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## **Determinants of Export competitiveness: The Case of Textile and Apparel Industry in Ethiopia**

**THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY COLLAGE OF BUSINESS AND ECONOMICS SCHOOL OF COMMERCE, FOR THE PARTIAL FULFILMENT OF MASTERS OF ARTS DEGREE IN LOGISTIGS AND SUPPLY CHAIN MANAGEMENT**

**By**

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Addis Ababa, Ethiopia**

# ADDIS ABABA UNIVERSITY

COLLAGE OF BUSINESS AND ECONOMICS SCHOOL OF COMMERCE

DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT

This is to certify that the thesis carried out by **Faysel Alemu Gezaw**, entitled: “Determinants of Export competitiveness: The Case of Textile and Apparel Industry in Ethiopia” and submitted in partial fulfillment of the requirements of the Degree of Master of Art in Logistics and Supply Chain Management complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Approved by board of examiners;

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## **Declaration**

I, the under signed here, declare that this thesis entitled, “Determinants of Export competitiveness: The Case of Textile and Apparel Industry in Ethiopia” is my original work and to the best of my knowledge has not been presented for a degree by any other person, and that all the sources of material used for this thesis has been properly acknowledged.

Declared by:  
**Faysel Alemu Gezaw**

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## STATEMENT OF CERTIFICATION

This is to certify that the thesis carried out by **Faysel Alemu**, on the topic entitled “Determinants of Export competitiveness: The Case of Textile and Apparel Industry in Ethiopia”, is his original work and is suitable for submission for the award of Masters of Art Degree in Logistics and Supply Chain Management.

Advisor  
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## **List of Acronyms and Abbreviations**

AGOA	African Growth and Opportunity Act
COMESA	Common Market for East and South Africa
CSA	Central Statistics Agency
ETGAMA	Ethiopian Textile and Garment Manufacturers Association
ETIDI	Ethiopian Textile Industry Development Institute
EDRI	Ethiopia Development Research Institute
EBA	Everything but Arm
FAO	Food and Agricultural Organization
FDI	Foreign Direct Investment
GTP	Growth and Transformation Plan
GDP	Gross Domestic Product
LDC	Least Developed Countries
MoI	Ministry of Industry
MoTI	Ministry of Trade and Industry
NPC	National Plan Commission
RCA	Revealed Comparative Advantage
RSCA	Revealed Symmetric Comparative Advantage
R&D	Research and Development
TVET	Technical and Vocational Education and Training
WTO	World Trade Organization
UNIDO	United Nation Industrial Development Organization
USD	United State Dollar
UNCTAD	United Nation Conference for Trade and Development

## ***Abstract***

*Ethiopia has strong potential in the textile and apparel sector, due to low cost and trainable manpower, raw material availability, and strong compliance and risk performance. In the past decades, the export contribution of the textile and apparel industry has shown a sharp rise. However, the sector has been challenged in obtaining quality raw materials, labor productivity, logistics, and infrastructure challenges. Despite these challenges, the textile industry has shown an increasing and comparable competitive advantage in the international market. The objective of the study is to examine factors that determine the competitiveness of the textile industry of Ethiopia. For this purpose, firstly, RCA and RSCA index for textile industry export is calculated. Then panel data techniques were employed to test the effect of FDI inflow, exchange rate, inflation rate, infrastructure, human capital and raw material using time series data extended from 1991 to 2020. Furthermore, primary data using in-depth interviews with selected experts were used to draw conclusions and forward recommendations. The results revealed that despite the potential and the increasing trends in exports, Ethiopia's textile industry hadn't achieved the optimal level of competitiveness in the global market. To reach its optimal competitiveness, constraints related to raw material and backward linkage, labor productivity, logistics and infrastructure need to be addressed.*

***Key Word:*** *Competitiveness, Textile, Industrial Park, Determinants of exports,*

# Chapter One

## Introduction

In this chapter the background for the study, statement of the problem and major and specific objectives of the study are presented explicitly. Moreover, the scope and its significance for manufacturers, government, researchers and other stakeholders are detailed visibly.

### 1.1. Background of the Study

The previous decade's manufacturing export performance and economic growth of Ethiopia were fueled by success stories of the manufacturing industries particularly the textile sector. The textile sector is identified as one of the export-oriented priority areas in the manufacturing industry to boost the country's export performance in addition to its contribution to the green economy and job creation (Mamo & Gabriela 2017). Ethiopia's potential in the sector and its competitive advantage attract Foreign Direct Investment (FDI) due to a large arable land that could be used for the production of cotton which is the major input in the sector.

The textile sector has a long history of tradition in Ethiopia beginning from the old time. People make clothes from cotton supplied by smallholder farmers. This traditional cottage industry is inherited and continues up to now making an important contribution to textile requirements. The beginning of the modern textile industry begins in 1939 in Dire Dawa City under the name Dire Dawa Textile Factory which is the first integrated mill that was established and marked the beginning of textile industrialization (ETIDI, 2015).

Currently, the textile industry encompasses ginning, spinning, knitting and weaving, finishing, and garment. These industries produce a wide range of products including yarn, woven fabrics, made-ups and other related products. In the past two decades, the sector becomes one of the priority areas of government and various local and foreign investors engaged in the sector in the textile fabric manufacturing, spinning, and garment area. In the last 10 years, the textile and apparel manufacturing industries contributed about 28% of manufacturing export with an average annual growth rate of 25% (MoTI, 2021).

According to the research conducted by (EDRI, 2016), Ethiopia has a suitable agro-ecological zone availability of water for the production of cotton and the country has a total of over 3-million-hectare suitable land for producing cotton which is equivalent to Pakistan the world's fourth-largest producer. Despite this huge potential, Ethiopia utilized only below 5% of this potential due to various reasons. Furthermore, the data from ETIDI shows that the total production yield of cotton declined by 90% from 2011 to 2020 due to the declining trend of farmland that is used for cotton by smallholder and commercial farmers and cotton farming is mainly done on small scale basis with limited incentive. Despite this poor performance, the textile industry remains one of the major export contributors to Ethiopia's manufacturing.

Since Ethiopia focuses on an export-led industrial development strategy, this strategy has shifted the country's focus from agricultural sector growth to the manufacturing industry. To promote the textile industry and support the competitiveness and development of the textile and apparel sector. The government of Ethiopia established Ethiopian Textile Industry Development Institute (ETIDI) in 2006, to lead and coordinate the development of the textile manufacturing industry by providing technical support and advisory service for investors who want to be involved in the textile and apparel sector on the choice of technology, construction and commissioning. Following this, Ethiopian Textile and Garment Manufacturers' Association (ETGAMA) was founded in 2008 representing manufacturers in the sector with a vision of seeing Ethiopia as the textile hub of Africa. In addition to those initiatives, the establishment of 13 industrial parks in different regions of Ethiopia attracts foreign investment in the sector and it is a path to achieve a future target to generate 2.5 billion USD in 2030 according to the 10 years development plan of Ethiopia (MoTI, 2021).

Cognizant of this huge potential in the sector, the textile industry is considered as an important sector that leads to the modernization of the manufacturing industry. The export value has grown steadily since 2000 and is expected to make a big impact on the Ethiopian economy. Not only the economic impact resulting from the trade important but also the job opportunities the industry may create could make a significant impact on poverty reduction. The industry has got excellent potential for the export of its goods. It has all inputs in place to become a strong textile manufacturing hub with raw material availability, easily accessible and trainable manpower, a suitable incentive package with regards to land and loan, and the necessary infrastructure.

(Hailemariam, 2018) identified some factors that affect the competitiveness of the Ethiopian clothing industries which include supplier integration, access to local input, market linkage, customs procedures, political stability and investment climate are few of them. The sector is facing difficulties regarding the achievement of its export targets. As a result, detailed research is required to examine the factors affecting export competitiveness.

## **1.2. Statement of the Problem**

The 10 years (2012-2021) overall export performance report indicates that the difference between import and export trades has shown a widening gap indicating limited export earnings and very weak export performance. As a result, the economy largely depended on imports and the demand for imported commodities increased from year to year leaving the gap between export and import trade widened. Export contribution of the manufacturing sector also increase from 9% in 2011 to 13% in 2020. The textile sector is considered as the major contributor to this growth contributing about 40% of manufacturing export in 2020 with an average annual growth rate of 25%. However, the export performance gap seems great as compared to the country's potential and the 10 years government plan to generate 2.5 billion dollars from the textile sector. Achieving this requires a huge involvement of all stockholders to in reducing factors that determine the export competitiveness of the sector (**MoTI, 2021**).

Ethiopia's textile export potential seems clear as we are looking into the input availability, particularly about 3 million hectares of land for raw cotton cultivation, and easily trainable manpower in addition to this, the long-chain characteristic of the sector could pull many players along the value chain (Yost M. & Shields L., 2017). As a result, Textile Industry is considered a stepping stone for transforming people from agrarian to industrial society. This is why the sector is considered as one of the priority sectors of the Government's Industrial Development Strategy (GTP 1, GTP 2-, and 10-years plan). While GTP I had set an export earning target of USD 1 billion by 2014/15, the second phase of GTP II had also projected the ambitious goal of achieving USD 1 billion annually in export earnings but not achieved yet (NPC, 2015).

Despite these potential and statistical growth indicators, the sector could not achieve its export target indicating lower competitiveness in efficiency and price in the export market. A number of investors have invested in the last two decades and manufacturers' effort to export high volume

products as expected the export generation seems too lower as compared to investment flow. As a result, the sector requires detailed research to identify and examine the factors that determine the export competitiveness of the sector.

Global textile sourcing becomes more competitive than ever before due to high competition from China, Vietnam, Kenya, Bangladesh as well as Indonesia to maintain customer requirements for reduced cost, lead time, quality and risk compliance (Mamo & Gabriela 2017). To improve the export competitiveness of the sector, it is important to examine the important factors affecting textile export competitiveness. This study tries to investigate factors affecting the performance of the Ethiopian textile and apparel industry's export

### **1.3. Basic Research Questions**

With the aim of achieving the objective of the research, the study attempted to answer the following basic questions: -

1. What are the major factors affecting the export competitiveness of the Ethiopian textile industry?
2. What is the relationship between the export competitiveness of textile and apparel products and factors?
3. To what extent do these factors affect the export competitiveness of the sector?

### **1.4. Objectives of the Study**

The main objectives of the study are to examine factors affecting the export competitiveness of the textile industry. **The specific objectives** include;

- To identify and examine the major factors affecting competitiveness.
- To examine the relationship between the export competitiveness of textile and apparel products and alternative variables or factors.
- To determine the extent these factors that affect the export competitiveness of textile.
- To suggest a possible recommendation on how to improve export in the sector

## **1.5. Scope of the Study**

The study mainly focuses on the export competitiveness of the textile industry. As a result, national-level data related to export gathered from Ministry of Industry and custom commission. The study identified FDI inflow, exchange rate, inflation rate, infrastructure, human capital, technology, and raw material as alternative variables because they identified as major variables by other researchers. The study is limited to the In-depth interview of experts and on the time series data extended from 1991 to 2020.

## **1.6. Hypotheses of the Study**

Based on the studies conducted previously and reviewed in the literature factors like foreign direct investment inflow, exchange rate, inflation, infrastructure, human capital, technology and raw material have an impact on export competitiveness. Therefore, this study explores these factors on the competitiveness of the textile industry in Ethiopia. Based on that, the following hypotheses are tested to achieve the objectives stated above.

**H1:** Foreign Direct investment inflow has a significant positive impact on textile export competitiveness in Ethiopia.

**H2:** Exchange rate has a significant negative impact on textile export competitiveness in Ethiopia

**H3:** Inflation has a significant negative effect on textile export competitiveness in Ethiopia

**H4:** There is a positive relationship between infrastructure development and export competitiveness of the textile industry in Ethiopia.

**H5:** There is a positive and significant relationship between technology and export competitiveness of the textile industry in Ethiopia.

**H6:** There is a positive and significant relationship between human capital and the export competitiveness of the textile industry in Ethiopia.

**H7:** There is a positive and significant relationship between raw materials and the export competitiveness of the textile industry in Ethiopia.



## 1.7. Significance of the study

The study focuses on the examination of factors affecting the export of textile manufacturing in Ethiopia. It will have the following major significance. Firstly, it will attempt to address different factors that affect export competitiveness and helps to get an insight to understand the major factor affecting the export competitiveness of the manufacturing sector particularly the textile industry. As a result, the Ministry of Industry, ETIDI, and ETEGMA as a major stockholders in the sector will be able to re-examine which factors are most dominantly affecting the competitiveness of the sector in the export market and they may design policy or practical strategies on how to tackle these factors and improve competitiveness. Secondly, it will provide the researcher with new exposures to investigating new areas of research and future problem-solving activities. Finally, it will be helpful for other researchers who are inspired to do further researches on the areas of export competitiveness in the textile sector.

## 1.8. Definition of Basic Term

The following definitions are provided to ensure uniformity and a better understanding of the concept and variables of the study.

- **Textile:** It is any type of material made from fibers or other extended linear materials such as thread or yarn. Classes of textiles include woven, crochet, knitted, knotted, and non-woven fabrics and finished products made from them.
- **Industrial Park:** An industrial park consists of a piece of land designed specifically to promote industrial activities through integration with transportation facilities and other supporting infrastructure.
- **Determinants of exports:** refers to the factors that affect or determine a country's export performance directly or indirectly.
- **Competitiveness:** Competitiveness is the capacity of the sector, industry or branch to design and sell its goods at prices, quality and other features that are more attractive than the parallel characteristics of the goods offered by the competitors (Flejterski, 1984).

## **1.9. Organization of the Study**

The study is organized into five chapters. The first chapter deals with the introductory parts. The second chapter present a review of literature on determinants of export and related concepts. Chapter three discussed the research methodology of the study (description of the study area, data types, sources and methods of data collection, sampling techniques, and methods of data analysis). The fourth chapter deals with results and a discussion of the findings. Finally, the last chapter summarize and concludes the finding of the study with recommendations and policy implications.

## **Chapter Two**

### **Review of Related Literature**

#### **2.1. Theoretical Literature Review**

##### **2.1.1 Definition and Concepts of Export Competitiveness**

According to (Ghacholiades, M., 2017), Export is defined as an actual shipment or transmission of items out of the producers' countries. This includes standard physical movement of items across the border by truck, car, plane, rail, or hand-carry. Technology and software may be exported or reexported both physically or electronically, such as through email, telephone discussions, fax, posting on the internet, and a variety of other non-physical means. Export is often associated with the competitiveness of the country at the global level. Competitiveness also mainly related to productivity, (Samar Verma, 2002) which in turn is a function of factors related to cost of products, as well as those related to non-price factors such as delivery schedules, reliability of producers, and such intangible factors like image of the country/company and brand equity. Together, they define the competitive sinews of a product to compete under conditions of free market.

Competitiveness researches and studies analyze factors that can explain the competitiveness and aim to identify the drivers of competitiveness. Despite there is a whole strand of scientific literature on competitiveness, a consensus about a common definition of competitiveness has not exactly been reached. In the literature the word "competitiveness" relates to different meanings when applied to an individual firm or an individual sector or total economic activity within a country or region.

(Sharples & Milham, 1990) define export competitiveness as the capability to produce and sell goods and services at the required place at competitive prices when compared to other suppliers. (Biggs, 2007) stated that resource endowment and competitive advantages are extremely varied and sectors with high potential will differ across countries, these differences provide competitiveness for countries by reflecting differences in factor endowments, locational advantages, and scale or agglomeration effects.

Export trade has been one of the most important drivers of economic growth in the global economy for the last few decades. The linkages of exports to growth and poverty reduction will also differ, in some cases operating mainly through employment and learning effects at the firm and industry level, in others through expanded financing for public infrastructure or imported capital equipment, and in others through the use of export promotion to achieve focused improvements in public services and the business environment. National competitiveness can be understood as a country's capability to establish itself in foreign markets due to price or other factors, but also an economy that is capable of achieving a high level of real earnings, a low unemployment rate and long-term sustainable growth (UNCTAD, 2008).

In most but not all of those instances, export promotion played a critical role in long-run growth by supporting a virtuous circle of investment, innovation and poverty reduction. (Collier, 2007) argue that Least Developed Countries (LDCs) have yet to reap the full benefits of globalization and are lagging behind other developing countries. He also emphasizes the importance of trade preferences in jump-starting the manufacturing sector in some LDCs; preference margins remain substantial in textiles and apparel, and countries with potential comparative advantage in those areas have a great interest in securing more liberal rules of origin.

The (UNCTAD, 2008) report stated that successful textile industry can have very substantial effects on economic growth and poverty reduction. Labor-intensive manufactured exports, particularly clothing due to its booming nature becomes a vital stepping stone in the economic growth of many labor-abundant developing economies like Korea and Singapore. Most recently, the production of apparel for export has spread to some countries in sub-Saharan Africa due to the rise of global buyer chains, the evolution of labor cost and productivity and the policies of developed countries. To exploit this advantage positively, it is important to build the export competitive industries that competes in the global market. (Zhang, 2015) stated that building export competitiveness is a long, costly, and risky process, as it calls for large investment in research and development, advanced technology, high-quality infrastructure and close interactions between firms and research institutes.

## **2.1.2. Export Market of Textile Industries**

According to WTO Report. In 2019/20, the value of global textile and apparel exports reached \$305 billion and USD 492 billion respectively. Of this value 72.2% of the world market share dominated by the world's four largest apparel exports including China, the European Union, Vietnam, and Bangladesh. Similarly, 65.8% of the global textile export were driven by China, the European Union, and India (WTO, 2021). Beyond these, Ethiopia has been placed at a lower rank on the utilization of market opportunities and other exporters outperform Ethiopia in market shares such as Kenya and Lesotho.

The global fashion industry represents a USD of 1 trillion market and is expected to reach \$2.1 trillion by 2025 (Yost M. & Shields L., 2017). The top 10 apparel exporting countries in sub-Saharan Africa represent only 0.55 percent of global exports and Ethiopia is placed in the lower half of that ranking. Nevertheless, Ethiopia is expected to be one of the top future global sourcing locations due to its potential referred as an untapped sourcing destination (Achim B., et al. 2017).

Recently, COVID-19 has had a significant impact on the world textile and apparel trade volumes, resulting in substantial growth of textile exports and a declined demand for apparel due to a decrease in consumers' spending, However, COVID-19 did not shift the competitive landscape of the world textile exports (WTO, 2021).

Global trends are currently favorable to the growth of the apparel industry in Ethiopia, as apparel companies are increasingly shifting production beyond China and into countries such as Bangladesh, Vietnam, and Ethiopia. Ethiopia currently ranks as the fourth country globally with the large prospects of sourcing growth in part due to the relatively lower cost of labor (Achim B., et al. 2017).

### **2.1.2.1. The Global Market for Textile and Apparel Products**

International trade in textiles and clothing has shown more dynamic growth in the last decade in terms of trends in the global production of textile and clothing products. Developing countries, especially those from the Asian region, are the world's leading textile exporters, which is one of the key levers of their rapid economic growth.

The development of the textile industry in the world over the last 50 years is a typical example of a production that has undergone major changes in terms of production structure and technological innovation (Felipe, 2018). Industrialists focus on introducing large investments while reducing the workforce in countries that had been former leaders of the world textile production, at the same time the process of transferring production to other countries by seeking low labor costs and significant sources of cheap raw materials. This led to the establishment of a new center of the global textile industry and greater involvement of the sector in global international trade flows, marked by the continuous strengthening of the export position of a particular group of developing countries which resulted in major structural changes in the regional distribution of textile production.

The level of technology in Ethiopian textile and apparel industry can be viewed from two angles: the newly established industry brings relatively latest technologies, which are prominent in textile and apparel production such as China, India, Turkey, etc. The second one is that the industries which were established in the Imperial and Derge era, have experienced huge problems in terms of their production due to obsolete technology. This results in frequent breakage and a lack of spare parts. The unique characteristic of the Ethiopian textile and apparel industry is that most of the textile mills are vertically integrated (spinning-weaving/knitting-apparel) and there is no observable specialization. In addition, they are not in the position of supporting the emerged apparel industry because most of the fabric produced is consumed by them. This condition demands policy intervention to bring specialization, promote intra-sectoral linkage and attract more investment.

The current competitive straggle in the textile product market at the global level brought innovation in the production of synthetic fibers and new technologies in the spinning, weaving and finishing of textiles. The production of standard mass products shifts to the developing countries in the form of subcontracting, and resulting the closing of unprofitable production facilities and specialization of production. The combined effects of such technological advances have enabled the spatial and functional fragmentation of textile production and its vertical disintegration in terms of performing labor-intensive parts of the production in countries with lower labor costs. In order to maintain and increase competitiveness, leading companies transfer their labor-intensive

processes to developing countries through strategic outsourcing and offshoring, while maintaining complex operations and capital-intensive processes in their countries. (Corovic E, et al. 2013).

#### **2.1.2.2. The Structure and Trends of Textile and Apparel industry in Ethiopia**

Textile sector has a long history of tradition in Ethiopian beginning from the old time. On the other hand, the first industrial textile factory for domestic consumption was established in 1939, but the Ethiopian government has promoted the sector to supply international markets in the past decade (ETIDI, 2015). In the past two decade, the size and number of the textile and apparel sub-sector in Ethiopia have shown a speedy growth. As a direct result of the government's focus and strong promotion on attracting foreign investment in the manufacturing sector. (Yost M. & Shields L., 2017) detailed condition that the government of Ethiopia publicizes conditions advantageous for foreign buyers and manufacturers, including low wages, an abundant workforce, and potential for vertical integration through native cotton production and processing. Duty-free access to the European Union, United States, and other global markets through Everything but Arms (EBA), the African Growth and Opportunity Act (AGOA), and the Common Market for Eastern and Southern Africa (COMESA) offer additional incentives to invest.

This strong promotion to invest in the manufacturing industry coupled with textile and apparel specialized industrial parks increased the influx of investment inflow in the country. According to the data from (EIC, 2021), the number of the operational textile projects increased by 61 from 2011 to 2021. (Mamo & Gabriela 2017) also state that between 2014 and 2018, the number of stand-alone apparel manufacturers increased from 60 to 176. From 2012 to 2017, a total of 72 apparel foreign companies commenced operations in the country, Majority of these investments are owned by foreign firms mainly from China, Turkey, and India. In addition, the number of firms in the sector increased markedly as compared to the period only 19 factories operate in Ethiopia in 1991 (UNCTAD 2020).

Despite the increasing number of firms in the country, the export performance is not as it is said “an industry of great promise”, implying a high share of the domestic market and high export constraints. As stated in (ETIDI, 2015), to boost the export of the sector, the government of Ethiopia establish specialized textile and apparel industrial park and most of the products manufactured by firms operating within the parks are exported.

### **2.1.2.3 Ethiopia's Textile industry Export Performance**

As stated in the above literature textile and apparel is one of the oldest and largest export industries in the world. It is also one of the most global industries because most nations produce for the international textile and apparel market to drive their country industrialization process (Mamo & Gabriela 2017). However, Ethiopia's economic growth has not been benefiting from it. Recently, due to the priority given to the sector, export-focused industries established and the quality of textile products is improving and items are being sold in domestic as well as international markets. (Gebreeyesus, 2016) indicates the textile and apparel exports become among the top ten manufacturing exports due to successive government policies that encouraged measures to exploit comparative advantages to increase exports of the sector.

In the last 10 years, textile industry contributed about 28% of manufacturing export with an average annual growth rate of 25%. The industry however is still in an infant stage of export turnover. The report by (Nash International, 2016) stated that goods exported from Ethiopia to the world have a share of total global apparel exports of 0.01%. The export value of the sector seems growing, despite this, the sector has consistently failed to achieve the export targets of the Growth and Transformation Plan (GTP) I and GTP II.

The textile and garment industries heavily underperformed in terms of export earnings and employment generation during GTP I and GTP II. During the GTP I period, the sector export earnings stood at USD 98.9 million and it was about 10 percent of the target USD 1 billion (Tsegay G. et al. 2018). During GTP II also, this target was reduced to generate USD 778.8 million but at the end of the planning period, the export earnings of the sector reached USD 152 million in contrast to the planned target of USD 778.8 million (MoTI, 2021). Despite an increase in manufacturers and export records, Ethiopia is still a long way from achieving the export value of over USD 2 billion in 2030 as reflected in the 10 years of industry development.



### **2.1.3. Theory of Comparative Advantage and RCA**

Production patterns and competitiveness around the world exhibit tremendous heterogeneity and specialization. For example, most African countries mainly export primary and labor-intensive commodities while European countries export technology-intensive commodities. (Peter M. Morrow, 2008) argue that the major economic theory that explains specialization and competitiveness are the Ricardian and Heckscher-Ohlin (HO) theories which are considered the two workhorse models of international trade.

The Ricardian model of international trade predicts that a country tends to specialize in and export those commodities in the production of which it has maximum comparative cost advantage or minimum comparative cost disadvantage. This theory suggests that trade occurs between countries because of the differences in labor productivity that occurs because of technological differences.

The Heckscher-Ohlin (H-O) model asserts that differences in comparative advantage come from differences in factor abundance and in the factor intensity of goods. It suggests that countries should produce and export goods using the resources that they have in abundance. This model focuses on the efficiency of the production process because the country produces goods based on the resources that they have in abundance; it will be the cheapest to produce these goods. Very broadly, countries that have more capital will specialize in capital-intensive goods and countries that countries with more labor will specialize in labor-intensive goods. These countries will trade these goods with each other.

Although theoretical grounds of comparative advantage have been provided in the above two theories, its measurement is not straightforward and the difficulty of measuring comparative advantage led Bela Balassa to investigate trade patterns directly, without reference to underlying resources, productivity, subsidies, or prices (Benedictis & Tamberi, 2001). RCA metric shows the relative differences in productivity and a country's competitive strength however it paid no attention to tariffs, non-tariff measures, subsidies, and others in the RCA metric (Laursen, 2015). (Balassa, 1965) argued that revealed comparative advantage could be indicated by the trade performance of individual commodities and countries in the sense that the commodity pattern of trade reflects relative market costs as well as differences in non-price competitive factors. RCA is based on Ricardian trade theory which asserts that inter-country differences in the structure of

exports are in large part explained by differences in physical and human capital endowments (Esterhuizen, 2006).

The RCA measure can therefore identify sectors for which an individual country has a comparative advantage and a comparative disadvantage in total trade. It measures relative success in exporting and is not dependent on any theory regarding inter-industry trade, factor endowments, the existence, or otherwise absence, of free trade or perfect competition (Pitts & Lagnevik, 1997). If it is related to the export, it measures the export share of a product of one country in the total export of the world relative to the country's export share in the world of all products

In addition to RCA, there are also many indices developed to measure export competitiveness, such as; Export Competitiveness (XC), Reveal Symmetric Comparative Advantage (RSCA), Net-Export RCA, Global Competitiveness Index (GCI), Michaely Index (MI<sub>ij</sub>), Contribution to Trade Balance (CTB), Business Competitiveness Index (BCI), Manufacturing Export Competitiveness Index (MECI), and so on. However, the most empirical research the Balassa index (RCA) is considered to be one of the most outstanding and useful methods for analyze a nation's competitiveness in the most emphatical research (Irsahd & Xin, 2017).

## **2.2. Empirical Review on determinants of Export Competitiveness**

Different studies conducted to identify the factor affecting the export competitiveness in different countries. Identifying the determinants is important to understand the key factors influencing a particular phenomenon, (ETDI, Value Chain Roadmap, 2015; UNCTAD, 2005) summarized that the value chain competitiveness of the textile and clothing industry in Ethiopia is determined by four key metrics: supply-side constraints which is mainly related to input supply, skill gap, and lack of advanced machinery, business environment constraints that include infrastructures, cost of doing business and trade facilitation issues, market entry constraints related to market access, national promotion and branding and trade information, and finally, socio-economic constraints which include issues related to environmental sustainability and regional development.

The study by (Yusuf M. & Gonul M., 2013) on the determinants of export competitiveness of the manufacturing industry analyzed the export competitiveness of OECD countries using RCA index and it employed panel data techniques to examine the effects of physical capital, labor cost,

infrastructure, R&D, the share of high-tech export and FDI inflows on export competitiveness of manufactures. The results of the study indicated that conventional variables, namely physical capital, labor cost, and infrastructure has contributed positively to the export competitiveness of manufacturers in OECD countries. Furthermore, FDI to the manufacturing sector has not contributed positively to the export competitiveness of OECD countries for the last decade.

(Balchin et al., 2019) studied the necessary factors to develop the textile and garment sector in Tanzania by analyzing the experience of six countries including Bangladesh, Cambodia, Ethiopia, India, Lesotho, and Madagascar. The study concluded that policy, industry linkage, FDI, and incentives are the factor that the government should work on. They also explained that the competitiveness of the sector is undermined by a number of challenges including low worker skills, low productivity, long cycle and delivery times, unreliable power supply, poor logistics infrastructure and outdated technology and machinery. (Hailemariam, 2018) found that the major factor for poor export competitiveness of the Ethiopian textile and apparel sector are labor productivity, availability of inputs, capacity utilization of infrastructural facilities, marketing capabilities, lack of port and related facilities, and weaker financial institutions. internal inefficiencies in production and management.

The Ethiopian manufacturing firm's export performance has been affected by the following factor (Gelagay & Singh, 2020) export sales growth, export intensity, export intensity growth compared to competitors, export sales efficiency, market diversification, rate of new market entry, rate of new market entry compared to competitors, external political relation of a country, nearness to port, quality of distributor relationship, product/service quality compared to competitors, gaining new technology.

(M. saqib & Q. Xin, 2017) have attempted to investigate the determinants of export competitiveness which is an empirical analysis through revealed comparative advantage of the external sector of Pakistan. In the paper, the researchers have endeavored to analyze the sector-wise export performance of Pakistan using Revealed Comparative Advantage with the global market.

Data for the period 2003-2015 used for the analysis and the empirical results show that Pakistan is not a major trading player in international trade. However, it is a major trading player in some of its export items such as the textile and clothing sector, Vegetable, and hides and skins sector which have prominent revealed comparative advantage. Pakistan should diversify its exports and improve its trade diplomacy

In the textile and apparel global industry, competitiveness is determined by the relative performance of the firm against its competitors. (Ahmad, S., & Schroeder, R. G. 2002), state firm-level competitiveness is determined by competitive priorities and practices on four key components: cost, quality, delivery speed, and innovation. (Prabhu et al. 2020) developed the measurement instrument of manufacturing firm competitive priorities practices based on six domains namely quality, cost, delivery, flexibility, customer focus, and know-how. And found that delivery plays an important role followed by quality, cost, know-how, customer focus and flexibility. Particularly in the textile sector high-quality requirements at a low cost are demanded by textile and apparel global buyers. Since the fashion trend has shorter life spans, producers' delivery speed and flexibility to respond to the changing order is important to drive competitiveness (Linden, 2016).

(Tomasz S., & Aldona Z., 2014) identified micro- and macro-economic sources of firm's competitiveness. Microeconomic factors, have a direct impact on company competitiveness including sophistication of the firm's operations and strategy, quantity and quality of production factors, technology and innovations as well as supporting or related industries and clusters. The macroeconomic factor also includes monetary and fiscal policy, the rule of law and the quality of social and political institutions as well as regulatory quality. (McGahan, 1999] suggests that macro-economic factors are more or less uniform for all competing companies and it is a firm's characteristics and actions that determine its competitiveness and profitability.

(Yap & Josef 1999) also studied the competitiveness of the manufacturing sector in Philippine and examined the link between trade patterns and competitiveness in the manufacturing sector for the period 1980-95. Using revealed comparative advantage (RCA) as a measure of trade performance, the study tested the influence of labor productivity, price competitiveness and capital stock on export. The paper highlighted the existence of a dichotomy between the domestic manufacturing

sector and the export sector, indicating that the export sector has its own dynamics independent of the development in the local manufacturing sector

**The major determinants from the above emphatical literature review are detailed below:**

**Infrastructure:** infrastructure plays a key role in market connectivity and trade promotion while the lack of infrastructure disrupts markets and retards trade. (Kennedy K. 2007; Ismail, N. W., and J. M. Mahyideen. 2015). Infrastructure includes transport (land, air and maritime), electricity and water, and telecommunications as well as the financial sector. Poor infrastructure is a major impediment to trade, competitiveness and sustainable development in most African countries, particularly land-locked countries like Ethiopia face high transport costs as they have to cross transit countries with poor infrastructure (Kennedy K. 2007).

**Raw Material:** the sub-sector is facing a serious challenge in the supply of quality local input due to inefficiencies in textile fabrics, yarns, trims and accessories supply capacity of domestic manufacturers resulting from primitive production techniques and technologies (Hailemariam, 2018). this results in local textile industry unable to meet export quality and standards and led to weak backward linkage with exporters in the country. The value chain is heavily reliant/dependent on imported raw materials and intermediary goods, which exacerbates the national foreign currency shortage (Tsegay G. et al. 2018).

**Labor Cost & Productivity** this is a major determinant that indicates the value-added per unit of labor cost. Labor cost in manufacturing includes payments of wages and salaries and non-wage payments such as commission, bonuses and allowances for food, medicine and the like (Tsegay G. et al. 2018). It is found that theoretically, a decrease in labor cost increases export competitiveness and vice versa. A country where the labor cost is higher will have less attractiveness for exporters (Dhiman & Sharma, 2017). In addition to the quantity and cost of labor, the output produced by the available labor is more important. Better productivity not only ensures competitiveness but also promotes economic growth through improving real income and welfare (Tsegay G. ete el.. 2018). In Ethiopia, despite the increasing number of TVET centers and universities providing professional education in the textile and apparel sector, adequate labor quality and quantity coupled with high turnover challenges the sector competitiveness (UNCTAD, 2020),

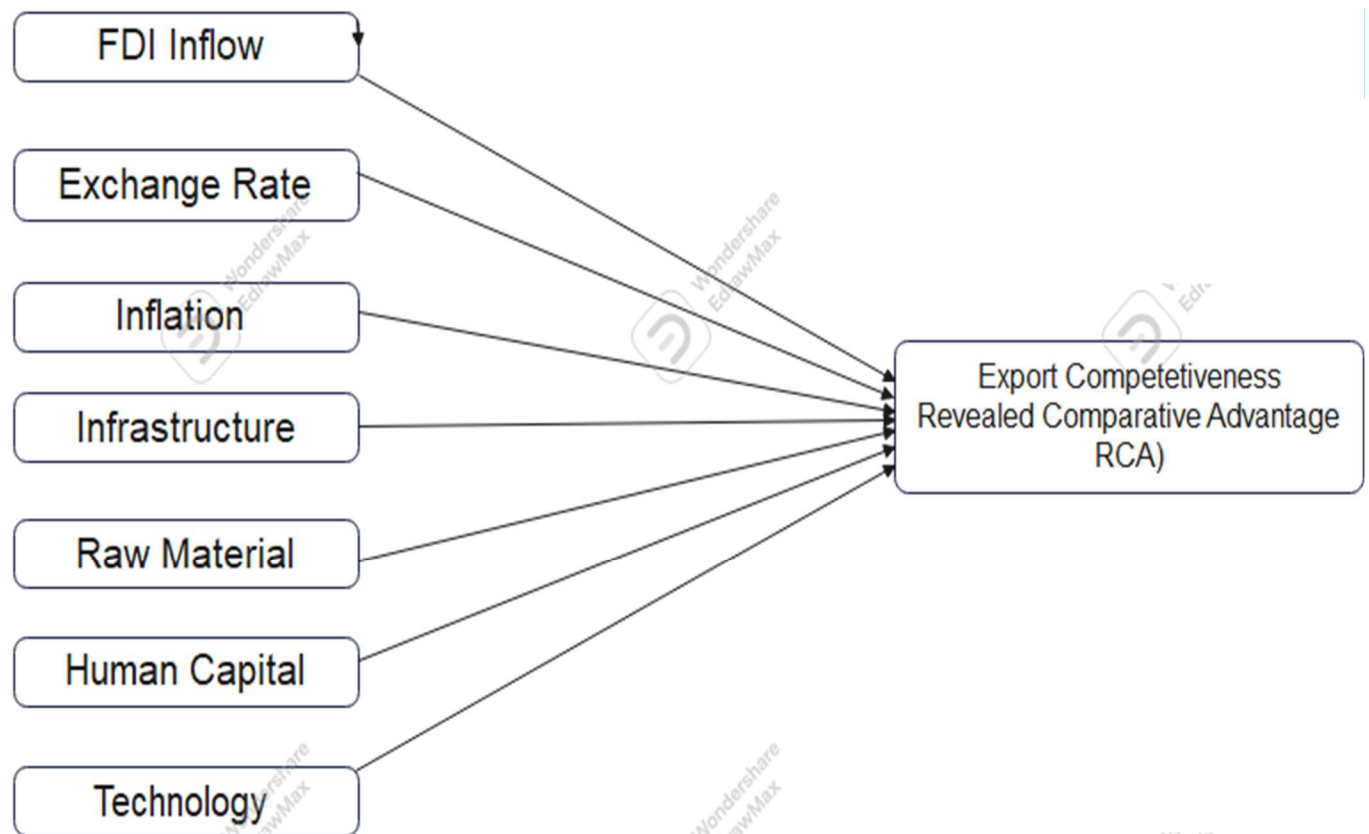
**Exchange Rate:** the rate that one currency exchanges with the other affects export competitiveness. Several literatures indicated that appreciation and depreciation of currency impacts export. Any depreciation of the domestic currency will lead to boosting export competitiveness, on the other hand, the imported input prices affect the cost of production in the country (Tomasz S., & Aldona Z., 2014). Similarly, (Tigist Ibrahim, 2020) argued that the exchange rate has positive and significant effects on textile and garment export performance in the short run. This is because exchange rate depreciation lowers the price of domestically produced goods, leading to an increase in export volume and export returns. However, in the long run, the result would be different because an increase in exchange rate raises the cost of imported goods which discourages firms to cut costs to be competitive in the global market thus forcing productivity to reduce in the long run.

**Information Technology and R&D:** Use of information technology and Research and Development (R&D) also has an impact on export competitiveness (Taneja, 2012). According to (Cieřlik et al. 2014), the use of foreign technology licenses and R&D activities of a firm is positively related to export propensity with some heterogeneity across a different group of countries. Similarly, the use of information technology contributes to the effort of marketing as a means of easy communication, information access and e-commerce. The study suggests that the export performance of firms can be improved through the provision of information technology. (Taneja, 2012; Kongmanilaa & Takahashi, 2009) information technology and R&D have a positive relationship with firms' competitiveness in garment designing and production according to international standards. Firm's export competitiveness also depends on the ability to pay the cost of new technology and adapt to it.

### 2.3. Conceptual Framework of the study

The conceptual framework is used to identify research variables and clarifies relationships among the variables which is linked to the problem statement that helps to show the set of independent variables. Based on the literature above the following framework developed for the study.

Figure 2.1 Conceptual framework



Source: Depicted by the researcher for the study purpose

The above Figure shows the conceptual framework of the study that explains the relationship between dependent and independent variable. In this study, the dependent variable is export competitiveness. The independent variable is the core factors that led to the competitiveness of textile and apparel export and which includes: input, market, business climate, and institutional factors. These factors comprise sub-factors that determine the export competitiveness of the sector.

## **2.4. Identified Literature Gap**

The above-reviewed articles and research papers have the following major gaps; some of the empirical studies mentioned above focus on export performance rather than export competitiveness of the textile and apparel sector in Ethiopia, and also these researches have failure to make a specific conclusion regarding the major determinants of export competitiveness in the textile and apparel sector in Ethiopia. Which is the driving reason to study this topic.



## **Chapter Three:**

### **Research Methodology**

The previous chapter has detailed the literature on export competitiveness and factors affecting the textile sector. Theoretical and empirical reviews were made regarding the subject. This chapter details the economic figures of the study area, the research design, approach, and the type and source of data that is used in the study is described. Furthermore, the procedures that are used to collect and analyze the data to achieve the research objective.

#### **3.1. Research Approach**

The study used both quantitative and qualitative techniques as a research approach. Using both methods helps to ensure the limitations of one type of data are balanced by the strength of other methods and expand understanding of the research problems. The quantitative data for the study was collected from the international organizations and then the collected data then triangulated and validated by primary data collected from interviews. (Choy, L.T 2006), argue that a comparison and complimentary results as references from both separated processes on qualitative and quantitative approaches in the same research topic may reduce or perhaps eliminate those limitations and bias. In addition, there is more insight to gain from the combination of both qualitative and quantitative research than from either of them.

#### **3.2. Research Design**

The study used both descriptive and exploratory research designs. Because exploratory research design allows to gain background information, define the problem more precisely, and formulate the hypothesis. And also, it helps to describe the speculated relationships between dependent and independent variables. Therefore, exploratory research using secondary data analysis and experience surveys gives the information needed to conduct a descriptive study. Since the research purpose is to examine the factors affecting the export competitiveness of textile industry, it is important to explore independent variables and competitiveness as a dependent variable.

As it is indicated above, this study used a mix of quantitative and qualitative approaches. The quantitative approach intends to assess the determinants of export competitiveness in the textile

industry of Ethiopia. Time series analysis techniques are employed in the study to identify the determinant. Besides, the qualitative version of the study is also based on the primary data collected through interviews.

### 3.3. Data sources, Types and Method of Data Collection

The source of data for the study is both primary and secondary. Regarding quantitative analysis, a secondary source of data specific to the sector is already available from the international data source and only be extracted from World Bank, UNCTAD, and WTO. The time period in the analysis cover from 1990 to 2020. The sources of data are presented in the below table.

**Table 3.1** *Data Sources*

Measure	Variable	Data Source
Revealed Comparative Advantage (RCA)	RCA	WTO
Foreign direct investment, net inflows (BoP, current US\$)	FDI inflow	World Bank
Exchange Rate	Exchange Rate	World Bank
Inflation, consumer prices (annual %)	Inflation Rate	World Bank
Mobile cellular subscriptions (per 100 people)	Infrastructure	World Bank
Cotton Production unit in Tones	Raw Material	FAO
Labor force participation rate, total (% of total population ages 15+) (modeled ILO estimate)	Human Capital	World Bank
High-technology exports (% of manufactured exports)	Technology	World Bank

However, to develop strong evidence towards the findings, this study also included primary sources of data obtained through interview. Two Experts from major institutional stakeholders in the sector like ETIDI, MoI, and ETAGMA were selected using purposive sampling techniques for the interview purpose since the researcher believes that they know the subject matter better than others because of their day-to-day contacts with textile and apparel manufacturers. The primary data source obtained from expert interviewing from ETIDI, MOI, and association are important to triangulate the quantitative finding with the view of experts in the sector. Hence, the quantitative data was collected and analyzed early and semi-structured interviews conducted to validate the result.

### 3.4. Description and Measurement of Variable

#### 3.4.1. The Dependent Variable

Country tends to specialize in and trade those commodities in the production of which it has maximum comparative cost advantage or minimum comparative cost disadvantage. These difference in cost results mainly from factor endowments and technology and the competitiveness of a country for a specific commodity is based on the concept of comparative advantage. Many indices developed to measure export competitiveness, among them Revealed Comparative Advantage (RCA) (Balassa, 1965), Reveal Symmetric Comparative Advantage (RSCA), Business Competitiveness Index (BCI), and so on, However, the most empirical research the Balassa index (RCA) is considered to be one of the most outstanding and useful methods to analyzing nation's competitiveness in most emphatical research (Irsahd & Xin, 2017).

In this study, the competitiveness of Ethiopia in its export of textile is measured by the Revealed Comparative Advantage. This dependent variable is going to be explained by the explanatory variable below.

#### 3.4.2. Explanatory Variable

**Infrastructure:** infrastructure plays a key role in market connectivity and trade promotion while the lack of infrastructure disrupts markets and retards trade. (Kennedy K. 2007. Poor infrastructure is a major impediment to trade, co006Dpetitiveness and sustainable development in most African countries, particularly landlocked countries like Ethiopia face high transport costs as they have to cross transit countries with poor infrastructure (Kennedy K. 2007).

**Raw Material:** the sub-sector is facing a serious challenge in the supply of quality local input due to inefficiencies in textile fabrics, yarns, trims, and accessories supply capacity of domestic manufacturers resulting from primitive production techniques and technologies (Hailemariam, 2018).

**Labor Cost & Productivity** is the major determinant that indicates the value-added per unit of labor cost. Labor cost in manufacturing includes payments of wages and salaries and non-wage payments such as commission, bonuses, and allowances for food, medicine and the like (Tsegay

G. et al. 2018). It is found that theoretically, a decrease in labor cost increases export competitiveness and vice versa. A country where the labor cost is higher will have less attractiveness for exporters (Dhiman & Sharma, 2017).

**Exchange Rate:** the rate that one currency exchanges with the other affects export competitiveness. Several studies indicated that appreciation and depreciation of currency impact export. Any depreciation of the domestic currency will lead to boosting export competitiveness, on the other hand, the imported input prices affect the cost of production in the country (Tomasz S., & Aldona Z., 2014).

**Inflation:** Inflation shows a consistent rise in the average price level. High inflation rates do not encourage higher savings as people shift their resources into real assets to escape the loss of monetary value. When prices of raw materials and commodities increase steadily manufacturers get into difficulties in sourcing raw materials so it is expected that there is a negative relationship between inflation and export competitiveness (Abeynanda, 2017).

**Information Technology and R&D:** (Cieřlik et al. 2014) found that the use of foreign technology licenses and R&D activities of a firm is positively related to export propensity with some heterogeneity across a different group of countries. The study suggests that the export performance of firms can be improved through the provision of information technology. (Taneja, 2012)

### **3.5. Data Analysis Methods**

In addition to the primary source of data, the study used secondary data for quantitative analysis that is collected from different sources including the Ethiopia Customs Authority, Ministry of Industry, World Bank, WTO and other sources. After the raw data is collected, it is converted into a suitable form for analysis and interpretation. This is achieved through sequences of activities including editing, coding, entry, and tabulation using EView (V. 10). The objective has to check the completeness, internal consistency, and appropriateness of the data to each of the variables. This study employed RCA and statistical analysis to identify the factors that affect the export competitiveness of textile export.

## Revealed Comparative Advantage

Balassa (1995), strengthen the concept of competitiveness by introducing the notion of Revealed Comparative Advantage. The study employed Revealed Comparative Advantage (RCA) to check the textile and apparel export competitiveness of Ethiopia. Since, RCA is used to evaluate whether a certain country has trade potential and comparative advantages in the exports of a given commodity with regard to a certain group of countries (Hadzhiev, 2014). After (Balassa, 1965) proposed the first use of Revealed Comparative Advantage (RCA), it gained a general acceptance and has been used in numerous academic publications like (Benedictis & Tamberi, 2001, Yusuf M. & Gonul M., 2016, and Tigist I. 2020) to measure international trade competitiveness and determine specialization based on historical data and to capture production specialization.

Therefore, RCA data can therefore be used as a measure of competitive performance since it is not hard to calculate the value because the model assumes that the commodity pattern of trade reflects inter-country differences in relative costs as well as in non-price factors. As the RCA index is based on trade data, it can be calculated yearly and trends in competitiveness in a sector or industry can be identified.

The index is interpreted as a measure of the specialization in exports of an economy with regard to certain commodities and can be compared with competing countries (Hadzhiev, 2014).

The original expression of the (Balassa, 1965) index is as follows:

$$RCA_{ij} = (X_{ij}/X_{it}) / (X_{wj}/X_{wt})$$

Where,  $RCA_{ij}$  represents the RCA of a given country  $i$ ,

$X_{ij}$  represents the export volume of product  $j$  in country  $i$ ,

$X_{it}$  represents the total export volume of country  $i$ ,

$X_{wj}$  represents the export volume of product  $j$  of the world and

$X_{wt}$  represents the total export volume of the world.

The RCA index is defined as the ratio of two shares. The numerator is the share of a country's total export quantity of the commodity of interest in its total export volume. The denominator is the share of world exports quantity of the same commodity in total world exports volume. When a country has a revealed comparative advantage for a given product ( $RCA > 1$ ), it is inferred to be

a competitive producer and exporter of that product relative to a country producing and exporting that good at or below the world average. A country with a revealed comparative advantage in the product  $i$  is considered to have an export strength in that product. The higher the value of a country's RCA for product  $i$ , the higher its export strength in the product  $i$ . According to (ITC 2016), the Revealed Comparative Advantage of a specific country in the trade of a given industry's products measures the industry's share in the country's exports relative to the share in world trade.

### **The Revealed Symmetric Comparative Advantage**

The adjusted form of RCA, which is the Revealed Symmetric Comparative Advantage is the other measure of competitiveness used for international trade. (Laursen, 2015) argue that the RCA should always be made symmetric for econometric analysis applications because the index ranges from zero to 1 if a country is categorized as not specialized in a given sector, and ranges from 1 to infinity if a country is specialized. This implies that using the non-adjusted RCA in statistical analysis gives much more weight to values above 1 compared to observations below 1.

The study by (Benedictis & Tambari, 2001) also noted that the pure RCA has a problem in regression analysis since it lacks normality in its distribution because it takes values between zero and infinity with a weighted average of 1.0. A skewed distribution is likely to violate the assumption of normality of the error term in regression analysis and to produce unreliable t-statistics. Since the RSCA measure is less skewed, the study used RSCA for regression analysis. The value calculated as;

$$\mathbf{RSCA = (RCA - 1) / (RCA + 1)}$$

Where RSCA, ranges from [-1 to +1]. The closer the value is to +1, the higher the competitiveness of a country in the commodity of interest.

### 3.6. Model Specification

One of the objectives of the study is to examine the effect of alternative variables on the export competitiveness of the textile industry. Thus, the study used Autoregressive Distributed Lag (ADRL) model of (Pesaran et al,2001). ADRLs are standard least squares regression includes lags of both the dependent variables and explanatory variables as regressors (Greene, 2008). In this models both dependent and independent variables are related not only contemporaneously but across historical (lagged) value as well. The model preferred since it doesn't necessarily require all the variables to be integrated of the same order. It is possible to be applied when the variables are integrated of order one I (1) or integrated of order zero I (0). The model is also more efficient when applied in small and finite data sizes.

Since the data set is a time series, stationarity of the variables is essential to evade spurious regression because if the time series is non-stationary, the regression result will lead to incorrect conclusion. In order to check for the stationarity in the model, a unit root test on the residuals from the regression has been conducted by using Augmented Dickey Fuller (ADF) test. Furthermore, the study tested for co-integration and causality using the Autoregressive Distributed Lagged Model (ARDL). The analysis of these tests then helped us to know the impacts of factors affecting the export competitiveness of the textile and apparel industry.

To examine the determinants of export competitiveness, the study has employed ARDL model to analyze the factors. Based on the various studies conducted on the topic, different variables have been identified as variables. but for this paper, the adjusted RCA index which is RSCA used as a dependent variable which is explained by alternative variables which include FDI inflow, human capital, technology and R&D, exchange rate, infrastructure, and others. The mathematical description of the model is as described below;

$$\mathbf{RSCAt = F [FDIint, ExRt, Infrat, RowMt, Techt, InRt, HuCapt]}$$

Where,

RSCAt = Revealed Symmetric Comparative Advantage at time t

ROWMt = Raw Material (lint cotton in tons) at time t

EXRt = Exchange Rate of Birr in terms of USD at time t

TECH<sub>t</sub> = Technology at time t

INR<sub>t</sub> = Inflation Rate at time t

INFRA<sub>t</sub> = Infrastructure at time t

HUCAP<sub>t</sub> = Human Capital at time t

FDIIN<sub>t</sub> = Foreign Direct Investment at time t

Since the estimated coefficients of log-linear regression produces better for interpretation than the linear form of the model. The above expression is rewritten into log-log form of an equation which is going to be estimated in the proceeding sections.

$$\begin{aligned} \text{LnRSCAt-1} = & \beta_0 + \beta_1 \text{LnFDIINt-1} + \beta_2 \text{LnEXRt-1} + \beta_3 \text{LnINRt-1} + \beta_4 \text{LnRAWMt-1} \\ & + \beta_5 \text{LnINFRAt-1} + \beta_6 \text{LnTECHt-1} + \beta_7 \text{LnHUCAPt-1} + \varepsilon \end{aligned}$$

Where,  $\varepsilon$  the error term and others are log-form of the variables, the coefficients  $\beta_1$ -  $\beta_7$  are the marginal effect of the explanatory variable on the export competitiveness, therefore, the signs of those coefficients really matter to identify the direction of their relationship with the export competitiveness.

### 3.7. Ethical Consideration

The study was conducted in a very professional and ethical manner. Respondents were clearly informed about the purpose of the study using an official letter from the university and they also informed that their participation in the study was entirely dependent on their willingness. All confidential information received from institutions are maintained confidential during the study and didn't disclose in any means. Finally; all the reference and materials used for the study were acknowledged with proper citations.



# CHAPTER FOUR

## RESULTS AND DISCUSSION

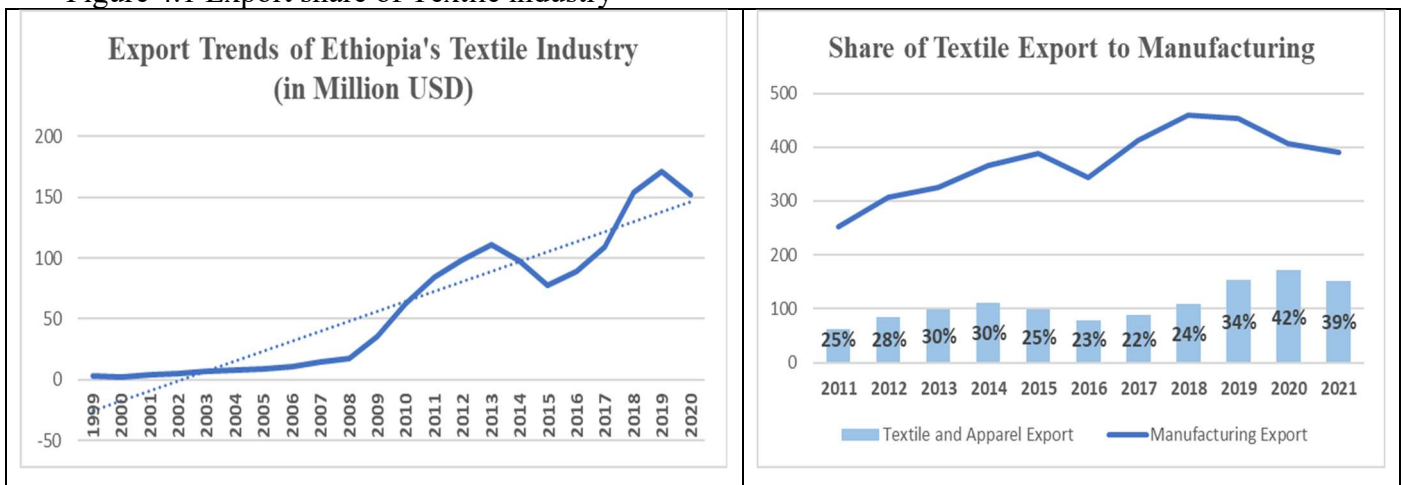
In this chapter, the results and discussion part of the study have been presented in different parts in line with the research questions and hypothesis. The first part focuses on the quantitative statistical analysis of the dependent and independent variables with the discussion of its output including the mean and standard deviation. In the second section, correlation analysis and its discussion of the correlation coefficient were carried out. In the last section of the chapter, multiple regression was run and its outputs were discussed, and also testing of hypotheses was presented. Finally, findings from expert interviews are presented in a separate section. To analyze the collected data in line with the overall objective of the research undertaking, statistical procedures were carried out using EView 10.

### 4.1 Competitiveness of Ethiopian Textile industry

#### 4.1.1 Revealed Comparative Advantage (RCA)

As RCA measures indicate relative strength and international specialization by analyzing international trade patterns, it is important to see the export performance of the textile industry before proceeding to RCA analysis. As shown in the below figure, the export of textile industry shows a sharp rise during the study period indicating the success story of textile industry with the average annual growth rate of 25%.

Figure 4.1 Export share of Textile industry



Source, ETIDI, ITC and own calculation

The maximum export earnings of this industry had been recorded in the year 2019/20 with the value of 172 million USD. As it is also shown above, the export share of textile industry to the total manufacturing export shows only slight change at the average of 29% in the last 10 years. This indicates that the overall export performance and the export earning of the textile industry had been increasing even if the share to the total manufacturing export earning shows only slight change.

As it is detailed in previous chapters, RCA measure indicates a relative strength and international specialization by analyzing international trade patterns. The values of the measure imply the strength of a country in exporting specific commodities. The study conducted RCA index analysis for Ethiopia and other best practicing developing countries in the sector. As discussed in the previous section, a country is considered to be specialized or competitive producer and exporter when a country's RCA has a higher value ( $RCA > 1$ ) for a given product.

Table 4.1 Revealed Comparative Advantage

Revealed Comparative Advantage (RCA)								
	Bangladesh	China	Ethiopia	India	Kenya	Madagascar	South Africa	Vietnam
1991	12.14	4.38	0.25	3.89	0.27	1.50	0.20	2.65
1992	11.60	3.75	0.18	4.02	0.22	1.05	0.53	2.67
1993	10.73	3.70	0.08	3.79	0.32	2.07	0.54	2.51
1994	9.83	3.45	0.24	3.99	0.09	3.02	0.49	2.70
1995	11.39	3.26	0.57	4.14	0.38	3.21	0.49	2.76
1996	11.75	3.21	0.19	4.07	0.37	4.34	0.46	2.71
1997	12.46	3.01	0.17	4.35	0.74	5.22	0.44	2.79
1998	12.70	2.80	0.13	4.14	0.61	5.66	0.45	2.55
1999	13.46	2.89	0.18	4.16	0.69	6.65	0.48	2.98
2000	14.38	2.96	0.26	4.22	0.80	7.29	0.45	2.52
2001	14.28	2.83	0.40	3.98	0.88	7.50	0.41	2.27
2002	14.73	2.61	0.84	3.84	1.45	5.33	0.44	2.92
2003	15.51	2.56	1.06	3.66	1.89	5.97	0.47	3.67
2004	17.07	2.50	0.82	3.54	2.50	8.26	0.42	3.57
2005	18.21	2.67	0.40	3.62	2.32	10.94	0.33	3.41
2006	19.93	2.70	0.54	3.78	2.92	11.90	0.31	3.82
2007	21.09	2.70	0.70	3.59	2.13	12.99	0.30	4.27
2008	22.98	2.86	0.58	3.45	1.71	13.49	0.26	4.45
2009	21.13	2.78	0.49	3.35	1.45	10.79	0.29	4.44

<b>2010</b>	22.56	2.71	0.67	3.33	1.60	8.59	0.29	4.66
<b>2011</b>	23.28	2.72	1.02	3.23	1.37	6.76	0.25	4.71
<b>2012</b>	24.48	2.67	1.00	3.29	1.35	7.93	0.25	4.10
<b>2013</b>	24.27	2.60	1.35	3.35	1.79	7.48	0.26	4.24
<b>2014</b>	21.14	2.45	1.09	3.30	1.51	6.51	0.25	4.25
<b>2015</b>	21.77	2.22	1.02	3.34	2.01	6.07	0.26	3.66
<b>2016</b>	19.14	2.23	1.05	3.07	2.13	6.01	0.26	3.49
<b>2017</b>	20.11	2.10	1.40	3.05	2.15	5.47	0.30	3.40
<b>2018</b>	21.34	2.10	2.23	3.16	2.32	5.79	0.26	3.62
<b>2019</b>	20.93	2.17	1.61	2.85	2.85	6.23	0.24	3.46
<b>2020</b>	19.67	2.15	1.56	3.03	2.36	5.88	0.27	3.49

*Source: Author own calculations based on WTO database 2022*

The above table indicates the trend of the RCA index for the export of textile and clothing, the trends show that the value of Ethiopia's RCA is improving and becomes greater than one in the past decade. Other competitors also have revealed comparative advantage in the sector except for South Africa, which indicates that all of these countries are more specialized in exporting textile products but for South Africa.

The above RCA pattern also revealed that the textile sector of Ethiopia is experiencing an increasing comparative advantage especially in the last ten years. As discussed in the literature review section, the textile and apparel export become one of the top manufacturing exports in the last decade due to successive government policies that encourage export-focused manufacturing industries. Thus, the increasing trends of Revealed Comparative advantage in textile industry is expected.

However, as compared to Bangladesh, India, Vietnam, and China. Ethiopia could learn best practices more from this country since they are top world textile and clothing exporter. The RCA index of Madagascar and Kenya also are higher than Ethiopia and have a bigger figure in RCA results too. But one needs to consider that RCA is the export share of a product of one country in the total export of the world relative to the country's export share in the world of all products, the increasing trend of Ethiopia's RCA shows that the textile sector has a potential to specialize and competitive in exporting textile products.

### 4.1.2 Revealed Systematic Comparative Advantage

Further to RCA, the study has also undertaken an RSCA analysis to investigate the export competitiveness of textiles. The value of RSCA ranges from -1 to +1. The closer the value is to +1, the higher the competitiveness of a country in the commodity of interest. The index of RSCA for Ethiopia is between -1 and 0 during the 1990s and 2000s however, in the last ten years the negative trend of RSCA reverted to positive indicating that Ethiopian textile export moving to hold a comparative advantage in the world market.

Table 4.2 Revealed Symmetric Comparative Advantage

Revealed symmetric comparative advantage (RSCA)								
	Bangladesh	China	Ethiopia	India	Kenya	Madagascar	South Africa	Vietnam
1991	0.85	0.63	-0.60	0.59	-0.58	0.20	-0.67	0.45
1992	0.84	0.58	-0.70	0.60	-0.65	0.02	-0.31	0.46
1993	0.83	0.57	-0.85	0.58	-0.52	0.35	-0.30	0.43
1994	0.82	0.55	-0.62	0.60	-0.83	0.50	-0.34	0.46
1995	0.84	0.53	-0.27	0.61	-0.45	0.52	-0.34	0.47
1996	0.84	0.52	-0.69	0.61	-0.46	0.63	-0.37	0.46
1997	0.85	0.50	-0.71	0.63	-0.15	0.68	-0.39	0.47
1998	0.85	0.47	-0.77	0.61	-0.24	0.70	-0.38	0.44
1999	0.86	0.49	-0.69	0.61	-0.18	0.74	-0.35	0.50
2000	0.87	0.49	-0.59	0.62	-0.11	0.76	-0.38	0.43
2001	0.87	0.48	-0.43	0.60	-0.06	0.76	-0.42	0.39
2002	0.87	0.45	-0.09	0.59	0.18	0.68	-0.39	0.49
2003	0.88	0.44	0.03	0.57	0.31	0.71	-0.36	0.57
2004	0.89	0.43	-0.10	0.56	0.43	0.78	-0.41	0.56
2005	0.90	0.46	-0.43	0.57	0.40	0.83	-0.50	0.55
2006	0.90	0.46	-0.30	0.58	0.49	0.84	-0.53	0.59
2007	0.91	0.46	-0.18	0.56	0.36	0.86	-0.54	0.62
2008	0.92	0.48	-0.27	0.55	0.26	0.86	-0.59	0.63
2009	0.91	0.47	-0.34	0.54	0.18	0.83	-0.55	0.63
2010	0.92	0.46	-0.20	0.54	0.23	0.79	-0.55	0.65
2011	0.92	0.46	0.01	0.53	0.16	0.74	-0.60	0.65
2012	0.92	0.46	0.00	0.53	0.15	0.78	-0.60	0.61
2013	0.92	0.44	0.15	0.54	0.28	0.76	-0.59	0.62
2014	0.91	0.42	0.04	0.53	0.20	0.73	-0.60	0.62
2015	0.91	0.38	0.02	0.54	0.34	0.72	-0.59	0.57
2016	0.90	0.38	0.02	0.51	0.36	0.71	-0.59	0.55
2017	0.91	0.35	0.17	0.51	0.37	0.69	-0.54	0.55
2018	0.91	0.35	0.38	0.52	0.40	0.71	-0.59	0.57
2019	0.91	0.37	0.23	0.48	0.48	0.72	-0.61	0.55
2020	0.90	0.37	0.22	0.50	0.41	0.71	-0.58	0.55

*Source: Author own calculations based on WTO database 2022*

## 4.2 Statistical Analysis

### 4.2.1 Statistical Summary

In this section, a detailed descriptive statistical summary is carried out before proceeding into the main analysis. The descriptive analysis helped to describe relevant aspects of phenomena of export competitiveness and provide detailed information about each relevant variable. EViews software has been used for the analysis of the different variables in this study. Descriptive statistics show the mean and standard deviation of all variables used in the study. It also presents the minimum and maximum values of the variables, which help in getting a picture of the maximum and minimum values of a variable. Data on the targeted dependent and independent variables was observed for the period 1991-2020. The descriptive summary of these variables“ which includes the mean, std. dev., min/max values of these variables for that period is shown as follows.

Table 4.3: Summary of descriptive statistics of variable

	RCA	FDIIN	EXR	HUCAP	INFRA	INR	PCT	RAWM	TECH
<b>Mean</b>	0.729368	2.309467	12.82093	80.32033	11.80002	11.1814	19.01218	25845.83	3.680928
<b>Median</b>	0.625	2.189061	8.682529	80.8975	0.82104	9.018618	17.819	20000	1.651851
<b>Maximum</b>	2.23	5.576213	34.92717	82.02	49.44236	44.39128	23.534	48000	16.32191
<b>Minimum</b>	0.078717	0	2.07	77.522	0	-8.48425	16.624	10000	0.126411
<b>Std. Dev.</b>	0.529513	1.816568	8.336772	1.454208	16.66056	11.52674	2.354823	12219.78	4.571632
<b>Skewness</b>	0.88203	0.281225	1.002669	-0.72925	0.983325	0.999726	0.91959	0.453167	1.312965
<b>Kurtosis</b>	3.360479	1.815394	3.119879	2.051684	2.31806	4.321756	2.171121	1.708391	3.816946
<b>Jarque-Bera</b>	4.052318	2.149553	5.044693	3.783184	5.415941	7.181063	5.087028	3.112118	9.453632
<b>Probability</b>	0.131841	0.341374	0.080271	0.150831	0.066672	0.027584	0.07859	0.210966	0.008855
<b>Sum</b>	21.88105	69.28401	384.6279	2409.61	354.0007	335.4421	570.3653	775375	110.4278
<b>Sum Sq. Dev.</b>	8.131139	95.6977	2015.551	61.32689	8049.656	3853.106	160.8106	4.33E+09	606.0948
<b>Observations</b>	30	30	30	30	30	30	30	30	30

Source: Researcher computation using EViews 10

As shown in the table above, the study had 30 observations from 1991 to 2020. It included one dependent variable RSCA and seven independent variables (Exchange rate, Inflation rate, FDI inflow, Human capital, Raw material, Technology, and infrastructure). According to WTO data, the volume of textile and clothing export ranges from a minimum of 1 million dollars in 1993 to 171 million USD in 2019, of this value 75% increase mainly shown during the last ten (2011-2020) years. This descriptive analysis also details that during the observation years the RSCA value ranges from -0.85 in 1993 to 0.38 in 2018 with a mean of -0.25. This figure indicates that the country's comparative advantage is in the increasing trend for the product over the specified periods of time. The annual inflow of FDI (as a percentage of GDP) ranges from the minimum of 0.00 to the maximum of 5.57 in 1991 and 2016 respectively, the average inflow of FDI (as a percentage) is 2.30 and each observation is deviated from this average by the value of 1.81.

#### **4.2.2 Unit Root (Stationarity) tests**

Before conducting regression on the determinants, it is necessary to check all the variables whether the time series is non-stationary using the 'Unit Root Test' because if the time series is non-stationary, the regression result will lead to incorrect conclusion. In most cases, economic variables are non-stationary at their level. However, in a few circumstances, those time series data set can be stationary. Any time series whose mean and variance do not change with time is stationary series. (Nason, 2006) clarify that the way that mean and variance change does not itself change over time. That is if both mean and variance are not varying over time and if the correlation coefficient of a variable and their lagged variables depends on the lag lengths, then the time series is said to be stationary time series. Otherwise, if either of the above properties is violated, that is, if either mean and variance change with time then the series is non-stationary.

If a non-stationary variable is being regressed on another non-stationary dependent variable, the result will lead us to a spurious regression (M. Verbeek, 2004). Hence, if the series is non-stationary, it could be converted into stationary using differencing. Differencing helps to stabilize the mean of time series by removing changes in the level of time series, and therefore eliminating or reducing trends.

In testing the unit root test, researchers can use ADF-test, PP tests, KPSS tests, and other non-stationary test types. In this study, the researcher used Augmented Dickey-Fuller (ADF) test to check the stationarity of the variables.

**Table 4.4: Unit Root Test**

Variables	Level		1st Difference	
	P-Value (with constant)	P-Value (with constant & trend)	P-Value (with constant)	P-Value (with constant & trend)
RSCA	0.6516	0.0152	0.0061	0.0326
EXR	0.9997	0.6639	0.3821	0.0251
INR	0.0021	0.1871	0.0000	0.0000
FDIIN	0.1211	0.3035	0.0000	0.0002
INFRA	0.9838	0.9607	0.2388	0.0014
RAWM	0.4219	0.0295	0.0004	0.0235
TECH	0.0398	0.0005	0.0001	0.0004
LABFOR	0.4469	0.0130	0.4471	0.9913

H0: There is a unit root (series is non-stationary) H1: The series is stationary

Source: Researcher computation using EViews 10

The above table details ADF test of stationarity. Here the rule of thumb is to reject the null hypothesis if the probability value is less than or equal to 5%. As a result, most of the variables are found non-stationary at their level after being transformed into logarithmic form. Therefore, regressing the non-stationary variables on some non-stationary variables will not help us to investigate the determinants of export competitiveness. As a result, differencing the variables is the remedy to convert them into stationary data. Variables should be continuously differenced until they are found to be stationary. In line with this, all the variables have become stationary after differencing them at first difference with the exception of the LABFOR (Human Capital) which is stationary at level.

### 4.2.3 Co-integration test

Next to the unit root test, it is important to estimate whether there is a long-run cointegration relationship between dependent and independent variables by using the Autoregressive Distributive Lag Approach (ARDL) approach to cointegration. The co-integration test is examined against the null hypothesis of there is no long-run relationship between RSCA and independent variables. This test for the long-run relationship is done using the F-statistic. As the critical value bounds for F-test are computed by Pesaran et al (1997), All variables are included in the calculation of F-statistics for the cointegration test. The bound test is depicted in the table below.

Table 4.5 ARDL Long Run Form and Bounds Test (ADF Test)

ARDL Long Run Form and Bounds Test  
 Dependent Variable: D(RSCA, 2)  
 Selected Model: ARDL(2, 2, 2, 2, 2, 2, 2)  
 Case 5: Unrestricted Constant and Unrestricted Trend  
 Included observations: 27

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	8.416736	10%	2.38	3.45
K	7	5%	2.69	3.83
		2.5%	2.98	4.16
		1%	3.31	4.63

As it is indicated in the table above the bound test of F-statistics is 8.4167 and it is higher than the upper bound critical value of 4.6, 4.16, and 3.83 given at 1%, 2.5%, and 5% significance level respectively. This implies the null hypothesis of no cointegration is rejected and thereby the existence long-run relationship between export competitiveness and its determinant included in the model was confirmed.



#### 4.2.4 ARDL Long run result analysis

The long-run coefficient of the variables, estimated using the ARDL model shows the long-term effect of foreign direct investment inflow, exchange rate, inflation rate, infrastructure, technology, and human capital on textile export competitiveness. The optimum lag of the model is selected based on the Akaike Information Criterion (AIC) method.

Table 4.6 Long Run Coefficients

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDIIN)	0.175302	0.058823	3.280159	0.0089
D(EXR)	-0.207819	0.106738	-1.946994	0.0309
D(INR)	-0.022972	0.012369	-1.940251	0.0025
D(INFRA)	1.096402	0.426582	3.626581	0.0003
D(TECH)	3.401005	0.019085	2.379075	0.0104
D(RAWM)	0.045404	1.901105	2.190421	0.0053
LABFOR	3.360107	1.891108	4.253720	0.0411
$EC = D(RSCA) - (0.1753*D(FDIIN) - 0.2078*D(EXR) - 0.0229*D(INR) + 1.0964 *D(INFRA) +.4010*D(TECH) + 0.04543*D(RAWM) + 3.3601*LABFOR )$				

For easier interpretation, we can rewrite the long-run equilibrium relationship as follows:

$$EC = D(RSCA) - (0.1753*D(FDIIN) - 0.2078*D(EXR) - 0.0229*D(INR) + 1.0964*D(INFRA) + 3.4010*D(TECH) + 0.0454*D(RAWM) + 3.3601*LABFOR )$$

The above table shows that the long-run equilibrium equation shows that foreign direct investment inflow, infrastructure, technology and human capital have a significant and positive effect on textile the export competitiveness of the textile industry. Whereas as Inflation and exchange rate, and raw material has a significant but negative effect on export competitiveness of the textile industry.

In this study, the decision rule to reject the null hypothesis and accept the alternative one based on the T-statistic value. When the T-statistic value is equal to or less than two, reject the null hypothesis and accept the alternative. If T-statistic is more than two, we accept the null hypothesis and reject the alternative hypothesis The hypotheses tested are presented below:

**Foreign direct investment:** here the whether to accept or reject the null hypothesis (Ho) while H1 is

H1: Foreign Direct investment inflow has a significant positive impact on textile export competitiveness in Ethiopia.

We accept the H1 hypothesis since the regression result shows that FDI inflow has a significant positive effect on the export competitiveness of the textile industry in the long run. As shown above the absolute value of the t-statistics is greater than two i.e. 3.28015. The beta coefficient of this variable is 0.175302. it indicates FDI inflow has a significant positive long-run causal relationship with the export competitiveness of textile industry. this means one value increase in FDI inflow will result in 0.175302 increase in export competitiveness. This is because foreign direct investment provides technology, equipment and skills in addition to the capital investment that uptick productive capacities of exporters. Furthermore, FDI facilitate faster economic growth; produce externalities in form of employment, technology transfers, skills to local industry. This indicates that Foreign Direct Investment has contributed positively to the improvement of textile and garment export competitiveness. The result is consistent with the findings of (Tigist I. 2020, and Hailemariam S., 2018) who have found a positive association between FDI and textile and garment export performance.

**Exchange rate:** here the whether to accept or reject the null hypothesis (Ho) while H1 is

H1: Exchange rate has a significant negative impact on textile export competitiveness in Ethiopia

We do not reject the Ho hypothesis since the regression result shows that exchange rate has significant negative effect on export competitiveness. Because of the t-statics value. of this variable is -1.946994 which is less than two. It indicates exchange rate affects the export competitiveness in the long run significantly. The beta coefficient of this variable is -0.207819 which indicates there is a negative long-run causal relationship between the two variables. It indicates one value increase in exchange rate will result in a -0.207819 reduction of the export competitiveness of textile

An increase in the exchange rate mostly affects the tradable sector positively, but the depreciation of exchange rate affects the Ethiopian textile and apparel export competitiveness negatively. The

result is consistent with (Yared M. 2010) who further details the possible reason for this result. The unusual discouraging effect of exchange rate on the textile industry's export might be due to the reliance of Ethiopian textile and apparel industry on imported raw material, the low productivity of the sector and poor backward linkage.

**Inflation rate:** here the whether to accept or reject the null hypothesis (Ho) while H1 is

H<sub>1</sub>: Inflation has significant negative effect on textile export competitiveness in Ethiopia

We reject the Ho hypothesis since the regression result shows that inflation has a significant and negative effect on export competitiveness in the long run because the absolute value of the t-statics shown in the long-run equation model is less than two i.e. -1.940251. The beta coefficient of this variable is -0.022972 which indicates inflation has a negative and significant causal relationship with export competitiveness in the long run. Because High inflation results in economic instability as it erodes the living standards. High inflation tended to be associated with low exports because it makes domestic goods more expensive to foreigners. Inflation also result currency depreciation as compared to other countries with lower inflation. This study has a similar result with ((Tigist I. 2020, Yerkebulan A. and Mansur M., 2017)

**Infrastructure;** here the whether to accept or reject the null hypothesis (Ho) while H1 is

H<sub>1</sub>: There is positive relationship between infrastructure development and export competitiveness of textile industry in Ethiopia.

We do reject the Ho hypothesis since the regression result shows that infrastructure has a positive and significant effect on the export competitiveness as expected. The beta coefficient of this variable is 1.096402. It indicates one value increase in infrastructure will result in a 1.096402 increase of export competitiveness of textile. In other words; a 1 percent increase in infrastructure can cause a 1.096402 percent increase in export competitiveness of textile industry. The result is consistent with (Yusuf M. & Gonul M., 2013, and Tigist I. 2020). Better infrastructure increase cost and efficiency in business operation.

**Technology:** here the whether to accept or reject the null hypothesis (Ho) while H1 is

H<sub>1</sub>: There is a positive and significant relationship between technology and export competitiveness of textile industry in Ethiopia.

We do reject the Ho hypothesis since the regression result shows that technology has contributed positively to the export competitiveness of Ethiopia's textile industry. The beta coefficient of this variable is 3.4010. It indicates a 1 percent increase in infrastructure can cause a 3.4010 percent increase in export competitiveness of textile industry. The result is consistent with (Yusuf M. & Gonul M., 2013).

**Raw Material:** here the whether to accept or reject the null hypothesis (Ho) while H1 is

H<sub>1</sub>: There is a positive and significant relationship between raw materials and the export competitiveness of the textile industry in Ethiopia.

We do reject the Ho hypothesis since the regression result shows that raw material has positively contributed to the export competitiveness as indicated by t-statistics value which is higher than two 2.190421. The beta coefficient of this variable is 0.045404. It indicates one value increase in raw material will result in a 0.045404 increase in export competitiveness of textile. In other words; a 1 percent increase in raw material can cause a 0.045404 percent increase in export competitiveness of textile industry.

**Human Capital:** here the whether to accept or reject the null hypothesis (Ho) while H1 is

H<sub>1</sub>: There is a positive and significant relationship between human capital and the export competitiveness of textile industry in Ethiopia.

Reject the Ho hypothesis since the regression result shows that human capital has a significant positive effect on the export competitiveness; because the t-statics value of this variable is 4.253720 which is less than two. It indicates human capital affects the textile and garment export performance in the long run significantly. The beta coefficient of this variable is 3.36 which indicates there is a positive long-run causal relationship between human capital and export competitiveness. This means a one percent increase in human capital can cause a 3.36 percent

increase in export competitiveness. This result is consistent with the findings of (Thomas, 2004; (Bergstrand, 1985 and Aggarwal, 2004).

#### 4.2.5 ADRL short-run result analysis

Once the long-run model is obtained and estimated the coefficients, estimation of coefficients of the short-run dynamics is important to link and gradually correct the deviation from the long-run model through an error correction mechanism. So, the error correction model has been estimated using the ADRL technique. The sign and coefficient of the error correction term indicate the direction and speed of adjustment of the dependent variable towards its long-run steady-state path.

The below table shows the short-run dynamic coefficients of the independent variables. The “D” in each variable indicates the difference operator or change in the variable.

Table 4.7 Short-Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
D(FDIIN(-2))	0.078034	0.032284	2.417155	0.0169
D(EXR(-2))	0.125664	0.065164	2.198423	0.0293
D(INR(-2))	0.017193	0.013222	3.300287	0.0432
D(INFRA(-2))	0.064185	0.019851	3.233355	0.0838
D(TECH(-2))	0.055039	0.017673	3.114271	0.0095
D(RAWM(-1))	5.782305	1.602105	3.414902	0.0461
LABFOR(-2)	7.530326	1.731206	4.376057	0.0485
C	-5.678107	1.659693	-3.421180	0.0358
@TREND	0.399418	0.123375	3.237425	0.0083
R-squared	0.978850	Mean dependent var		0.039630
Adjusted R-squared	0.725050	S.D. dependent var		0.180117
F-statistic	3.856774			
Prob(F-statistic)	0.006262			

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

The above ARDL estimates short-run dynamic coefficient also indicates that the independent variables have also a significant impact on the export competitiveness of textile industry in Ethiopia.

FDI inflow, raw material, labor force and technology have a significant and positive effect on the export competitiveness of textile industry, which is similar to the long-run regression estimation result. The short-run model also revealed that inflation rate and exchange rate have a statistically

significant and positive effect on export competitiveness of textile in the short run. The coefficient is 0.12 and 0.01 which shows that exchange rate and inflation rate has a significant positive causal relationship in the short run. Meaning a unit percentage increase in exchange rate leads the competitiveness of textile industry to increase by 0.12 percent and also a unit percentage increase in inflation rate leads 0.01 percent increase in export competitiveness.

The model is also a well-fitted model, the explanatory power of the model as measured by R<sup>2</sup> is 0.97 which implies that 97 % of the variation in textile and garment export is explained by independent variables.

#### 4.2.6 Model Diagnostic Tests

Before drawing conclusions from the estimated regression model, it is important to perform a relevant diagnostic test to verify the validity of the regression model. Diagnostic tests are required to verify the reliability of the estimated coefficients so that, there may be a need for model restructuring depending on the results of the diagnostics. The test conducted in this study includes serial correlation. Heteroscedasticity, normality test and model stability are conducted to ensure that the important assumptions of the ARDL estimates are not violated. The results of these tests are presented in the appendix section and the summary of the results are presented below:

Table 4.8 Model Diagnostic Test Summary

Test statistics	Test carried out	Null hypothesis	F-statistics	value p-	Conclusion
Normality	Jarque-Bera test	Residuals normally distributed	1.061	0.58	Fail to reject Null hypothesis
Serial correlation	Breusch-Godfrey test	No serial correlation	0.655	0.23	Fail to reject Null hypothesis
Heteroscedasticity	Breusch-Pagan Godfrey	Homoscedasticity	2.546	0.32	Fail to reject Null hypothesis
Stability Test	Ramsey RESET Test	no omitted variables	0.382	0.64	Fail to reject Null hypothesis

Source: researcher computation using EView 10

**Normality Test:** Normality is not required in order to obtain unbiased estimates of the regression coefficients; rather to assured that the p-values for the t-tests and F-test will be valid so that a valid hypothesis testing will be conducted. As shown below from the normality test output of regression, the result of Skewness /Kurtosis tests for normality the residuals, the p-value (0.59) is much greater than 0.05. As a result, we conclude that the error terms of the specified models are found to be normally distributed.

**Serial Correlation Test:** One of the assumptions of the classical linear regression model is that the error is assumed uncorrelated across the time. In this model in the values of the error, terms have serially correlated the predictions based on the regression estimates will be inefficient. To test serial correlation the Breusch-Godfrey test is conducted against the H0 saying that there is no serial correlation problem and H1 implying the existence of the serial correlation problem. Accordingly, the test implied 0.5537 F-statistics value and 0.423 value of probability and hence it is statistically insignificant at 5% meaning that the H0 cannot be rejected and therefore there is no serial correlation problem in the ARDL estimates.

**Test for Heteroscedasticity:** the regression result to be valid, the homoscedasticity assumption must be satisfied. To be valid, each disturbance term is expected to have the same finite variance. Thus, violation of this assumption is an indication of the presence of heteroscedasticity in the model. This test is employed to find out if the error term exhibits constant variance. Breusch-Pagan Godfrey test was used to examine the null hypothesis saying that the error is homoscedastic. The test indicated F-statistics was 1.1526 with a probability of 0.63 hence it is statistically insignificant at 5% level of significance, as a result, the null hypothesis cannot be rejected meaning that there is no Heteroscedasticity problem in the ARDL model.

**Stability Test:** The stability test of the model is conducted by using CUSUM and CUSUMQ tests to determine the appropriateness and stability of the model. These tests are used to show whether the model is stable for making long-run decision. As shown in the above table, the plot didn't cross the upper and lower bound of straight-line ore within the 5% critical bound implying that the model is stable.

**Multicollinearity Test:** As it is explained in chapter three the existence of strong multicollinearity problem is detected using correlation matrix among the independent variables included in the

model. According to (Asteriou & Hall, 2007) if the correlation coefficient among the explanatory variable is greater than 0.9 indicates the existence of strong multicollinearity in the model.

As it is depicted below the correlation coefficient among the explanatory variables is less than 0.9 implying that there is no strong collinearity among the explanatory variables and this indicates that there is no severe multicellularity problem in the model.

Table 4.9 Multicollinearity Test

	RSCA	FDIIN	EXR	INR	INFRA	TECH	LABFOR	RAWM
RSCA	1							
FDIIN	0.514467	1						
EXR	0.831759	0.394894	1					
INR	0.297811	-0.254751	0.172351	1				
INFRA	0.759984	0.436052	0.812005	0.129810	1			
TECH	0.662056	0.394307	0.696419	0.159590	0.605845	1		
LABFOR	0.884009	0.458794	0.855958	0.232723	0.895633	0.701124	1	
RAWM	0.673231	0.349676	0.637903	0.308139	0.664679	0.495121	0.771915	1

Source: researcher computation using EView 10

Diagnostic test suggests that the model passes the test of serial correlation, normality of the errors, model stability and heteroscedasticity associated with the model. we can rely on the ARDL estimate of long run and short run coefficients.

#### 4.4 Analysis of in-depth interviews

institutional stakeholders in the sector that include ETIDI, MoI, and ETEGMA are selected since the researcher believes that they know the subject matter better than others because of their day-to-day contact with the exporting firms. During the interview period, all senior experts were willing and helpful to participate in the research hence all the interviews were conducted in a friendly, cooperative manner. The findings of in-depth interviews are simply summarized below.

##### Background of the respondents,

The background of the respondents are requested in the introductory part of the interview session and all participants are senior experts who well know the textile export for more than five years.



Out of selected six individual samples all of the respondents were male and the age of four respondents are between 30-45 years while two respondents were between 46 to 60 years of age. The academic composition of the respondents shows five respondents obtained a master's degree in Textile Engineering, Business Administration, and Management field. The work experience varied from 5 to 20 years but the average experience in the export of textile was 8 years. The selected respondent represents their respective organizations ETIDI, MoI, and ETEGMA. The objective of these organizations related to export promotion of textile industry are described by the respondents below.

**ETIDI:** is established in 2010 with a vision to be a world-class institute, which enables the Ethiopian textile and garment industry competitive in the global market by promoting and supporting investment, production capacity building, and marketing support. The institution plays important role in the promotion and expansion of market destination of Ethiopian textile and apparel products in addition to securing intra-industrial linkage on raw material supply.

**ETGAMA:** established in 2008 as a national association of textile and garment manufacturers in Ethiopia. The association promotes the interest, growth and sustainability of the sector by serving as the voice for businesses operating in the textile and garment sector. **MoI:** ministry of the industry is a policy-level institution mandated to improve the production capacity and promote the export of the manufacturing industry in Ethiopia. As a priority subsector in manufacturing, MoI supports the textile industry to achieve the national export target. The response of the respondent summarized below based on the objectives of the study.

**Objective 1.** What are the factors affecting the export competitiveness of Ethiopian textile sector in the last few decades?

All the respondent agreed that Ethiopia has a potential to be competitive in the textile and apparel sector in the international market. They also noted that the availability of land with a suitable agroecology for production of raw material (cotton), relatively lower cost of wage and utilities as compared to other countries competing in the international market. Because of the potential, the sector identified as one of the priority areas in the government industrial development strategy. As a result, textile and garment specialized industrial park are established to adequately utilize the competitive advantage. They mentioned that the textile and apparel export volume increased

significantly in the last five to ten years. Moreover, they asserted that the sector has implied potential to compete in the international market. The respondents also pointed out the major factors that directly or indirectly affect the export competitiveness of the sector below.

- High cost of logistics, custom facilitation and a long order lead time
- Lack of backward linkage for quality raw material and accessories
- Low productivity and high turnover but trainable labor force
- Foreign currency shortage for raw material sourcing

**Objective 2.** To what extent does these factors affect the export competitiveness of the sector?

The respondent detailed how logistics infrastructure, labor productivity, foreign currency shortage and lack of intra-industry linkage affect the competitiveness of the sector.

- **Logistics infrastructure;** As the exporting firms competing globally, the lengthy processes and inefficient processing of custom leading to longer lead time and it negatively affect the competitiveness by extending the time to trade aspect. As one respondent noted that further to the high cost of inland transportation, the time to import goods is twice higher as compared to Kenya and Bangladesh. In some cases, few manufacturers are obliged to pay a contractual penalty for delay.
- **Labor productivity Issues:** availability of labor force but there is lack of skilled labor force because of low staff training by the firms. Even though university and TVET provide technical training the exporting companies are not willing to provide advanced training due to high turnover of labor this highly affect labor productivity and competitiveness.
- **Foreign Currency Shortage:** The shortage of foreign currency significantly affects the competitiveness of textile industry since most manufacturers highly dependent on imported raw materials and intermediary goods. The importation of raw material is mainly due to low quality and high cost of local input due to inefficiency and weak backward linkage of the firms along the supply chain.
- **Backward Linkage for Raw Material:** Despite the country potential, only small portion of suitable land are used for cotton cultivation with a limited extension support hence local farmers are unable to supply the desired quantity and quality cotton. As a result, manufacturers highly relayed on the imported cotton. Because of lack of intra-industry

linkage, other firms producing accessory, spare part and even firms producing semi processed fabrics are limited. Therefore, the production cost of manufacturers is higher since most inputs used by exporters are imported.

**Objective 3.** What are the Major factors affecting the export competitiveness of the sector that needs stakeholders' intervention?

The in-depth interview revealed that quality cotton supply, custom procedures, logistics, finance or Forex allocation, and labor-related factors are the major determinants of competitiveness of textile and apparel industry. The respondent proposes the below recommendation to address the negative impacts of these factors.

- As noted above, one of the key determinants of the textile sector export is the availability of input and this challenge can be neutralized by encouraging research and development activities for the development of large-scale cotton farming and attracting private investors in cotton farming. Furthermore, the limited number of firms producing accessories, spare parts, and semi-processed fabrics producing firms should be supported to create a linkage with exporting companies.
- The high cost of logistics and prolonged lead time due to logistics infrastructure negatively affect the competitiveness. These issues could be addressed through logistics infrastructure development and the best use of technology in the custom operation process.
- Forex issues in the textile industry are one challenge as long as textile and apparel manufacturers rely on imported raw materials. To address these issues the government, need to prioritize firms involved in the upstream value chain of the sector producing currently imported raw material, accessory, spare part, and semi-processed fabrics.
- High turnover of labor in the textile industry limits the provision of advanced training which adversely impacts the productivity of labor. Hence, manufacturers and governments should implement legal instruments that encourage exporting companies to invest in training by allowing them to bind employees for a certain period of time.

## CHAPTER FIVE

### CONCLUSION AND RECOMMENDATION

#### 5.1 Conclusion

The study employed both quantitative and qualitative data to investigate the determinants of export competitiveness of the textile and apparel industry in Ethiopia. The factors such as FDI inflow, exchange rate, inflation rate, human capital, infrastructure, technology and raw material were identified and their impact are analyzed. To analyze the data quantitative method such as descriptive statistics, correlation and multiple regression were employed. Furthermore, the analysis of the in-depth interview was also presented. The major findings of the study are summarized below.

According to the data from MoI, the total export volume of textile products increased from 36 million USD in 2010 to the maximum of 172 million USD in 2019/20 with the average annual growth rate of 27%. Based on the data from ITC, the textile sector of Ethiopia has the increasing trend of RCA index indicating Ethiopia is experiencing an increasing trend of comparative advantage, especially in the last 10 years. Despite that, the result of descriptive statistics also shows that the mean value of the dependent variable or RSCA is -0.25 which implies Ethiopia is less specialized in exporting textile products during the study period. However, the index of RSCA shows a positive trend in the last ten years indicating the future potential of Ethiopia to compete in the international market.

ARDL model was applied for estimating the parameters and testing the hypotheses proposed in this study. According to the analysis done to test co-integration, the existence of a long-run relationship among the variables was confirmed. The long-run equilibrium equation shows, that foreign direct investment inflow, infrastructure, technology and human capital have a significant and positive long run effect on the export competitiveness of textile industry. Whereas as Inflation and exchange rate has a significant but negative effect on export competitiveness of textile industry.

The short-run result also revealed FDI inflow, raw material, human capital, and technology have a significant and positive effect on the export competitiveness of textile industry, which is similar

to the long-run regression estimation result. On the other hand the short-run model also revealed that inflation rate and exchange rate have a statistically significant and positive effect on export competitiveness of textile in the short run. The coefficient is 0.12 and 0.01 which shows that exchange rate and inflation rate has a significant positive causal relationship in the short run.

An in-depth interview showed that logistics infrastructure and inefficient processing of custom, foreign exchange shortage, backward linkage for raw material, and logistics infrastructures are the major factors that has been affecting the competitiveness of textile industry.

### 5.3 Recommendation

The export competitiveness of textile industry showed a positive and increasing trend indicating the potential of the sector. To reach the optimal level of competitiveness issues related to backward linkage and raw material, foreign exchange allocation, labor productivity, and logistics infrastructures need to be addressed. Based on the findings, the study recommends the following specific remarks;

- To increase the quality and availability of cotton the government should create conducive environment to attract new investment and encourage research and development activities for the development of large-scale quality cotton production. Furthermore, depreciation of the exchange rate has created an adverse effect on the availability of imported accessory, spare part and semi processed fabrics. The government should implement special incentives schemes to attract specialized investment along the textile value chain and encourage intra-industry linkage to secure raw material supply capacity.
- The sector is more labor intensive hence the productivity and capacity utilization issues are more critical. To reduce high turnover and improve labor productivity the government should revise the current labor law related to transfers, dismissals, job rotations and employee service contract to incentivize firms to invest in advance skilling of their human resources and allowing them to bind employees to serve for a certain period of time.
- The increasing export trends may be affected if the preferential market access expires because the Europe and US are the main market bases of the sector. This may affect competitiveness once the time limit has expired. To mitigate the impact government should implement a strategy to reduce manufacturing and logistics costs and improve the productivity and capacity utilization of exporting firms. As exporting firms can create competitive industries than government, firms should implement different mechanisms to reduce their manufacturing cost, expand local sourcing linkage, improving capacity utilization and labor productivity.
- The customs and logistics competitiveness affect the ability to compete globally since there is inefficiency in customs clearance and port operation. Thus, all stockholders need to commit to improve lead times and cost of trade flows. The government should also improve the logistics infrastructure to reduce high cost of export and prioritize textile exporting firms in transportation and custom operation process.

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# Appendix

## Appendix 1. Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	6.655195	Prob. F(1,1)	0.2354
Obs*R-squared	22.60361	Prob. Chi-Square(1)	0.0000

Test Equation:

Dependent Variable: RESID

Method: ARDL

Date: 06/03/22 Time: 22:38

Sample: 1995 2020

Included observations: 26

Pre sample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RSCA(-1)	0.059036	0.063863	0.924419	0.5250
RSCA(-2)	0.016865	0.087667	0.192377	0.8790
D(EXR,2)	-0.035979	0.032901	-1.093556	0.4716
D(EXR(-1),2)	0.004939	0.017221	0.286774	0.8222
D(EXR(-2),2)	0.024688	0.021974	1.123535	0.4630
D(INR)	-0.002373	0.002022	-1.173531	0.4493
D(INR(-1))	-0.001187	0.001455	-0.815846	0.5643
D(INR(-2))	-0.001217	0.001652	-0.736989	0.5957
D(FDIIN)	0.010710	0.009516	1.125551	0.4624
D(FDIIN(-1))	0.009693	0.008304	1.167302	0.4510
D(FDIIN(-2))	0.013758	0.010273	1.339217	0.4083
D(INFRA)	-0.003305	0.002301	-1.436662	0.3871
D(INFRA(-1))	-0.003105	0.003108	-0.999077	0.5003
D(INFRA(-2))	0.002830	0.003922	0.721409	0.6021
RAWM	-6.54E-07	2.25E-06	-0.290546	0.8200
RAWM(-1)	3.21E-06	2.62E-06	1.225980	0.4356
RAWM(-2)	7.05E-07	1.72E-06	0.409627	0.7525
TECH	-0.002456	0.003435	-0.715066	0.6048
TECH(-1)	-0.000430	0.004477	-0.096048	0.9390
TECH(-2)	0.001325	0.002942	0.450553	0.7305
LABFOR	-9.30E-08	7.14E-08	-1.301655	0.4170
LABFOR(-1)	7.33E-08	2.08E-07	0.353110	0.7839
LABFOR(-2)	1.85E-08	2.19E-07	0.084466	0.9464
C	0.119988	0.123623	0.970598	0.5095
RESID(-1)	-1.722621	0.667743	-2.579766	0.2354
R-squared	0.869370	Mean dependent var		2.30E-14
Adjusted R-squared	-2.265756	S.D. dependent var		0.014241
S.E. of regression	0.025735	Akaike info criterion		-5.816917
Sum squared resid	0.000662	Schwarz criterion		-4.607209
Log likelihood	100.6199	Hannan-Quinn criter.		-5.468565
F-statistic	0.277300	Durbin-Watson stat		2.993966
Prob(F-statistic)	0.930350			

## Appendix 2. Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.546456	Prob. F(23,2)	0.3203
Obs*R-squared	25.14147	Prob. Chi-Square(23)	0.3430
Scaled explained SS	0.077561	Prob. Chi-Square(23)	1.0000

Test Equation:

Dependent Variable: RESID^2

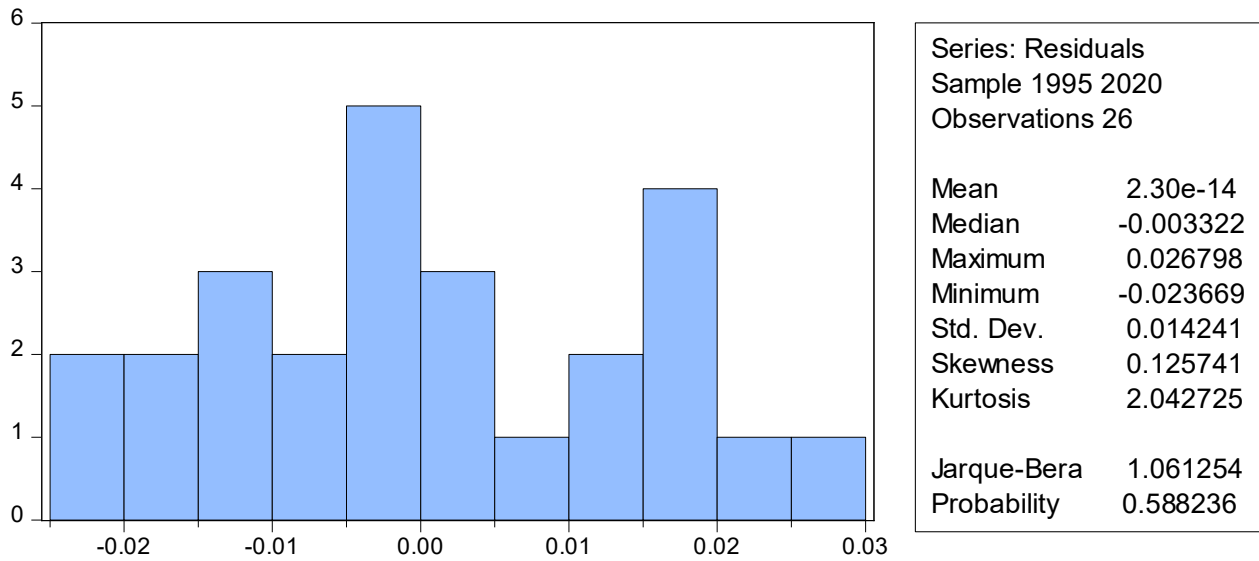
Method: Least Squares

Sample: 1995 2020

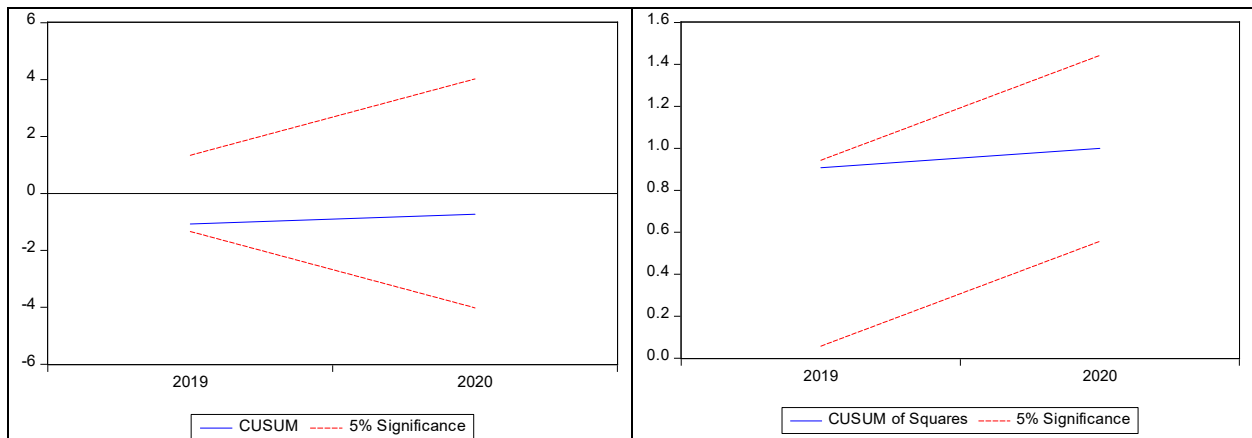
Included observations: 26

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-7.58E-05	0.000581	-0.130505	0.9081
RSCA(-1)	-0.001316	0.000302	-4.353384	0.0489
RSCA(-2)	0.001248	0.000443	2.816606	0.1063
D(EXR,2)	-0.000344	0.000151	-2.277935	0.1504
D(EXR(-1),2)	-0.000277	8.68E-05	-3.198054	0.0854
D(EXR(-2),2)	-0.000141	0.000100	-1.402719	0.2958
D(INR)	-4.18E-06	9.13E-06	-0.458319	0.6917
D(INR(-1))	3.12E-06	7.00E-06	0.446560	0.6989
D(INR(-2))	-9.74E-06	8.02E-06	-1.213561	0.3488
D(FDIIN)	-9.12E-06	4.34E-05	-0.210041	0.8531
D(FDIIN(-1))	4.38E-05	3.75E-05	1.166990	0.3635
D(FDIIN(-2))	1.83E-05	4.45E-05	0.410833	0.7210
D(INFRA)	1.71E-05	9.69E-06	1.768812	0.2190
D(INFRA(-1))	-2.22E-05	1.45E-05	-1.529195	0.2658
D(INFRA(-2))	1.75E-05	1.91E-05	0.918900	0.4552
RAWM	-4.20E-08	1.13E-08	-3.708737	0.0656
RAWM(-1)	2.97E-08	1.17E-08	2.540269	0.1263
RAWM(-2)	8.29E-10	8.61E-09	0.096251	0.9321
TECH	-7.65E-06	1.67E-05	-0.457150	0.6924
TECH(-1)	-2.41E-05	2.27E-05	-1.062755	0.3992
TECH(-2)	2.97E-05	1.47E-05	2.024898	0.1802
LABFOR	-1.32E-10	3.13E-10	-0.423156	0.7133
LABFOR(-1)	-1.37E-09	1.04E-09	-1.309660	0.3205
LABFOR(-2)	1.57E-09	1.11E-09	1.416421	0.2923
R-squared	0.966980	Mean dependent var		0.000195
Adjusted R-squared	0.587244	S.D. dependent var		0.000203
S.E. of regression	0.000130	Akaike info criterion		-15.76973
Sum squared resid	3.40E-08	Schwarz criterion		-14.60841
Log likelihood	229.0065	Hannan-Quinn criter.		-15.43531
F-statistic	2.546456	Durbin-Watson stat		2.523124
Prob(F-statistic)	0.320329			

### Appendix 3. Normality Test



### Appendix 4. Stability Test



### Ramsey RESET Test

Equation: UNTITLED

Specification: RSCA RSCA(-1) RSCA(-2) D(EXR,2) D(EXR(-1),2) D(EXR(-2),2) D(INR) D(INR(-1)) D(INR(-2)) D(FDIIN) D(FDIIN(-1)) D(FDIIN(-2)) D(INFRA) D(INFRA(-1)) D(INFRA(-2)) RAWM RAWM(-1) RAWM(-2) TECH TECH(-1) TECH(-2) LABFOR LABFOR(-1) LABFOR(-2) C

Omitted Variables: Squares of fitted values

	Value	df	Probability
t-statistic	0.618490	1	0.6474
F-statistic	0.382530	(1, 1)	0.6474

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	0.001403	1	0.001403
Restricted SSR	0.005070	2	0.002535
Unrestricted SSR	0.003667	1	0.003667

## Appendix: Interview Protocol

**Addis Ababa University School of Commerce**  
**Department Of Logistics and Supply Chain Management**

This interview is conducted to obtain information for my theses research work entitled “Determinants of Export Competitiveness, the Case of Textile Industry in Ethiopia” and submitted in partial fulfillment of the degree of Masters of Arts in Logistics and Supply Chain Management. The information that you provide will be kept confidential and will only be used for my own academic purposes. Your co-operation in providing your honest reflection will be very much appreciated. Thank you!

**Full Name:** \_\_\_\_\_ **Age Groupe:** 30-45 \_\_\_\_ 45-60 \_\_\_\_\_

**Level of Education;** \_\_\_\_\_ **Total Experience in Export:** \_\_\_\_\_ (years)

1. What are the general objectives of your organization related to export promotion?
2. Do you think the textile industry in Ethiopia is competitive in the international market?  
Yes/No? What are the reasons?
3. What are the major factors that directly or indirectly affect the export competitiveness?
4. How do you describe the relationship between export competitiveness and the factors you mention in question 3?
5. How do you evaluate the level of these factors affecting the export competitiveness of textile industry?
6. What are the key/major determinants that all stockholders needs to focus to improve the export competitiveness of the textile industry?
7. What recommendation does your organization forward to improve the export competitiveness of textile industry?