model.

4.6.1. Normality of Residuals

Jaque-Berra normality test is used to test whether the residuals are normally distributed or not. Our null hypothesis is that the residuals are normally distributed. The residuals of the residuals of specific variables were normally distributed, as illustrated in the graph (Fig. 8). The probability value in the normality test graph above is more than 5%, indicating that the residuals are regularly distributed. Following the same technique, we tested the residuals for normality and found that we could not reject the null hypothesis, indicating that the residuals are normally distributed.

Series: Residuals	
Sample 3 39	
Observations 37	
Mean	2.52e-12
Median	-4.954661
Maximum	1248.455
Minimum	-957.2758
Std. Dev.	524.9715
Skewness	0.254508
Kurtosis	2.561694
Jarque-Bera	0.695616
Probability	0.706235
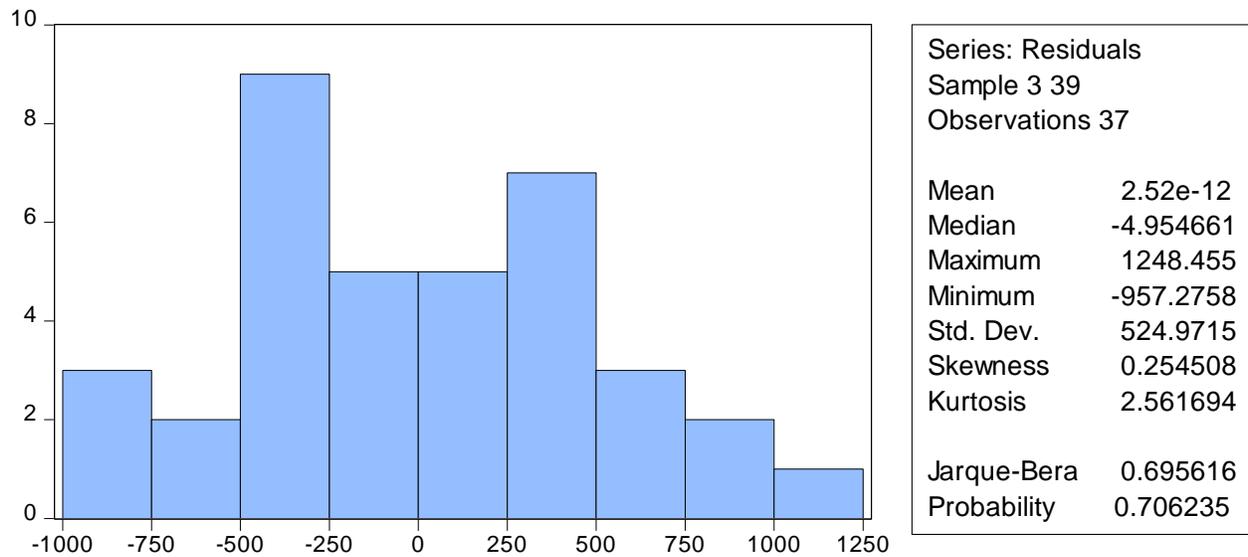
Source: Author's computation using Eviews10,2021 G.C

Figure 7. Normality of residuals

As above figure has stated, we fail to reject the null hypothesis that the residuals were normally distributed. As a result, the p-value associated with the Jarque-Bera normality test is greater than the usual significance level, i.e. P-value is 0.7062 (70.6 percent), which is greater than 5%.

4.6.2. Serial Correlation Test

Serial correlation, according to Kirchgassner and Wolters (2007), occurs when error terms from earlier periods affect future periods. The Breusch-Godfrey test, also known as the Lagrange Multiplier test, was used to determine whether the residuals were serially correlated. The serial correlation test is used to determine whether the residual is serially correlated, or whether the error of one period is related to the error of following periods. There is no serial association, according to the null hypothesis.

Table 9. Serial Correlation LM test result

Breusch-Godfrey Serial Correlation LM Test			
F-statistic	0.690123	Prob. F(2,8)	0.5291
Obs*R-squared	5.444323	Prob.Chi-Square(2)	0.0657

Source: Own Computation using Eviews 10,2021 G.C

Residual diagnostic to check whether there is serial correlation. The test by table 9 was indicated that our model is fits good and no serial correlation. Probability value is more than 5 % and we can reject null hypothesis by confirming no autocorrelation in the model. The null hypothesis states that there is no serial autocorrelation in the model, the probability value more than 5 % implied that, we cannot reject that states there is no serial correlation, this model does not have any serial correlation, good sign of the model. There is no evidence of serial correlation.

4.6.3. Heteroscedasticity Test of residuals

Heteroscedasticity test was used to test whether the residual is heterosckedastic or not. Therefore in order to test for the presence of heteroscedasticity in the regression model ARCH Heteroscedasticity test was conducted on the data using Eview10. We cannot reject null hypotheses and accept Ho because the probability value is more than 5%, implying that the model has no acceptable heteroscedasticity. This means that the model in question is homodescedastic. Table 7 has shown that the error correct model does not suffer from heteroscedasticity, indicating that the model is legitimate.

Table 10. Heteroscedasticity Test: ARCH

F-statistic	0.008272	**Prob. F(1,34)**	**0.9281**
Obs*R-squared	0.008757	Prob. Chi-Square(1)	0.9254

Source: Own Computation using Eviews10,2021 G.C

The result has shown that the $Chi^2(1)$ value is 0.9254 (92.54 percent) which is greater than 5 % p-value, meaning that we can't reject null hypothesis which is desirable. Therefore, there is no heteroscedasticity.

4.6.4. Linearity Test (Ramsey Reset Test)

In order to test for the likelihood of incorrect model specification, that is whether the model has omitted certain variables, has incorrect function from, or there is correlation between explanatory variables and the residuals, the Ramsey RESET (Regression Error Specification Test) was used. This is a test of the null hypothesis that the model was correctly specified. If the F Statistic is greater than the p-value at a 5 percent level of significance we accept the null hypothesis of correct model specified, and vice versa.

Table 11. Ramsay RESET test

	Value	**df**	**Probability**
t-statistic	3.070669	15	0.0078
F-statistic	9.429009	(1, 15)	0.0078

Source: Own Computation using Eviews10, 2021 G.C

In Table 8, the value of the F- statistic from this test was 9.429009, which is greater than the 5 percent level of significance (0.05) this implies failure to reject the null hypothesis that the model was correctly specified at 5 percent level of significance.

4.6.5. Stability Test (CUSUM Residual Test)

The CUSUM test for stability was meant to determine the appropriateness and the stability of the model. Put differently, the CUSUM test is used to show whether the model is stable and is suitable for making long run decision. To do this, the researchers used a methodology based on cumulative sum (CUSUM) testing. The position of the plot relative to the 5% critical constraint is used to make a conclusion concerning parameter stability. The cumulative recursive sum of recursive residuals is used in the CUSUM test (Fig.9). The CUSUM test statistics are updated in a recursive manner and shown against data breakpoints. The blue trend line must be positioned between the two red lines, as indicated in the image below, for the short-run dynamics and long-run parameters of the coffee export function to remain stable. Because the blue trend line lies between the red lines, the model is said to be dynamically stable.
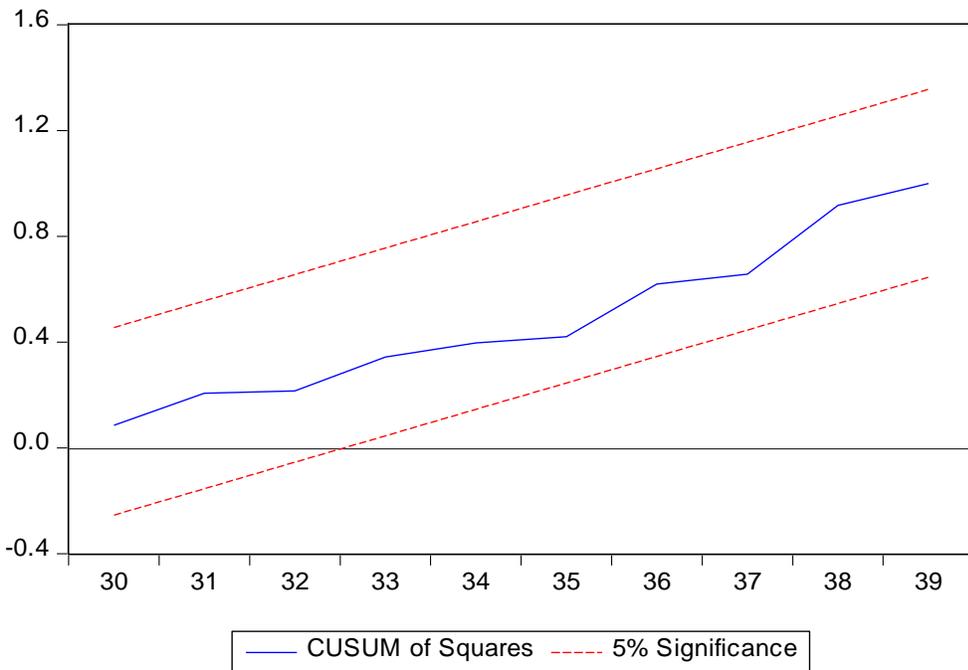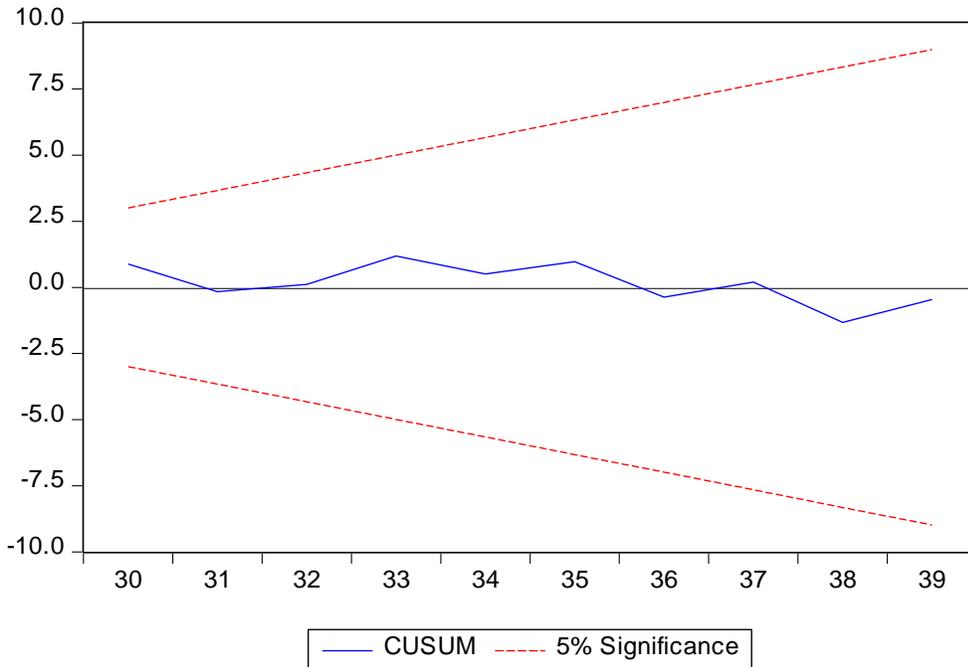
Source: Own Computation using Eviews 10

Figure 8. Performance or pattern of residuals in terms their stability

A diagram depicting the performance or pattern of the residuals in terms of their stability. The residuals would have been considered unstable if the curved line representing the residuals fell outside the two extreme lines indicating the crucial zones.

As can be seen from the first figure, the plot of CUSUM test did not cross the critical limits. Similarly, the CUSUMSQ test shows that the graphs do not cross the lower and upper critical limits. So, we can conclude that long and short runs estimates are stable and there is no any structural break. Hence the results of the estimated model are reliable and efficient.

4.7. Granger Causality Test

Co-integration implies the existence of at least unidirectional causality between variables but it fails to provide the direction of causality (Engel and Granger, 1987). After establishing a co-integration connection, we use the Error Correction Model to test for Granger causality between coffee export, foreign direct investment, Gross capital information (Investment), import, Inflation Real exchange rate, total labor forces, trade openness and economic growth (RGDP). The causal relationship between export performance and economic growth of the country was analyzed with the application of Granger [1969] causality test using annual data for the period 1981/82 to 2019/20. It was revealed that closer scrutiny of coffee export on economic growth to achieve a sustained economic growth.

Table 12. Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
CEX does not Granger Cause RGDP	37	6.82837	0.0034
RGDP does not Granger Cause CEX		4.97314	0.0132
CPI does not Granger Cause RGDP	37	12.5791	9.E-05
RGDP does not Granger Cause CPI		2.99902	0.0640
FDI does not Granger Cause RGDP	37	40.8532	2.E-09
RGDP does not Granger Cause FDI		4.62224	0.0172
GCI does not Granger Cause RGD	37	18.0875	6.E-06
RGDP does not Granger Cause GCI		18.1568	5.E-06
IMD does not Granger Cause RGDP	37	12.3963	0.0001
RGDP does not Granger Cause IMD		12.3260	0.0001
INFL does not Granger Cause RGDP	37	1.20880	0.3118
RGDP does not Granger Cause INFL		1.10088	0.3448
REER does not Granger Cause RGDP	37	8.15933	0.0014
RGDP does not Granger Cause RER		5.50224	0.0088
TLF does not Granger Cause RGDP	37	0.81375	0.4522
RGDP does not Granger Cause TLF		0.06647	0.9358
TOP does not Granger Cause RGDP	37	4.60065	0.0175
RGDP does not Granger Cause TOP		0.78132	0.4663

Source: Eviews10 result,2021 G.C

The results of the Granger causality test were presented in Table 12 and it shows that coffee export led to economic growth. Real GDP is Vice versa led to coffee export which means bi- direction causality. Additionally, FDI, GCI, IMD and REER are led to Real GDP and it is vice versa on those expletory variables that means bi-directional causality. However, RGDP led to CPI and TOP (unidirectional causality) but Inflation and total labor force are independent on real GDP.

CHAPTER FIVE

5. CONCLUSION AND RECOMMENDATIONS

5.1. Conclusion

This study covers investigation of the effect of coffee export expansion on economic growth in Ethiopia over the period ranging from 1981/82-2019/20 through autoregressive distributed lag (ARDL) model. The general objective of the research is to investigate the effect of coffee export expansion on economic growth in Ethiopia with nine explanatory variables. To achieve this objective, secondary data obtained from National Bank of Ethiopia, Central Statistical Agency of Ethiopia, Ministry of Finance and Economic Development of Ethiopia, Ethiopian Revenues and Customs Authority, and Ethiopian coffee and tea authority were used for this study. 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 and Phillips-Peron (PP) test were applied and it has been found that the variables have an integration level I(0) and I(1).

Accordingly, RGDP in PP test is stationary at level with constant and trend, while other variables such as CEX, CPI, FDI, GCI, IMD, INFL, REER, TLF and TOP for PP is similar with ADF test result. Under diagnostic test, some assumptions in linear regression such as stability, linearity, serial correlation, and heteroscedasticity issue were verified. As it is discussed above, this study applied methodological approach known as ARDL model also known as association testing approach. As the results indicated, the linked test (F-statistic) value was greater than upper bound and this shows that there is a long-term relationship between coffee export and economic growth during the study period.

The ARDL bound test of Co-integration analysis was employed in order to investigate the long run relationship among the variables. The long-run coefficient result for our model is evident that foreign direct investment and per capita GDP are positively associated with exports in Ethiopia while rate of inflation has negative and significant effect.

In the short run dynamics, the error correction coefficient, estimated at -0.227721 was highly significant and the negative sign implies a very high speed of adjustment to equilibrium. However, in the short run, Coffee export, Foreign direct investment, Gross capital formation, Real effective exchange rate and total labor forces have a positive relationship with GDP but CPI, INFL and TOP have inverse relationship with GDP and highly significant. Finally, questions on causality between coffee exports and economic growth is tested using Granger check causality test. The result shows that causality ranges from growth of coffee exports to economic growth.

5.2 Recommendations

Based on the findings of this study, the following policy implications can be drawn: The result of this study shows that the effect of coffee export expansion on economic growth is positive and significant. Therefore, efforts should be exerted on improving the overall economy by improving the coffee export sector. The government should focus on supporting and incentivizing domestic businesses to enable them in becoming exporters and foreign export earners.

Most of the exported coffee are of poor quality as compared to international standards, and thus, they are sold at low prices. So, Ethiopia should adopt modern machinery and technology to improve quality of these coffee to sell them at high prices. Ethiopia should apply a proper marketing technique and for this purpose, government agencies can organize industry fairs to abroad. Accordingly, Ethiopian coffee can be introduced to foreigners. Export Promotion Office should be more active to increase coffee exports.

The government should give attention on quality of coffee from harvesting to export by improving the existing policies. 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 would benefit all part takers and would help business to flourish. Finally, it is recommended that more researches should be conducted on this area with different determining factors that could enable the country to better identify its challenges and opportunities.

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APPENDICES

Appendix 1. Descriptive statistics summary

	CEX	CPI	FDI	GCI	IMD	INFL	RER	RGDP	TLF	TOP
Mean	5389.3 28	38.558	6.96E+ 08	152657	6.324	9.353	9.883	11.128 37	76.50	31.88
Median	2112.7 13	16.694	2.22E+ 08	50811	2.034	9.465	8.327	11.032 51	81.51	31.10
Maximu m	18594. 13	175.45	4.14E+ 09	121097 8	19.99	33.54	31.342	14.076 31	83.71	48.23
Minimu m	168.32 40	6.4510	0.0000 00	16066	0.755	-6.119	2.070	9.2753 79	53.60	16.10
Std. Dev.	6481.7 70	43.152	1.16E+ 09	241570	6.731	9.897	8.115	1.4001 26	10.425	10.74
Skewnes s	1.0394 95	1.5999	1.8525 71	2.792	0.962	0.659	1.035	0.5391 94	-1.45	-0.039
Kurtosis	2.3238 88	4.6461	5.1741 58	11.207	2.388	3.088	3.129	2.2628 77	3.286	1.60
Jarque- Bera	7.7664	21.042	29.989	160.17 9	6.6250 7	2.8410 9	6.9900 6	2.7726 9	13.822 3	3.1792 2
Probabili ty	0.0205	0.0000 2	0.0000	0.0000 0	0.0364 2	0.2415 8	0.0303 4	0.2499 8	0.0009 9	0.2040 0
Sum	210183 .8	1503.7 8	2.7E+1 0	595364 0	246.65	364.79	385.45	434.00 6	2983.5	1243.6
Sum Sq. Dev.	1.6E+0 9	70761. 3	5.1E+1 9	2.2E+1 2	1722.0 6	3722.7 1	2502.8 9	74.493 3	4130.5 9	4388.9 2
Obser	39	39	39	39	39	39	39	39	39	39

Appendix 2. Augmented Dickey-Fuller test statistic

Null Hypothesis: D(LNCEX) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.529339	0.0003
Test critical values:	1% level	-4.226815	
	5% level	-3.536601	
	10% level	-3.200320	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LNCEX,2)
Method: Least Squares
Date: 11/17/21   Time: 17:26
Sample (adjusted): 3 39
Included observations: 37 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNCEX(-1))	-0.951834	0.172142	-5.529339	0.0000
C	0.066192	0.125703	0.526578	0.6019
@TREND("1")	0.001338	0.005559	0.240613	0.8113

R-squared	0.474026	Mean dependent var	-0.001312
Adjusted R-squared	0.443087	S.D. dependent var	0.481786
S.E. of regression	0.359541	Akaike info criterion	0.869626
Sum squared resid	4.395165	Schwarz criterion	1.000241
Log likelihood	-13.08809	Hannan-Quinn criter.	0.915674
F-statistic	15.32100	Durbin-Watson stat	2.000804
Prob(F-statistic)	0.000018		

Null Hypothesis: D(LNCPI) has a unit root
Exogenous: Constant, Linear Trend
Lag Length: 0 (Automatic - based on SIC, maxlag=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.707782	0.0002
Test critical values:	1% level	-4.226815	
	5% level	-3.536601	
	10% level	-3.200320	

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

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(LNCPI,2)
Method: Least Squares
Date: 11/17/21   Time: 18:07
Sample (adjusted): 3 39
Included observations: 37 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNCPI(-1))	-0.981580	0.171972	-5.707782	0.0000
C	0.024619	0.040783	0.603661	0.5501
@TREND("1")	0.003125	0.001861	1.678787	0.1024

R-squared	0.489423	Mean dependent var	0.004666
Adjusted R-squared	0.459389	S.D. dependent var	0.158049
S.E. of regression	0.116207	Akaike info criterion	-1.389277
Sum squared resid	0.459141	Schwarz criterion	-1.258662
Log likelihood	28.70163	Hannan-Quinn criter.	-1.343229
F-statistic	16.29565	Durbin-Watson stat	1.987660
Prob(F-statistic)	0.000011		

Appendix 3. Phillips-Peron test statistic

Null Hypothesis: D(LNCEX) has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-5.531060	0.0003
Test critical values:	1% level	-4.226815	
	5% level	-3.536601	
	10% level	-3.200320	

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

Residual variance (no correction)	0.118788
HAC corrected variance (Bartlett kernel)	0.119490

Phillips-Perron Test Equation
Dependent Variable: D(LNCEX,2)
Method: Least Squares
Date: 11/22/21   Time: 13:42
Sample (adjusted): 3 39
Included observations: 37 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNCEX(-1))	-0.951834	0.172142	-5.529339	0.0000
C	0.066192	0.125703	0.526578	0.6019
@TREND("1")	0.001338	0.005559	0.240613	0.8113

R-squared	0.474026	Mean dependent var	-0.001312
Adjusted R-squared	0.443087	S.D. dependent var	0.481786
S.E. of regression	0.359541	Akaike info criterion	0.869626
Sum squared resid	4.395165	Schwarz criterion	1.000241
Log likelihood	-13.08809	Hannan-Quinn criter.	0.915674
F-statistic	15.32100	Durbin-Watson stat	2.000804
Prob(F-statistic)	0.000018		

Null Hypothesis: D(LNCPI) has a unit root
Exogenous: Constant, Linear Trend
Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-5.696522	0.0002
Test critical values:	1% level	-4.226815	
	5% level	-3.536601	
	10% level	-3.200320	

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

Residual variance (no correction)		0.012409
HAC corrected variance (Bartlett kernel)		0.011434

Phillips-Perron Test Equation
Dependent Variable: D(LNCPI,2)
Method: Least Squares
Date: 11/22/21   Time: 13:53
Sample (adjusted): 3 39
Included observations: 37 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LNCPI(-1))	-0.981580	0.171972	-5.707782	0.0000
C	0.024619	0.040783	0.603661	0.5501
@TREND("1")	0.003125	0.001861	1.678787	0.1024

R-squared	0.489423	Mean dependent var	0.004666
Adjusted R-squared	0.459389	S.D. dependent var	0.158049
S.E. of regression	0.116207	Akaike info criterion	-1.389277
Sum squared resid	0.459141	Schwarz criterion	-1.258662
Log likelihood	28.70163	Hannan-Quinn criter.	-1.343229
F-statistic	16.29565	Durbin-Watson stat	1.987660
Prob(F-statistic)	0.000011		

Null Hypothesis: D(FDI) has a unit root
Exogenous: Constant
Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.225751	0.0020
Test critical values:	1% level	-3.621023	
	5% level	-2.943427	
	10% level	-2.610263	

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

Residual variance (no correction)		1.48E+17
HAC corrected variance (Bartlett kernel)		1.47E+17

Phillips-Perron Test Equation
Dependent Variable: D(FDI,2)
Method: Least Squares
Date: 11/22/21   Time: 13:58
Sample (adjusted): 3 39
Included observations: 37 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDI(-1))	-0.682249	0.161246	-4.231118	0.0002

C	40991718	65998960	0.621096	0.5386

R-squared	0.338404	Mean dependent var	-5405405.
Adjusted R-squared	0.319501	S.D. dependent var	4.80E+08
S.E. of regression	3.96E+08	Akaike info criterion	42.48364
Sum squared resid	5.49E+18	Schwarz criterion	42.57072
Log likelihood	-783.9473	Hannan-Quinn criter.	42.51434
F-statistic	17.90236	Durbin-Watson stat	2.013235
Prob(F-statistic)	0.000159		

Appendix 4. ARDL Long Run Form and Bounds Test

ARDL Long Run Form and Bounds Test
Dependent Variable: D(RGDP)
Selected Model: ARDL(1, 2, 2, 2, 2, 2, 0, 2, 2, 2)
Case 2: Restricted Constant and No Trend
Date: 11/17/21   Time: 13:30
Sample: 1 39
Included observations: 37

Conditional Error Correction Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	17.59529	2.689183	6.542986	0.0001
RGDP(-1)*	-2.298477	0.346434	-6.634671	0.0001
CEX(-1)	3.40E-06	3.70E-05	0.091858	0.9286
CPI(-1)	-0.025954	0.017759	-1.461423	0.1746
FDI(-1)	-3.63E-10	2.51E-10	-1.445625	0.1789
GCI(-1)	-1.25E-05	3.16E-06	-3.944998	0.0028
IMD(-1)	0.514734	0.076854	6.697519	0.0001
INFL**	-0.014654	0.004308	-3.401832	0.0068
RER(-1)	0.251858	0.063529	3.964444	0.0027
TLF(-1)	0.054256	0.009552	5.680298	0.0002
TOP(-1)	0.035503	0.012281	2.890989	0.0161
D(CEX)	-0.000109	3.15E-05	-3.464164	0.0061
D(CEX(-1))	-5.53E-05	4.61E-05	-1.199574	0.2580
D(CPI)	0.094297	0.026691	3.532904	0.0054
D(CPI(-1))	0.015797	0.016052	0.984076	0.3483
D(FDI)	1.57E-10	1.07E-10	1.471004	0.1720
D(FDI(-1))	9.37E-10	3.23E-10	2.900360	0.0158
D(GCI)	-2.57E-06	1.05E-06	-2.448133	0.0344
D(GCI(-1))	2.65E-06	2.28E-06	1.164204	0.2714
D(IMD)	-0.135557	0.072358	-1.873431	0.0905
D(IMD(-1))	-0.270151	0.057993	-4.658308	0.0009
D(RER)	0.071762	0.059032	1.215649	0.2520
D(RER(-1))	-0.079568	0.055090	-1.444314	0.1792
D(TLF)	0.014476	0.007865	1.840637	0.0955
D(TLF(-1))	-0.053184	0.011873	-4.479245	0.0012
D(TOP)	0.019550	0.009724	2.010432	0.0721
D(TOP(-1))	-0.015652	0.012350	-1.267393	0.2337

 * p-value incompatible with t-Bounds distribution.
** Variable interpreted as Z = Z(-1) + D(Z).

Levels Equation
Case 2: Restricted Constant and No Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CEX	1.48E-06	1.61E-05	0.092103	0.9284
CPI	-0.011292	0.007262	-1.554969	0.1510
FDI	-1.58E-10	9.92E-11	-1.591280	0.1426
GCI	-5.43E-06	1.29E-06	-4.209473	0.0018
IMD	0.223946	0.021201	10.56288	0.0000
INFL	-0.006375	0.001588	-4.014260	0.0025
RER	0.109576	0.019015	5.762644	0.0002
TLF	0.023605	0.002288	10.31543	0.0000
TOP	0.015446	0.005136	3.007208	0.0132
C	7.655193	0.103117	74.23793	0.0000

EC = RGDP - (0.0000*CEX -0.0113*CPI -0.0000*FDI -0.0000*GCI + 0.2239
   *IMD -0.0064*INFL + 0.1096*RER + 0.0236*TLF + 0.0154*TOP + 7.6552)

F-Bounds Test			Null Hypothesis: No levels relationship	
Test Statistic	Value	Signif.	I(0)	I(1)
		Asymptotic: n=1000		
F-statistic	10.87073	10%	1.8	2.8
k	9	5%	2.04	2.08
		2.5%	2.24	3.35
		1%	2.5	3.68
		Finite Sample: n=40		
Actual Sample Size	37			
		10%	-1	-1
		5%	-1	-1
		1%	-1	-1
		Finite Sample: n=35		
		10%	-1	-1
		5%	-1	-1
		1%	-1	-1

Appendix 5. ARDL Error Correction Regression

ARDL Error Correction Regression
Dependent Variable: D(RGDP)
Selected Model: ARDL(2, 2, 2, 1, 1, 2, 2, 1, 2, 2)
Case 4: Unrestricted Constant and Restricted Trend
Date: 11/21/21   Time: 17:06
Sample: 1 39
Included observations: 37

ECM Regression
Case 4: Unrestricted Constant and Restricted Trend

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	250308.0	26707.11	9.372334	0.0000
D(RGDP(-1))	-0.248216	0.109833	-2.259941	0.0502
D(CEX)	7.892771	1.794997	4.397095	0.0017
D(CEX(-1))	12.93749	2.596598	4.982477	0.0008
D(CPI)	-4405.591	951.7475	-4.628949	0.0012
D(CPI(-1))	-5846.846	1093.984	-5.344543	0.0005
D(FDI)	1.77E-05	4.54E-06	3.884941	0.0037
D(GCI)	0.251710	0.026741	9.412931	0.0000
D(IMD)	17155.72	2249.515	7.626406	0.0000
D(IMD(-1))	20055.24	2633.655	7.614986	0.0000
D(INFL)	366.0081	212.1599	1.725152	0.1186
D(INFL(-1))	-663.8204	149.3318	-4.445270	0.0016
D(RER)	3426.388	2606.002	1.314806	0.2211
D(TLF)	-1318.400	528.6917	-2.493703	0.0342
D(TLF(-1))	2341.707	694.5386	3.371601	0.0082
D(TOP)	-2420.525	570.0189	-4.246394	0.0022
D(TOP(-1))	-1486.412	477.7194	-3.111474	0.0125
CointEq(-1)*	-0.227721	0.025465	-8.942581	0.0000

R-squared	0.988126	Mean dependent var	51652.37
Adjusted R-squared	0.977502	S.D. dependent var	52141.06
S.E. of regression	7820.785	Akaike info criterion	21.07345
Sum squared resid	1.16E+09	Schwarz criterion	21.85714
Log likelihood	-371.8589	Hannan-Quinn criter.	21.34974
F-statistic	93.00902	Durbin-Watson stat	2.704753
Prob(F-statistic)	0.000000		

* p-value incompatible with t-Bounds distribution.

F-Bounds Test			Null Hypothesis: No levels relationship	
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	3.443673	10%	2.05	3.02
k	9	5%	2.3	3.33
		2.5%	2.52	3.6
		1%	2.79	3.93

Appendix 6. VAR Lag Order Selection Criteria

VAR Lag Order Selection Criteria
Endogenous variables: LNRGDP CEX
Exogenous variables: C
Date: 11/04/21   Time: 11:28
Sample: 1 39
Included observations: 37

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-375.3318	NA	2472117.	20.39631	20.48339	20.42701
1	-248.2202	233.6104*	3186.230*	13.74163*	14.00286*	13.83373*

2	-246.7700	2.508552	3666.640	13.87946	14.31484	14.03295

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

Appendix 7. Pairwise Granger Causality Tests

Pairwise Granger Causality Tests
Date: 11/16/21   Time: 18:18
Sample: 1 39
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
CEX does not Granger Cause RGDP	37	6.82837	0.0034
RGDP does not Granger Cause CEX		4.97314	0.0132
CPI does not Granger Cause RGDP	37	12.5791	9.E-05
RGDP does not Granger Cause CPI		2.99902	0.0640
FDI does not Granger Cause RGDP	37	40.8532	2.E-09
RGDP does not Granger Cause FDI		4.62224	0.0172
GCI does not Granger Cause RGDP	37	18.0875	6.E-06
RGDP does not Granger Cause GCI		18.1568	5.E-06
IMD does not Granger Cause RGDP	37	12.3963	0.0001
RGDP does not Granger Cause IMD		12.3260	0.0001
INFL does not Granger Cause RGDP	37	1.20880	0.3118
RGDP does not Granger Cause INFL		1.10088	0.3448
RER does not Granger Cause RGDP	37	8.15933	0.0014
RGDP does not Granger Cause RER		5.50224	0.0088
TLF does not Granger Cause RGDP	37	0.81375	0.4522
RGDP does not Granger Cause TLF		0.06647	0.9358
TOP does not Granger Cause RGDP	37	4.60065	0.0175
RGDP does not Granger Cause TOP		0.78132	0.4663