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EXAMINING MARKET DETERMINANTS OF ETHIOPIAN COFFEE EXPORTS (2000-2025)

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DECLARATION

I, Girma Bekele Serbessa, affirm that the research titled "*Examining Market Determinants of Ethiopian Coffee Exports (2000-2025)* is the result of my independent work and analysis. All references and materials consulted during this study have been properly credited. Except for the advice and input provided by my research advisor, I completed this work on my own. This thesis has not been previously submitted to this or any other university for a degree, and it is presented as part of the requirements for the master's degree in Marketing Management.

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Signature_____

Date_____

CERTIFICATE

This is to certify that Girma Bekele has undertaken this research work entitled "Examining Market Determinants of Ethiopian Coffee Exports (2000-2025)". This study was conducted for the partial fulfillment of the requirement of the Masters of Arts Degree in Marketing Management at the Addis Ababa University, School of Commerce.

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LIST OF ACRONYMS AND ABBREVIATIONS

ADF Augmented Dickey-Fuller

CCDS Comprehensive Coffee Development Strategy

CSA Central Statistical Agency

ECX Ethiopian Commodity Exchange

ERCA Ethiopian Revenue and Customs Authority

EXP Export Volume

EPZ Export Processing Zones

FAS Foreign Agricultural Service

FDI Foreign Direct Investment

GDP Gross Domestic Product

ICA International Coffee Agreement

ICO International Coffee Organization

ITC International Trade Center

MoT Ministry of Trade

NBE National Bank of Ethiopia

OLS Ordinary Least Squares

TDM Trade Data Monitor

USDA United States Department of Agriculture

WCP World Coffee Price

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ABSTRACT

Coffee is the backbone of the Ethiopian economy, contributing a substantial share of Ethiopian export earnings and rural livelihoods. Ethiopia's coffee export performance has shown large volatility and underperformance relatively compared to its existing domestic production potential. This study investigated the factors affecting coffee export performance in Ethiopia, focusing on the timeframe from 2000 to 2025. The research utilizes a mixed-methods approach, combining time-series analysis with a cross-sectional survey of 101 sample respondents. The Multiple Linear Regression (MLR) model was used to analyses Cross-sectional data using Stata version 17. Unit root tests, Johansen co-integration, and vector autoregression (VAR) modeling were used in the time-series data analysis. The results presented that Export Volume has been rising exponentially, reaching almost 500,000 metric tons after 2021. A unit root test was carried out using an Augmented Dickey-Fuller (ADF) test for each variable of time series data, and the Johansen co-integration test result indicated no co-integrating relationships among variables. The VAR model results expose the short-term interdependencies between the growth rates of Ethiopian coffee export volume and unit prices. The results of the multiple linear regression analysis reveal that six variables significantly affect Ethiopian coffee export performance at 1% significance level, with logistics, domestic production, and quality exerting strong positive influences, while domestic price has a significant negative effect, indicating that higher local prices tend to divert supply from export markets. World production and global price are also statistically significant but have smaller coefficients, demonstrating that domestic structural factors such as transport efficiency, output volume, and quality standards play a more significant role than external market conditions. Thematic analyses found that Ethiopia lacks a sustainable and clear traceability management system, which undermines its credibility in international coffee markets. The time-series analysis indicates that prices are very unstable. These findings underscore the need for policy consideration of infrastructure, production expansion, quality upgrading, and domestic- export price coordination to sustain and enhance Ethiopian coffee export performance.

Keywords: Ethiopian Coffee, Export Performance, Multiple Linear Regression (MLR), Augmented Dickey-Fuller (ADF), Vector Autoregression (VAR), Price Volatility

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the Study

Coffee is one of the most valuable export products in global trade and plays a vital role in the economic and social environment in more than 80 countries across the tropics. For several of Africa's economies and rural populations, such as Ethiopia, Uganda, or Tanzania, coffee is of particular importance (Jaramillo *et al*., 2011). Africa's economy deeply depends on the agricultural sector. The coffee arabica varieties originated in Ethiopia. Coffee has been a main contributor to Ethiopia's foreign exchange income for many years, making up the majority of the country's export sector. Additionally, the performance of the nation's total export revenues has been meaningfully influenced by its coffee export performance. The country has a capital of genetic resources and is considered the homeland of Arabica coffee bean varieties. Takele, (2024).

Ethiopia's coffee production is expected to hit 11.6 million 60-kg bags in 2025. This progress is strengthened by favorable weather, boosted productivity from restored aging trees, and the use of high-yielding plantlets. Export capacities are forecast to reach 7.8 million bags per year, driven by strong global prices and policy differences that offer suppliers and exporters improved access to international markets. Current economic improvements, including a market-preoccupied foreign exchange rate structure, are refining export competitiveness and rising farmer incomes. With the 15-year Comprehensive Coffee Development Strategy (CCDS), Ethiopia aims to grow the world's second-largest coffee Arabica provider and exporter by promoting sustainability, enhancing competitiveness, and expanding coffee markets (Degye, 2019). Exporting is a significant activity from both a national and a company perspective. It is critical for national economies because of the significant contributions it makes to employment, investment, trade balance, and economic growth (Endalew, 2024). Ethiopia is a key contributor to the global coffee and energy to its economy, making up about one-third of the country's overall export income, largely contributing to Ethiopia's GDP Tadesse, 2025).

Ethiopia is the major provider of high-quality coffee to the world market, and the country's economy is positioned on coffee. The export data showed that customs histories, the total worth of Ethiopian coffee exports reached a top of 2.65 billion dollars in 2025, a 9% rise from the 2024 fiscal year. Ethiopia exported over 7 million bags of coffee in 2025, based on Ethiopian coffee export information and customs records (Fikre and Niguse, 2017). Ethiopia reached a historic achievement by obtaining over 1.7 billion dollars from coffee Arabica exports in 2023. The coffee provisions around 15 million people, including farmers and others involved in varied phases of the coffee value chain. Ethiopia ranks fifth in global coffee production, after Brazil, Vietnam, Colombia, and Indonesia. It is also the third-largest producer and exporter of Arabica coffee varieties, after Brazil and Colombia (Kondal, 2018).

Ethiopia's coffee production is expected to reach a record 11.6 million 60-kilogram bags in the 2025 market year. This growth is credited to favorable weather, rejuvenation of aging trees, and greater access to improved plantlets and inputs, according to recent USDA reports from 2025. Government campaigns promoting stumping and replanting have led to higher yields and better coffee quality in key coffee-growing areas. Ethiopian coffee exports are expected to reach 7.8 million bags, supported by reforms that allow more manufacturers to export directly. Geday (2024).

Ethiopia's coffee exports were expected to be 7.8 million bags in 2022, marking an 11.4% increase after a strong 2023 season that saw a 44% capacity surge despite climate and political barriers in the country. While coffee markets from Germany and Saudi Arabia remain vital, the tripling of roasted coffee exports shows a fruitful shift towards value addition. High domestic consumption, driven by a per capita intake of 2.3 kg, contests with export channels for quality coffee Arabica varieties. To maintain this growth and achieve the $4 billion annual export target drew in the 2019 2033. Comprehensive Coffee Development Strategy (CCDS), the government has applied key reforms in this sector. These consist of adapting the lowest export prices weekly to reduce banned trade and distributing export licenses through banks to rationalize the trading process (Massrie *et al.,* 2025).

Ethiopia is the geographical source of Arabica coffee varieties, which are the most popular coffee variety in the world, and produces large amounts of coffee yearly. Coffee knowingly contributes to the economy; coffee accounts for over 28% of Ethiopia's yearly exports, and about 15 million citizens work in coffee production. The government should boost national coffee production through new plantings. The Harar, *Limu*, Sidamo, and Yirga *Cheffe* coffee beans are all trademarked varieties, with rights owned and protected by the Ethiopian government (Degye, 2019).

Ethiopia's coffee started the 2025 fiscal year on a strong financial note, generating 762.75 million dollars in the first quarter, a 47% rise from the 2024 fiscal year. Export size was 113,542 tons, which characterized only three-quarters of the planned quantity, so far the country surpassed its revenue goal by 23% due to favorable global prices and an emphasis on high-value specialty coffee variety. This performance highlights the coffee's vital role in the rural economy and as a main source of living for over five million farmers in areas of the regions like Oromia and Sidama, indicating the industry's increasing capacity to provide high economic value even with fluctuating production capacity (Minten *et al*., 2014).

The major importer of Ethiopian coffee was Germany, importing 20,793 tons valued at 138 million dollars, after by Saudi Arabia and Belgium, with combined purchases accounting for over a quarter of the total exports. These markets now account for around 80% of coffee export incomes. This extension is part of a national export flow, forcing total quarterly revenues to 2.48 billion dollars. This represents a 117% year-on-year increase, positioning the country nearer to its determined 9.4 billion dollars year target. These developments are largely due to recent economic reforms, reliable policy execution, and a decline world demand, enabling a national aim of expanding economic growth. This designates a significant shift toward reducing the historical trade inconsistency by strengthening fiscal stability and cumulative production in the planned coffee industry (Tilahun, 2025).

1.2. Statement of the Problem

Ethiopia is broadly known as the birthplace of Arabica coffee and remains one of the largest coffee providers and exporters in the world. Coffee has been growing in Ethiopia for thousands of years, in the forests of southeastern Ethiopia. It is perfectly adapted to the climate. This is the huge advantage that Ethiopia has over all other coffee-producing countries. Historically, coffee has accounted for a foremost proportion of Ethiopia's total export revenue, making the economy largely reliant on its performance in global markets (Asfaw, 2024).

Despite its rank, Ethiopia's coffee export performance has shown significant volatility and underperformance relative to its production capacity**.** Several structural and market-related challenges persist, including price volatility, low value addition, weak market linkages, and limited divergence of export destinations. Furthermore, increasing global competition from countries such as Brazil, Vietnam, and Colombia has strengthened pressure on Ethiopia's coffee export sector. The causes of coffee export performance include production capacity, quality, market access, and global competition. The constraints faced by coffee producers and exporters in Ethiopia include fluctuating international prices, a lack of venture capital, and environmental barriers Tadesse, 2025).

Locally, increased political instability has pushed widespread displeasure, intimidating the coffee industry, while simultaneously; environmental, economic, and social issues are wearing away farmers' confidence and potentially dropping both the quality and quantity of coffee production. Ethiopia's coffee sales are very sensitive to global prices, and the country is wrestling with radical shifts in the world coffee market, including policy changes and technological progressions, which together reduce opportunities for susceptible economies to secure gainful trade. These external pressures, joint with internal issues such as productivity, inflation, exchange rates, consumer demand, and social behavior, are meaningly affecting the market and export potential of Ethiopian coffee, which is important for the nation's poverty alleviation and economic development (Zekarias Bassa, 2019).

The major obstacle is the detrimental effect on export levels of rising domestic demand for Ethiopian coffee beans, driven by income growth. However, this demand could support both domestic consumption and sustainable coffee bean exports if it is properly achieved through policies aimed at growing productivity, such as better-quality access to credit and mechanization. Enhancing coffee export performance can mostly increase a country's trade shape. As developing countries like Ethiopia seek to benefit from this help, a focused investigation of the coffee encounters and occasions becomes critical to identify strategic interventions (Hussien, 2015).

The factors of coffee export performance include production capacity, quality, market access, and global market competition. The challenges confronted by coffee producers and exporters in Ethiopia include changing international prices, a lack of venture capital, and environmental limitations. A practical work on the influence of coffee exports on growth has been ignored to some extent in most of the literature in Ethiopia, despite its significant role. Thus, this research tries to fill the existing work gaps by focusing on coffee export performances during the 2000 to 2025 fiscal year. In relation to the methodological gap, a key limitation of most literature is overlooking key variables, and only a few have spoken to model specification issues (Boansi, *et al.,* 2013).

Despite being a leading producer of high-quality Arabica coffee, Ethiopia has not fully understood its export potential. Export incomes are unstable, and Ethiopia's share in the global coffee market remains lower than expected compared to its production volume. Challenges such as price volatility, foreign exchange limitations, limited processing and value addition, weak market linkages, large transaction costs, and infrastructure constraints continue to affect export performance. Ethiopia's coffee export performance has lagged behind its production potential and that of its competitors. Ethiopia is experiencing limited time series empirical works and an increase in coffee prices, a primary product that has traditionally been used for domestic consumption. Different important challenges have limited export growth and value understanding. Ethiopian coffee is the country's major export and the mainstay of its economy, and supply and demand factors exaggerated results during this time (Endalew, 2024).

Many researches indicate that the volume and productivity of coffee determine how much is available for world markets. Ethiopia's production rose from about 180,000 metric tons in 2010 to 487,808 tons in 2021. However, this growth lags behind global trends. It also does not reach Ethiopia's potential. Inadequate time series data-based studies are tracking quality-export links from 2000 to 2025. There is not enough analysis of the specific ways that actions from major producers affect Ethiopian coffee markets. There is an insufficient awareness of how to enlarge domestic production without losing quality. There is limited research on pricing strategies, given the rough price transmission (Asfaw, 2024).

According to data from diverse organizations, the price of coffee has almost doubled, increasing from 57 birr to about 120 birr per kilogram. This rise is attributed to different barriers, including changes in export dynamic forces and the effectiveness of coffee production for exporters. Many exporters were reluctant to sell coffee domestically due to the higher profits available from global coffee markets (Oumer & Rao, 2015). The government is actively working to increase coffee production and market access for Ethiopian coffee beans at the global level. Ethiopia's exports of specialty coffee have increased, reflecting a growing demand for its high-quality products on the international stage. In response to these challenges, the Ethiopian government is showing strategies to stabilize prices and ensure that local consumers have access to reasonable coffee. This includes potential measures to control exports in promoting local consumption of coffee, (Minten *et al*., 2014).

Several studies have examined export performance in Ethiopia, but there remains a need for an updated, comprehensive analysis that precisely focuses on coffee, using recent data and inferential techniques. This study seeks to fill this gap by identifying the key factors of Ethiopian coffee export performance and quantifying their effects. Hence, the principal task of the study was to examine the nature of coffee export performance, domestic production, coffee export price, world coffee production, domestic coffee price, coffee quality, and market integration challenges faced by the country, Takele (2024). Therefore, this study aims to evaluate market determinants of Ethiopian coffee export performance.

1.3. Research Questions

This study seeks to answer the following research questions:

1. How do changes in domestic and global coffee production capacity affect the overall export performance of Ethiopian coffee?
2. In what ways have long-run market trends and short run price volatility impacted the stability of Ethiopian coffee export performance between the years 2000 and 2025?
3. How do changes in domestic and global coffee prices affect Ethiopian coffee export performance?
4: To what extent does the quality of Ethiopian coffee influence its export performance?
5: How do domestic logistics constraints and policy challenges affects Ethiopian coffee export performance?

1.4. Objective of the Study

1.4.1. General Objective

The general objective of this study is to assess market determinants of Ethiopia's coffee export performance from 2000 to 2025

1.4.2. Specific Objectives

1. To analyze the effect of domestic and global production capacities on Ethiopian coffee export performance.
2. To evaluate the effect of long-run trends and short run price volatility on the stability of Ethiopian coffee export performance from 2000 to 2025.
3. To examine the effect of domestic and global coffee price on Ethiopian coffee export performance
4. To quantify the influence of coffee quality on Ethiopian coffee export performance
5. To investigate the effect of logistics constraints and policy challenges on the performance of Ethiopian coffee exports

1.5. Significance of the Study

Because it seals in important knowledge gaps regarding the country's current coffee export issues, this research is authoritative. The result of this research will offer a timely basis for the Ethiopian Coffee and Tea Authority (ECTA) and policymakers to develop stronger export strategies and policies. Policymakers in the coffee market may find the results beneficial as an outline and source of information when making decisions. The results of this research will help the government, coffee exporters, officialdoms, and other investors amend their policies to improve coffee exports. Addressing the determinants of Ethiopian coffee export performance will have a positive effect on the incomes of farmers and contribute to the country's general socio-economic development. The research's result may also help the field of export marketing research and can assist as a leader for other researchers who might be interested in conducting extra research in the time-series data-based research area.

1.6. Scope of the Study

Geographic Scope: The research is geographically limited to Ethiopia, focusing exclusively on Ethiopian-registered coffee-exporting enterprises and national-level export data. It does not extend to individual coffee-growing regions as separate units of analysis, nor does it include cross-country comparisons with other coffee-exporting nations.

Temporal Scope: The study covers a twenty-five-year period from 2000 to 2025. This time window was deliberately selected to capture the full impact of major structural reforms in Ethiopia's coffee sector.

Conceptual Scope: The research is delimited to evaluating the socio-economic, environmental, and macroeconomic determinants of Ethiopian coffee export performance. It focuses on internal factors, domestic production capacity and coffee quality standards, and external factors, price fluctuations in both domestic and international markets. The study also specifically identifies and analyzes logistics and policy barriers that affect the efficiency of market integration for Ethiopian coffee exporters.

Methodological Scope: The research employed a mixed-methods approach. The quantitative component combined time-series econometric analysis, including Augmented Dickey-Fuller (ADF) unit root tests, Johansen co-integration tests, and Vector Autoregression (VAR) modeling, with a cross-sectional survey of 101 stratified, randomly sampled coffee-exporting enterprises, analyzed using Multiple Linear Regression (MLR) in Stata version 17. The qualitative component involved semi-structured Key Informant Interviews (KIIs) with 10–15 experts drawn from the Ethiopian Coffee and Tea Authority (ECTA). The study relied on secondary time-series data from ECTA, the Central Statistical Agency (CSA), the International Coffee Organization (ICO), and the USDA Foreign Agricultural Service, alongside primary survey data collected from exporters in 2025/2026.

1.7. Limitations of the study

This research could not be fully continued due to the quality of data available, and mainly the large scarcity in reporting between different institutions, the Ethiopian Coffee and Tea Authority, the Central Statistical Agency (CSA), and other relevant institutions. The result of this research was to study factors affecting coffee export performance in Ethiopia. So, an overall picture of the situation was enclosed by the inclusion of other export commodities to support the formulation and implementation of an appropriate policy.

Although the present study brings an overview of Ethiopia's coffee export sector from 2000 to 2025, there are some basic problems, such as retrieving uniform, high-quality time series data over 25 years, which is problematic due to changes in reporting standards between the Central Statistical Agency (CSA) and the Ethiopian Coffee and Tea Authority (ECTA) and other database sources.

1.8. Definition of Terms

The definitions for key terms and concepts used in the research are as follows:

Coffee Export Performance: The degree of Ethiopia's achievement in marketing coffee to global markets is measured through total export volume (production) and values.

Export Barriers: are challenges that have their background in the external environment, and the company cannot control the effects of these matters (Fedrico, 2004). Restrictions that delay a firm's ability to initiate, develop, or withstand (Koksal and Kettaneh, 2011).

Export Performance: refers to the value of exporting products and services into foreign markets (Shoham 1996). It is the gradation to which a business or country is successful or unsuccessful in its endeavors.

Export: refers to the sale of locally produced goods and services to foreign markets. Any product that is legally transferred from one nation to another (Edwards and Alves, 2006).

Price Volatility: The occurrence and magnitude of price changes in the Ethiopian coffee bean market are mostly expressed by the market and its following influence on the local prices paid to Ethiopian producers and coffee exporters.

Dependent Variable: In this research, the dependent variable is coffee export performance. It is defined as the total quantity and value of coffee exports from Ethiopia over a specified period (2000-2025).

Domestic Production: The total amount of coffee produced within Ethiopia in a given year, expressed in metric tons. This variable can reproduce changes in agricultural practices, farm management, and climatic conditions affecting the coffee bean.

Coffee Export Price: The normal price at which Ethiopian coffee is sold in international markets over a stated period. This can be expressed in Ethiopian birr or USD per kilogram and reflects the pricing strategy of exporters, worldwide demand, and market competition.

World Coffee Production: The overall production of coffee worldwide, measured in metric tons. This variable can affect market prices and export chances, focusing on the supply and demand changing aspects.

Domestic Coffee Price: The average price of coffee sold within Ethiopia, measured in Ethiopian Birr per kilogram. This reflects the domestic market conditions and the purchasing power of local consumers and businesses.

Coffee Quality: A degree of the coffee's attributes, including flavor profile, aroma, and grading (based on established standards like Specialty Coffee Association grades). It can affect market demand and pricing.

Market Integration Challenges: The bottlenecks faced by coffee exporters in integrating into both domestic and global coffee markets, which can include bureaucracy, trade barriers, lack of access to information, and inefficiencies in logistics or distribution channels.

Policies and Infrastructure Factors: include Export policies, Infrastructure (transport, logistics, market information systems). Efficient institutions and infrastructure reduce transaction costs and improve market access, thereby enhancing export performance.

1.9. Organization of the Study

The research is organized into five sections. The first chapter presents the introduction part of the study, where the background of the study, statement of the problem, research questions, and objectives of the study, significance of the study, and other related parts of the thesis. While different theoretical and empirical works were reviewed in the second chapter, the third chapter consists of the methodological frameworks, including inferential analysis and data source issues is presented. Chapter four presents the descriptive results, inferential analysis results, and trends and fluctuations of Ethiopian coffee export for the research. Finally, chapter five presented a summary, conclusions, and recommendations.

CHAPTER TWO

2. LITERATURE REVIEW

In this chapter, the researcher will present and review relevant literature on theoretical, empirical, and conceptual framework issues. The first section presents a theoretical framework related to the study variables. The sources considered in the review include books, websites, several articles in journals, and previous works done by other researchers.

2.1. Theoretical Literatures

International trade is vital for a country's economy to grow. It donates countries with access to markets for goods and services they can't find at home. Competition, encouraged by these cross-border activities, means prices are keener and, in the end, consumers benefit from this with lower costs. (Oumer & Rao, 2015) postulates that the productivity of a country would mainly remain in isolation without competing on an international level. But trade and foreign investment also increase and sustain national productivity, which happens through specialization. Trade and foreign investment boost and maintain national productivity. A country can emphasize its resources on industries and areas where its firms are more productive while importing goods where they are less productive than foreign rivals. This approach increases the average productivity level across the economy.

Comparative advantage theory (Ricardo, 1817) posits that countries specialize in producing goods in which they have a relative efficiency advantage. The trade gravity model is the most commonly employed economic model to examine international trade flows. It provides a framework for estimating the impact of several policy issues. It is based on the idea that the total amount of trade between two nations varies according to the size of the nations and the distance between them. Tinbergen and Poy Honen were the first to produce gravity models of international trade. The gravity model is a central factor for several reasons.

The analysis of export performance is grounded in classical and contemporary trade theories that explain how countries engage in international trade. Ethiopia, for instance, benefits from promising agro-ecological conditions, abundant labor, and traditional knowledge, generous it a comparative advantage in coffee production (Lakew, 2023). Similarly, the Heckscher-Ohlin (factor endowment) theory emphasizes that a country's trade patterns are strongminded by its endowment of factors of production such as land, labor, and capital.

Ethiopia's abundance of arable land and labor makes it naturally suited for producing labor-intensive commodities like coffee, implying that effective utilization of these resources can improve export performance (Eshetu, 2024). Additionally, the export supply and demand theory highlights the role of both supply-side factors, such as domestic production, infrastructure, and productivity, and demand-side factors, including world coffee prices and the income of importing countries, in shaping export outcomes (Bassa & Goshu, 2019).

The new trade theory adds that economies of scale, product differentiation, and integration into global value chains are crucial for enhancing competitiveness. Ethiopia's limited participation in value-added coffee processing, primarily exporting raw beans, reduces its share of the global market value, highlighting the need for policies that endorse value addition and market diversification (Rago *et al*., 2026). Together, these theories provide a robust framework for examining the determinants of Ethiopian coffee exports and controlling for empirical modeling of export performance.

Modern trade and competitiveness theories also highlight the standing of structural and institutional influences. Porter's (1990) theory of competitive advantage emphasizes that national competitiveness depends not only on resource endowments but also on factor conditions, demand conditions, firm strategy, supporting industries, and government policy. This outlook is particularly pertinent for Ethiopia's coffee sector, where quality differentiation, value addition, branding, and institutional effectiveness increasingly determine export achievement in international specialty markets.

2.2. Coffee Production

2.2.1. Coffee production at the global level

Globally, coffee is one of the most traded agricultural commodities and a vital basis of income for many developing economies. Coffee production is seriously concentrated in a few tropical countries, with production influenced by climatic conditions, technological advancements, agricultural practices, and global demand patterns. According to recent global data, the top coffee-producing countries in 2024–2025 include Brazil (3.0–3.4 million tons), Vietnam (1.7–2.0 million tons), Colombia (0.8–0.84 million tons), and Indonesia (0.76–0.81 million tons). Ethiopia, the major producer in Africa, produced about 0.48–0.57 million tons of coffee, placing it among the top five worldwide. Other significant producers include Honduras (0.48 million tons), Peru (0.36 million tons), India (0.32–0.36 million tons), Uganda (0.40–0.42 million tons), and Guatemala (0.22–0.25 million tons) (FAO/USDA estimates,2024/25).

Over the past decade, world coffee production has usually trended upward, driven by expanding cultivated areas, improved farming techniques, and increased global consumption, which today volumes to more than 170 million 60-kg bags per year. The leading country, Brazil, alone donates close to 35–38 % of total world production, with Vietnam supplying about 17 %, and the next tier of producers (Colombia, Indonesia, Ethiopia) accounting for smaller but significant shares of supply. Despite these production improvements, price instability remains high due to climate variability, pests, and fluctuations in global demand, mainly from developed economies in Europe and North America, where consumption is strongest. In addition, there is cumulative emphasis on quality, specialty certification (e.g., organic, fair trade), and sustainable production practices, which effect global market dynamics and export competitiveness across producing countries. In the preceding coffee year, global coffee production increased from 168.0 million bags in the preceding year to 168.2 million bags in the 2022-2023 year. The outcome was the loss of Asia and Oceania by 4.7% to 49.8 million bags and Africa by 7.2% to 17.9 million bags due to the contrary weather effects on major producers in the region, including Vietnam, Côte d'Ivoire, and Uganda FAOSTAT, 2024/25).

Table 1: Top 5 Global coffee producers (2023-2025) in tons

Country	2023/2024(tons)	2024/2025(tons)	Notes
Brazil	~3,405,000	~3,000,000	World's largest producer
Vietnam	~1,956,000	~1,700,000	Second-largest producer
Colombia	~760,000	~885,000	Third largest producer
Indonesia	~680,000	~761,000	Fourth-largest producer
Ethiopia	~559,000	~483,000	Fifth-largest Producer

Source: FAOSTAT, 2024/225

Thus, the output weakening in the two regions was almost entirely offset by the output decline in the Americas, particularly in South America, which increased by 4.8% on average, while the increase in Brasilia increased by 8.4% on average annually. The 4.8% increase in South America was almost completely offset by the 8.4% increase in Brazil, an area whose production had a regional effect, but mainly biennial growth. America produced 100.5 million bags.

This growth boosted the world coffee production by 0.9 per cent, from 168.0 million bags in the previous coffee year to 168.2 million bags in the 2022-2023 coffee year. Due to poor weather, which reduced access to significant regions for producers in Vietnam, Côte d'Ivoire, and Uganda, Asia and Oceania dropped 4.7% to 49.8 million bags while Africa released 7.2% to 17.9 million bags. In fact, the failure in output of both regions largely counterbalances the success in the Americas, especially South America (FAO/USDA estimates,2024/25).

2.2.2. Coffee Production in Ethiopia

Coffee production in Ethiopia is largely carried out by farmers under rain- fed conditions and remains a core agricultural activity with profound cultural and socio- economic significance. Coffee cultivation happens mainly in Oromia, Southern Ethiopia (including Sidama and Southwest), and to a lesser extent, Gambella and other regions**.** Despite Ethiopia's inherent agro- ecological advantages, the sector faces insistent challenges such as low productivity, poor post- harvest handling, weak institutional support, limited infrastructure, and climate susceptibilities, which decline coffee quality and export competitiveness FAS, 2025).

Data from the USDA and coffee sector estimates show that nationwide production has generally increased over recent years but remains sensitive to climatic conditions and farmer practices. In the 2021/22 marketing year, production reached about 7.62 million 60- kg bags (≈457,000 MT)**,** while more recent estimates indicate a significant rise to about 8.35 million bags (~501,000 MT) in 2023/24 and even sophisticated in 2024/25 (~10.63 million bags)**.** For 2025/26, production is predictable to reach about 11.56 million bags (~694,000 MT), the highest on record, due to extended area harvested and rejuvenation of aging trees.

Table 2: Ethiopia's Coffee Production: 2023/24-2025/26

Description	**2023/24 (Estimate)**	**2024/25 (Estimate)**	**2025/26 (Forecast)**
Marketing Year Begins	Oct. 2023	Oct. 2024	Oct. 2025
Area Harvested (Hectares)	730,000	760,000	790,000
Production (million bags, 60-kg)	9.130	10.630	11.560
Yield (MT/HA)	0.75	0.84	0.88

Source: Post estimate and forecast FAS, 2025 report.

Ethiopian coffee grows in different agro-ecological zones. Each zone provides exclusive flavors due to differences in climate, altitude, and traditional processing methods. According to ECTA data for 2024, the Oromia region provides the highest coffee volume in Ethiopia, making up about 59% of the total product. Next are the Sidama and South-West Ethiopia regions, each contributing about 13%, followed by South Ethiopia at 8%. Central Ethiopia accounts for 4%, and other regions make up 3%. These coffee-growing areas have the best conditions, such as nutrient-rich soil, altitudes between 1,500 and 2,200 meters, and favorable rainfall forms. These factors have assisted Ethiopia in becoming a foremost producer of high-quality specialty coffees, which relish solid worldwide demand. Recent instabilities in coffee industry policies now allow farmers with two hectares or more to export their coffee directly. This has decreased the value chain and facilitated farmers to keep more of the export value, which improves production. The share of export prices that Ethiopian coffee farmers accept has doubled in the past five years, rising from 40% to 80%. This is due to reforms that make direct market access easier and decrease dependence on middlemen (Zekarias Bassa, 2019).

International market trends also show a vast role in Ethiopia's coffee production growth. The record-high worldwide coffee prices in 2024 are expected to inspire Ethiopian farmers to grow more coffee. Farmers in regions like Oromia, South Ethiopia, and Sidama are shifting away from *khat* production and cutting back on eucalyptus trees to focus on more money-making coffee farming. Ethiopia's changeover from a fixed to a market-based exchange rate system has improved the attractiveness of its coffee exports, increasing incomes for both producers and exporters (Hassena, 2024).

Several key factors have led to a gain in coffee production. These include revitalizing aging coffee trees, growing both private and government-run plant sales outlets, developing and adopting climate-resilient coffee varieties, improving access to high-quality plantlets, and contributing better price stimuli for producers. Together, these developments have supported the coffee industry, leading to increased production and yields. The coffee sector still faces tasks like low productivity, price fluctuations, changing rules, inadequate infrastructure, and limited access to finance (Jalata, 2021).

2.3. Empirical Studies on Coffee Export Performance

According to different researchers, a coffee export performance is affected by a number of factors. Regarding the coffee export performance, several studies have been conducted in many countries by different authors, but the methodologies applied and the results are not strictly the same. Although the analysis of market determinants of coffee export performance is important, there are limited empirical studies in Ethiopia, particularly on the identification of market determinants of coffee export performance of the country in general.

2.3.1. Market determinants of world coffee export performance

Several studies have analyzed Market determinants of coffee export performance from different perspectives, upon which upcoming initiatives need to draw reference.

(Kondal, 2018) Study on Determinants of the Export Competitiveness of the Coffee Industry in Ethiopia; Results for the comparative advantage and revealed symmetric comparative advantage showed that Ethiopia has a comparative advantage in exports of coffee. The regression analysis revealed domestic consumption level of coffee affects the export competitiveness of the product adversely, and this relationship is statistically significant. Other variables, including domestic production status, world price of coffee, exchange rate, and export volume, are found to affect the export performances positively, and the effect is significant. These findings are consistent with Boansi *et al.* (2013), who also confirmed Ethiopia's comparative advantage but emphasized structural challenges such as large transaction costs, weak quality control, and supply chain inefficiencies that limit overall export performance.

(Minten *et al.,* 2014) Structure and Performance of Ethiopia's Coffee Export Sector: the export sector in Ethiopia, Africa's most important coffee producer, over the period 2003 to 2013. We find that an evolving policy environment has led to structural changes in the export sector, including the elimination of vertical integration for most exporters. Ethiopia's coffee export earnings improved dramatically over this period, i.e., a four-fold real increase.

(Lakew, 2002) Determinants of Ethiopia's Export Performance: An Econometric Investigation revealed that export diversification has been one of the main programs of the country's development plans for more than 40 years, while the export structure remained fixed with greater concentration on a few traditional exports such as coffee, hides and skins, oilseeds, and pulses. (Staff, 2025) The report on Ethiopian coffee contains valuations of commodity and trade issues made by USDA staff; Ethiopia's coffee production for marketing year 2025/26 is projected to reach 11.6 million 60-kg bags, supported by favorable weather, increased productivity from rejuvenated aging trees, and the use of improved inputs such as high-yielding plantlets. Export volumes are forecast to rise to 7.8 million bags, driven by strong global prices and policy reforms that extended direct access for producers and exporters to international markets.

(Boansi, David and Crentsil & Corvinus, 2013) competitiveness and determinants of coffee exports, producer price and production for Ethiopia; Even though the results show that Ethiopia has comparative advantage in export of coffee, the same cannot be said of its overall performance on the worldwide market owing to factors such as challenges with management of price risk, high transaction cost resulting from the extensive nature of the supply chain and the numerous actors and processes therein, challenges with quality control, low productivity of growers' fields, and incidence of smuggling. (OO, 2025) show that internal determinants, particularly firm characteristics, export marketing strategies, and management commitment, play a major role in shaping export success. Limited financial resources, insufficient infrastructure, and a lack of foreign market knowledge were identified as major internal barriers. Export marketing weaknesses, especially in pricing, promotion, and quality control, also developed as significant challenges.

(Oumer & Rao, 2015) Econometric Modeling of Ethiopia's Coffee Exports: Panel Data Evidence from Sidama Coffee. The result of the traditional gravity model shows that most of the exogenous variables have exposed the already expected signs. Though, only the economic size of the exporter nation, the difference in per capita income, and the resistance factor of distance have had a significant effect on trade with Sidama coffee.

Concerning the direction of Ethiopia's exports, Europe was a major trading partner, accounting for almost all of its exports, including Sidama coffee. The identified determinants will provide a recommendation for future moves on exports in identifying those of the importer nation's propensity, and the appropriate quality of the goods must be maintained, as well as the raises must be increased, as Ethiopia's exports largely depend on the foreign demand. Recent projections (Staff, 2025) indicate that Ethiopia's coffee exports are expected to grow due to improved productivity, favorable policies, and strong global demand, supported by ongoing macroeconomic reforms and long-term development strategies.

Infrastructure quality, including transport networks, logistics services, port efficiency, and communication systems, is increasingly documented as a critical determinant of export performance. The World Bank (2021) argues that poor logistics performance significantly raises transaction costs for exporters in Sub-Saharan Africa, reducing their competitiveness globally. Market dynamics, including global demand and price fluctuations, play a decisive role in determining export performance. Recent data indicate that Ethiopia achieved record coffee export earnings of over $2.6 billion in 2024/25, driven by strong global demand and favorable prices (EBC, 2025; Expedia, 2025).

Macroeconomic variables remain important in shaping coffee export performance through their effects on competitiveness, trade flows, and pricing. Recent evidence shows that Ethiopia's coffee export growth has been powerfully influenced by macroeconomic reforms, mostly exchange rate liberalization and better market access. For example, recent reports show that adopting a market-based foreign exchange system has enhanced export competitiveness and increased export volumes (Stone X., 2025). Moreover, enabling producers to directly access international markets allows them to capture a larger share of value, cultivating firm-level performance. However, barriers such as incomplete financial capacity, lack of market information, and weak supply chain coordination continue to affect exporters, especially small and medium enterprises (Stone X., 2025).

Institutions and infrastructure significantly affect export efficiency and competitiveness. Recent studies show the growing importance of international regulatory frameworks, particularly the European Union Deforestation Regulation (EUDR). Ethiopia's coffee value chain faces tests related to traceability, compliance, and certification requirements, which may limit access to key export markets (Tefera *et al.*, 2025).

The regulation introduces new barriers, especially for smallholder farmers who lack the technology and resources to meet agreement requirements, potentially reducing competitiveness in European markets. On the positive side, recent policy reforms in Ethiopia, such as allowing direct export access for producers, have improved efficiency and increased export performance (Stone X, 2025). Infrastructure limitations, including weak logistics and limited digital systems, continue to constrain export performance despite these improvements.

Production capacity and supply-side conditions are critical for determining export volume and quality. Recent studies show that Ethiopia's coffee production continues to expand, supported by improved inputs and favorable climatic conditions. Forecasts indicate production reaching 11.6 million bags by 2025/26, supporting higher export volumes (USDA, 2025).

Despite this growth, production systems face major challenges. Climate change is emerging as a thoughtful threat, with rising temperatures and extreme weather conditions reducing productivity and increasing vulnerability to pests and diseases (Climate Central analysis, 2026). In addition, current reviews of Ethiopia's specialty coffee sector emphasize structural challenges such as low productivity, weak market linkages, and inadequate access to high-value markets, specifically for smallholder farmers (Usman & Abdela, 2024). Thus, while production is rising, sustainability and productivity remain key worries affecting export performance.

2.3.2. Market determinants of Ethiopian coffee export performance

(Massrie *et al.,* 2025) Why is the price of coffee rising globally? Prospects for Ethiopian coffee: This review investigates the causes of global coffee price increases, focusing on their impact on Ethiopia's coffee sector, a most producer in global coffee production and export. Climate change, through dangerous weather events, has resulted in fluctuating yields and declined productivity, aggressive the stability of Ethiopia's coffee industry. Furthermore, rising input costs, predominantly for fertilizers and labor, have added pressure on coffee producers. While the price flow presents opportunities for increased export revenues, particularly in specialty coffee, these benefits are strengthened by the challenges of climate variability, labor shortages, and growing production costs.

(Hussien, 2015) Determinants of Coffee Export Supply in Ethiopia: Error Correction Modeling Approach; the coefficient of the co-integrating equation expresses us that about 78.7 percent of disequilibrium is modified each year by a change in export supply of coffee. Ethiopian coffee export supply in the short run is affected by the real exchange rate, foreign capital inflow, real income, and terms of trade. In the long run, it is affected by domestic price, real exchange rate, real income, and terms of trade. In the long run, there is high price elasticity, but in the short run, it is small (Fikre & Niguse, 2017).

The findings done in Kafa Zone, on determinants of Coffee Marketing: The Case of Coffee Growers and Suppliers, indicate that the growth of illegal trade significantly hinders the coffee market participation and reduces the amount of coffee supplied to the market. Access to market, training access, transportation access, farming experience, and land size selected for coffee production were found to be positive and significant. In addition, a limited schedule to buy and sell coffee products was also discouraged in coffee marketing. (Geday, 2022) A study on determinants of coffee export performance, the case of Ethiopian commodity exchange, showed that export market strategy, firm characteristics, management characteristics, and foreign and local market characteristics were found to have a positive and important effect on coffee export performance at Ethiopian commodity exchange, and coffee export performance is positively and significantly connected with the independent variables.

(Hassena, 2024) Factors affecting the coffee export competitiveness of Ethiopia: Time series analysis; the approach explains that there is both a short-run and long-run relationship between the competitiveness and the explanatory independent variables. The analysis piercing out that in the long run, the extent of domestic production of coffee and total export volume is significant and positively determines competitiveness. However, the world price of coffee, and the real exchange rate have a significant and negative effect on the competitiveness. In the short run, the domestic production of coffee has a large and positive effect on export competitiveness. The world production of coffee, the world price of coffee, and the real effective exchange rate have a vital and negative effect on the competitiveness.

(Asfaw, 2024) The review article: Ethiopian coffee production tendency analysis: comparison with main coffee-producing countries of the world. Descriptive results showed that even if coffee productivity has not meaningfully increased in the last decades, coffee production increased from around 180,000 metric tons in 1993 to 487,808.44 metric tons in 2021. Though, still left behind in coffee production as compared to the major world coffee-producing countries, and its contribution to international coffee production is less than 5% over several years.

Recent macroeconomic reforms, including the adoption of a market-based foreign exchange rate system, are enhancing export competitiveness and raising farmer incomes. Guided by the 15-year Comprehensive Coffee Development Strategy, Ethiopia aims to become the world's second-largest coffee producer and exporter by advancing sustainability, boosting competitiveness, and diversifying markets. (Degye, 2019) determinants of Ethiopian coffee exports to its major trade partners: a dynamic gravity model approach. The results of the descriptive analysis showed that Ethiopia was graded fifth in terms of production and exports of coffee in the world, and was also exporting only 39% of its total coffee production. On average, 53.5 and 34.13 percent of Ethiopian coffee exports were absorbed by European and Asian countries, respectively, over the period 1998-2016.

(Balami *et al*., 2024) Ethiopian Coffee Export Performance and Diversification Analysis: The study suggests that while the value and volume of coffee exports have shown mixed trends, generally increasing with occasional setbacks, challenges persist within the sector, including climate change, pests, diseases, mismanagement of export finance, and production technology. While opportunities exist for vertical change through roasting and decaffeinating, challenges persist, including market instability and barriers to market entry. Proactive efforts to discover new markets and address tests through improved marketing strategies, value addition, and capacity construction can further enhance Ethiopia's position as a leading player in the global coffee trade.

(Zekarias Bassa, 2019) determinants of coffee export in Ethiopia: an application of co-integration and vector error correction approach. The results established the existence of a long-run relationship between the quantity of Ethiopian coffee exported and export price, coffee production, world export coffee in tons, and population size of 15 to 64. The analysis pointed out that in the long run; the extent of Ethiopia's coffee export is inversely related to coffee production in the country and world coffee supply in tons and straight connected to export price and population size of the active aged category.

(Endalew, 2024) Factors Affecting Coffee Export Performance in Ethiopia reveals that the export performance of coffee in Ethiopia is meaningfully influenced by external barriers, including factors connected to the institutional support environment, the political and regulatory environment, export industry obstacles, export market obstacles, and infrastructure difficulties, while company fences showed less contribution to the model. It can be concluded that the external barriers have a direct relationship with the prediction of export performance.

(Tilahun, 2025) The Effect of Supply Chain Management Practices on Coffee Export Performance: Case of Coffee Export Firms in Addis Ababa. The findings of the study have shown that four measurement dimensions of Supply Chain Management Practices have a significant effect on export performance, and SSP and IS have a more important effect on coffee export performance than the remaining two dimensions of Supply Chain Management practices.

2.4. Research Gap Analysis

The reviewed empirical literature indicates that coffee export performance is shaped by a complex interaction of factors, with Macroeconomic variables (exchange rate, trade openness, FDI); Production-related factors (output level, productivity, technology); Market conditions (global prices, demand, competition); Institutional and policy factors (regulatory environment, infrastructure); and firm-level characteristics (management capability, marketing strategies). Although different studies have examined determinants of export performance in Ethiopia, many are either outdated or focus broadly on commodity exports rather than coffee specifically. Besides, incomplete attention has been given to contained analyses of market determinants. Therefore, a clear research gap exists in that an in-depth and reorganized analysis of the market determinants of Ethiopian coffee export performance, particularly in the study area. Significant gaps remain when these findings are compared with the current dynamics of Ethiopia's coffee sector.

Most previous studies have primarily focused on traditional determinants such as exchange rate, production level, and export price, with restricted integration of recent structural and policy reforms. Though recent evidence indicates that Ethiopia's coffee sector has undergone a large transformation, including market liberalization, direct export access for farmers, and institutional reforms that have significantly increased export volume and revenue. These evolving dynamics are not adequately taken into account in earlier empirical models.

Although export performance has recently shown remarkable improvement, reaching record levels in both volume and income, there is still limited empirical research explaining why performance fluctuates despite growth trends. For instance, Ethiopia has extended into new international markets and increased export incomes largely, yet productivity, quality improvement, and value addition remain relatively low compared to global competitors.

This indicates a gap in linking market performance with structural inefficiencies and value chain limitations. Third, existing studies give insufficient attention to emerging global challenges, particularly climate change and international regulatory frameworks.

Recent reports indicate that increasing temperatures and climate variability are causing a decline in coffee productivity and quality, posing a significant threat to export sustainability. At the same time, new global trade regulations such as environmental agreement requirements are creating barriers for Ethiopian farmers, who control the sector. These contemporary issues are largely absent from earlier empirical literature.

There is a lack of detailed investigation into market diversification and competitiveness in new export destinations. While Ethiopia has recently expanded into additional global markets and supported its international presence, most empirical studies still focus on traditional markets such as Europe. There is an incomplete understanding of how growing markets (e.g., Asia and the Middle East) influence export performance and pricing strategies. Fifth, previous research has largely overlooked the role of firm-level capabilities and knowledge-based factors in explaining export success. Recent studies emphasize that export knowledge, commitment, and product adaptation significantly influence coffee export performance at the firm level (Negeri & Ji, 2023). However, these variables are rarely integrated with macroeconomic and market-level determinants in a unified analytical framework.

Most studies are directed at the country level, with minimal focus on specific local contexts or study areas. Given Ethiopia's diverse agro-ecological zones and market structures, restricted studies are essential to understand how market determinants differ across regions.

The absence of such localized empirical evidence creates a critical gap for policymakers and stakeholders seeking besieged interventions. The key gaps identified are a lack of integration of current policy reforms and market changes, a limited focus on current export performance trends versus underlying constraints, an inadequate analysis of market diversification and emerging export destinations, a weak linkage between firm-level and macro-level determinants, and a scarcity of localized (study-area specific) empirical research. In general, limited attention has been given to emerging issues of market diversification and current policy reforms in Ethiopia. This study aims to address this gap.

2.5. Conceptual Framework of the Study

The conceptual framework of this study is grounded in two core theoretical foundations. First, the Gravity Model of Trade (Tinbergen, 1962; Anderson, 1979) explains bilateral trade flows as a function of the economic size of trading partners and the distance between them, and has been widely applied to agricultural commodity export analysis. Second, the Export Supply Model (Goldstein & Khan, 1978) links export performance directly to relative prices and domestic supply capacity, making it appropriate for analyzing price volatility and production effects on Ethiopian coffee exports. These theoretical foundations are further supported by empirical frameworks from Boansi et al. (2013), who identified key determinants of African coffee export performance, and Endalew (2024) and Asfaw (2024), who examined Ethiopian coffee supply response and market integration. Building on these foundations, the conceptual framework of this study hypothesizes that Ethiopian coffee export performance, the dependent variable, is determined by six independent variable groups as defined below:

Dependent Variable: Ethiopian Coffee Export Performance operationalized as annual export volume (metric tons) and annual export value (USD millions), measured from 2000 to 2025.

Independent Variables:

(V1) Domestic Production Capacity: total annual coffee output within Ethiopia, expressed in metric tons. Captures the effect of agricultural practices, input use, and climatic conditions.

(V2) Coffee Quality Standards: the degree to which exported coffee meets international grading and specialty standards, measured via exporter perceptions on a 5-point Likert scale.

(V3) Domestic Coffee Price: the average farm-gate or domestic market price of coffee in Ethiopian Birr per kilogram, reflecting domestic market conditions.

(V4) Global Coffee Price: the average international price of coffee in USD per kilogram, capturing the influence of world market demand and competition.

(V5) World Coffee Production: the total global output of coffee in metric tons, representing global supply-side effects on Ethiopian export competitiveness.

(V6) Logistics and Policy Constraints: the extent of transport infrastructure deficiencies, regulatory burdens, and institutional barriers faced by exporters, measured via exporter perceptions on a 5-point Likert scale.

Moderating/Mediating Variables: There are no moderating or mediating variables in this model. The framework tests the direct effects of the six independent variables on the dependent variable. The framework was originally adopted from Reis and Forte (2010) and modified by the researcher to reflect the Ethiopian context and the specific variables under study.

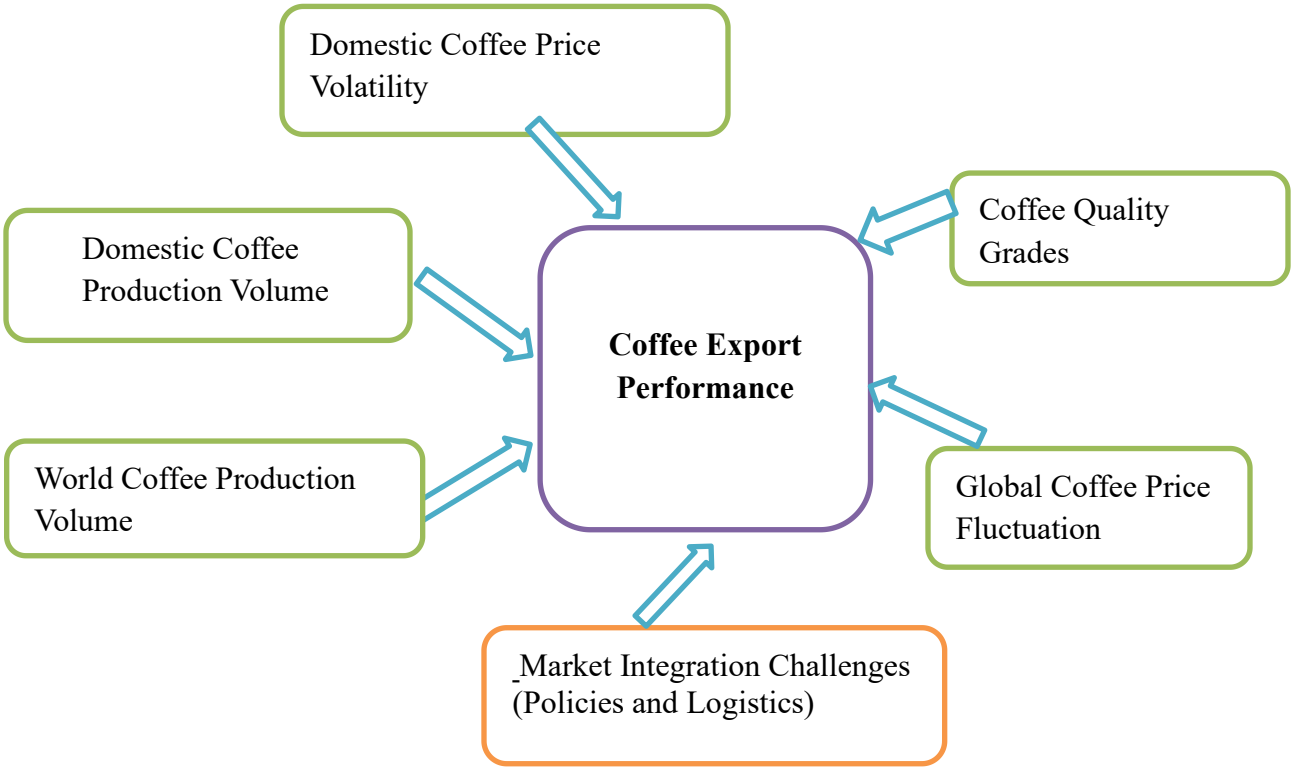


Figure 1: Conceptual framework of the study

Source: Adopted from Reis and Forte (2010), (Goldstein & Khan, 1978), and modified by the researcher.

CHAPTER THREE

3. RESEARCH METHODOLOGY

This chapter covers the methodology and research approach that were employed in the study: research design and approach, target population, and sample design, data sources, data collection and analysis techniques, co-integrating tests, and ethical considerations.

3.1. Research Design and Approach

This study adopted a mixed-methods research design, integrating both quantitative and qualitative approaches within a single study. This choice is explicitly justified by the dual nature of the research objectives: the quantitative component is necessary to measure and test the statistical relationships between the market determinants and Ethiopian coffee export performance, while the qualitative component is essential to capture the institutional, regulatory, and experiential dimensions of logistics and policy barriers that cannot be fully quantified through numerical data alone. The combination of both approaches strengthens the overall validity and comprehensiveness of the findings through methodological triangulation (Creswell, 2014).

The quantitative component employed a cross-sectional survey design, collecting primary data from 101 stratified, randomly sampled coffee-exporting enterprises registered with the Ethiopian Coffee and Tea Authority (ECTA). Survey responses were analyzed using Multiple Linear Regression (MLR) in Stata version 17 to identify the significant firm-level determinants of export performance. In addition, secondary time-series data spanning 2000–2025 were analyzed using Augmented Dickey-Fuller (ADF) unit root tests, Johansen co-integration tests, and Vector Autoregression (VAR) modeling to examine long-run and short-run price and production dynamics.

The qualitative component involved semi-structured Key Informant Interviews (KIIs) conducted with 10–15 purposively selected experts from ECTA and coffee exporter associations. Thematic analysis was used to analyze the qualitative data, providing contextual depth and explanatory power for the statistical findings.

3.2. Population and Sampling Procedures

The target population for this research is all coffee-exporting firms recorded with the Ethiopian Coffee and Tea Authority (ECTA). This sector includes about 550 active participants as of 2025. To avoid the risk of high-volume success intense the realities of smaller firms, the research uses a stratified random sampling technique. It divides the population into three different groups: Large-scale, Medium-scale, and Small-scale exporters. This method ensures that the data on market integration is both inclusive and comprehensive.

Together with the firm-level data, the research uses purposive sampling to gather in-depth qualitative ideas from 10 to 15 key informants. Ns, such as the Ethiopian coffee and tea authority (ECTA), Union Exporters, and Commercial Exporters, due to their better knowledge. This focused approach is essential for understanding the long-term trends observed from 2000 to 2025, connecting raw statistical data with the institutional reasons behind market changes. By incorporating these expert viewpoints, the research goes beyond simple observation to run a detailed analysis of the determinants of Ethiopia's coffee export.

3.3. Sample Size Determination

The sample size for this research is determined by the total population of 550 active coffee-exporting enterprises recorded with the Ethiopian Coffee and Tea Authority (ECTA). Based on these assumptions, the actual sample size for the study is determined using Yamane's (1967) simplified sample size determination formula. Thus, the sample size for this research is 101 coffee exporting enterprises, calculated as follows:

$$\mathrm{n} = \frac{N}{1+N(e^{2})}$$

Where: n = Sample size

N = 550 (Total population of registered exporters)

e = (0.09) Margin of error. The sample size was approximately 101.

The 9% precision level in Yamane's sample size calculation formula helps as a critical parameter in defining the adequacy of the projected sample size for this research. It represents a strategic balance between statistical accuracy and practical challenges, such as the geographical scattering of exporters and the time-sensitive nature of the 2024/25 market reforms. This precision level ensures that the calculated sample size of 101 is sufficient for consistent inference and representative of the larger market determinants and integration challenges faced by Ethiopian exporters from 2000 to 2025.

3.4. Data Type and Source

The source of the time-series data for Ethiopian coffee export is from several databases covering the period 2000 to 2025 were chosen based on data availability on these variables. From the Ethiopian Coffee and Tea Authority, World Bank development indicators, international coffee origination, Ethiopian Revenue and Customs Authority, Ethiopian Coffee Producers and Exporters Association, Central Statistics Agency, and the United States Department of Agriculture are the only sources of secondary data used in the research. The regression analysis's sample period is from 2000 to 2025.

The research primarily adopted a quantitative design, focusing on numerical data analysis to explore price dynamics and market integration. This approach allows for the application of statistical procedures to identify relationships and designs in the data. The study employed secondary data from reputable sources, including the International Coffee Organization (ICO) and WDG, covering different coffee price types over an expanded period from 2000 to 2025.

3.5. Methods of Data Collection

This research uses a mixed-methods approach, combining primary and secondary data sources to analyze the coffee export sector from 2000 to 2025. Primary data came from structured questionnaires given to coffee exporting enterprises. These questionnaires feature a 5-point Likert scale to measure qualitative constraints, such as logistical concerns, the effects of the 2024/25 currency liberalization, and the costs of meeting international regulations like the EUDR.

Along with the studies, semi-structured Key Informant Interviews (KIIs) were conducted with experts from the Ethiopian Coffee and Tea Authority (ECTA) and experienced exporters. To cover the long-term aspects of the research, secondary data were collected systematically from 2000 to 2025. This contains gathering time-series data on annual export volumes and values.

These datasets were gained from the official annual reports and statistical reports of the National Bank of Ethiopia (NBE) and ECTA. For a global market context and data confirmation, international databases, as well as the International Coffee Organization (ICO), the World Bank, and the Foreign Agricultural Service (USDA) reports, was used. This secondary data is vital for the regression modeling (VAR) required analyzing market factors and price instability trends as defined in the research's second objective.

3.6. Data Analysis Methods

In order to analyze the data, descriptive and regression models were used.

3.6.1. Descriptive Statistics

Descriptive statistics function as a foundational instrument in data analysis, providing a summary of the central tendency, dispersion, and total distribution of the data. This first analysis is crucial for understanding the basic characteristics of the coffee market and can enlighten further statistical modeling. By employing these descriptive statistical techniques, such as mean, percentage frequency, and using tables, figures, and graphs, the analysis yielded a comprehensive summary of the price characteristics of Ethiopian Coffee beans, laying the groundwork for more advanced econometric modeling and market analysis within the given timeframe.

3.6.2. Regression analysis

The analysis engaged models to assess price dynamics and market integration from 2000 to 2025 using a given time-series dataset. To estimate the magnitude and effects of the main determinants of coffee exports, coffee prices were regressed on a multiple linear regression model (MLR), and the model specification is as follows.

Determinants of coffee exports

Ext Perf. = β0 + β1 Dom..PRO + β2 QUA+ β3 DOMPr + β4 GLOPr + β5 Wolrd Pro + β6 Logis + ut

A priori exp: Dom..PRO >0; QUA>0; DOMPr > 0; GLOPr > 0; Wolrd Pro >0; β6 Logis > 0.

Where: Dom..PRO: Domestic Production; QUA: Quality; DOMPr: Domestic Price

GLOPr: Global Price; World Pro: World Production; Logis: Logistics

β betas and coefficients of independent variables, and ut is the error terms

Co-integration Analysis

An effective statistical method for examining long-term correlations between non-stationary time series is co-integration analysis. This is important for determining whether Ethiopian coffee prices have a long-term balance or not. Given the difficulty of the coffee market, the outcome of these connections can offer producers, traders, and policy makers' important information.

Stationarity Testing: Before applying the Johansen co-integration test, it is essential to check if the price series is stationary or not. Non-stationary time series can lead to misleading regression model results. The Augmented Dickey-Fuller (ADF) test is a commonly used test for stationarity of a time series dataset. If the price series is found to be non-stationary, differencing the data may be required to attain stationarity.

The Johansen Co-integration Test: After preparing the data and confirming the stationarity of the series, it is necessary to apply the Johansen co-integration test. This test is vital as it knows numerous co-integrating relationships among various time series. The key steps in this procedure include determining the optimal lag length, and the Johansen test involves two statistics. The first step in the Johansen test is to find the right lag length for the Vector Auto regression (VAR) model. This can be reached using criteria such as the Akaike Information Criterion (AIC) or the Schwarz Bayesian Criterion (SBC).

The trace statistic and the maximum eigenvalue statistic. These statistics support finding the number of co-integrating vectors in the data. A significant outcome indicates that a long-term equilibrium relationship exists among the prices of Ethiopian coffee.

The variables are non-stationary and not co-integrated; specifying a VAR in First Differences. This ensures that the model is stable and the results are true.

VAR Model Specification

The VAR model is a multi-equation method where each variable is regressed on its own lagged values and the predicted values of all other variables in the system. The general mathematical specification for a VAR (p) model is:

$$Y_t = \alpha + \sum_{p} \beta_i Y_{t-i} + \epsilon_t$$

Where:

Yt: A vector of endogenous variables at time t. α: A vector of intercept terms (constants). β i: A matrix of coefficients to be estimated for each lag i. p: The optimal lag length (determined by AIC/SBIC). ϵ t: A vector of white noise error terms.

3.7. Validity and Reliability of the Instruments

To ensure that the data collected is both accurate and consistent, the study will undergo rigorous psychometric testing. This process is essential for turning the qualitative insights from the 101 sampled exporters into solid, scientifically sound findings.

Validity of the Instrument: Validity refers to how well the research tool measures what it is supposed to measure. For this study, validity was ensured through three main layers: **Content Validity**: The survey items were adapted from trusted academic literature on agricultural export performance and checked against the specific objectives of the study.

A draft of the questionnaire was sent to experts at the Ethiopian Coffee and Tea Authority (ECTA) and academic supervisors to confirm that the questions fully cover logistics, policy, and market challenges.

Face Validity: A preliminary review was done to make sure that the instrument looks relevant and clear to the respondents. This involves checking for professional terminology and ensuring the 5-point Likert scale is easy to understand for exporters.

Construct Validity: This was evaluated during the data analysis phase to verify that the observed variables (e.g., transport costs, EUDR compliance) accurately reflect the underlying theoretical ideas (e.g., market integration challenges).

Reliability of the Instrument: Reliability refers to how consistent and stable the measurement is over time. To ensure the reliability of the 101-firm survey, the following steps were taken. Before the full-scale data collection, a pilot study was conducted on 10 to 15 coffee exporters (around 10% of the sample) who are not part of the final research. This helps identify unclear questions and assess the time needed for completion.

Internal Consistency (Cronbach's Alpha): After the pilot test, the data were analyzed using Cronbach's alpha in Stata. An alpha value of 0.70 was used as the standard for acceptable reliability.

Table 3: Reliability of Data

Variables	Cronbach's alpha result
Production Capacity	0.9230
Quality	0.9302
Domestic Price	0.9490
Global Price	0.9425
World Market	0.9340
Logistics	0.9154

Source: output of Likert scale-type items from data in Stata, 2026

The reliability analysis of the research instrument demonstrated strong internal consistency across all measured constructs, including production, quality, domestic price, global price, world market, and logistics.

Each construct achieved Cronbach's alpha values well above the accepted threshold of 0.70, with production and quality recording alpha values of 0.9230 and 0.9302, respectively, indicating stable, consistent measurement within the questionnaire. The overall instrument scored a high Cronbach's alpha of 0.9490, indicating that the questionnaire items reliably captured the intended determinants of export performances. This high reliability suggests that if the instrument were administered again under similar conditions to a comparable sample, it would yield consistent and dependable results. The scale reliability coefficient of all variables in the above table suggests that every four statements in the six constructs are highly correlated and are measuring the same underlying concept reliably. Consequently, the findings from this instrument can be interpreted with confidence, reinforcing the credibility and trustworthiness of the study's conclusions regarding the determinants of Ethiopian coffee export performance (Creswell, 2014; Twycross and Shields, 2004).

3.8. Ethical Consideration

In undertaking any research, there is an ethical responsibility to do the work honestly and with integrity (Adams *et al*, 2007). Engaging in research necessitates a commitment to ethical conduct, emphasizing honesty and integrity throughout the process. The researcher prioritized participants' comfort by ensuring they comprehended the advantages of the study, thereby minimizing potential embarrassment. The research assistants maintained a focus on ethical principles, demonstrating concern for the well-being of the participants. Participants were assured of their safety and the confidentiality of their provided information, fostering trust and security. To uphold academic integrity, all sources referenced within the research were appropriately cited, thereby preventing instances of plagiarism.

CHAPTER FOUR

4. RESULTS AND DISCUSSIONS

Introduction

This chapter is devoted to the systematic analysis and presentation of the study's findings, organized into four distinct sections. The initial section provides a descriptive overview, detailing the demographic profile of the participants. The second part transitions into inferential analysis, focusing on the results derived from correlation and regression modeling. In the third section, the focus shifts to time-series data, specifically illustrating trends and the outcomes of unit root testing. Finally, the chapter concludes with a thematic analysis of the qualitative data collected during the research process.

4.1. Descriptive Results

4.1.1. Demographic of respondents

Table 3 below displays that the gender scattering of the sample respondents is skewed toward males, who make up 75.25% of the sample respondents, while females make up 24.75%. The demographic profile of the 101 surveyed sample respondents shows that they are a highly experienced and academically qualified group of professionals in the Ethiopian coffee export sector. The gender distribution is very rough, with a mean of 0.75, showing that about 75% of the participants are male. This is in line with the outdated gender makeup of management roles in the industry and descriptive output (Abiot, 2022).

Table 4: Demographic profile of the respondents

Stats	Sex	Educational status	Experiences
N	101	101	101
Mean	0.7524752	2.485149	13.96238
SD	0.4337267	0.7016247	7.099758
Min	0	1	2.1
Max	1	3	24.8

Source: Stata output from survey data, 2026

This knowledge of coffee export is backed by a robust level of practical experience, with an average of 13.96 years in the industry. Generally speaking, those who are more educated are more productive than those with lower levels of education, holding other factors constant. The experience varies widely, from 2.1 to 24.8 years, reflecting views from both new exporters and experienced veterans. Taken together, these statistics suggest that the data comes from a knowledgeable group of participants.

4.1.2. Descriptive statistics results for key variables

The following summary table 5 shows key descriptive statistics for variables in survey respondents. Logistics emerges as the most critical factor with the highest average score (4.02), indicating its perceived importance. Domestic production capacity also scores high (3.72), reflecting strong exporter consensus on its significance. Domestic price is the most volatile variable, with the highest standard deviation (1.157) and a wide range (1 to 5), indicating differing firm perspectives on price stability. Quality standards have a moderate mean (3.55) and show notable variation, underscoring their ongoing relevance but less consensus compared to logistics and production capacity.

Table 5: Summary statistics of key variables

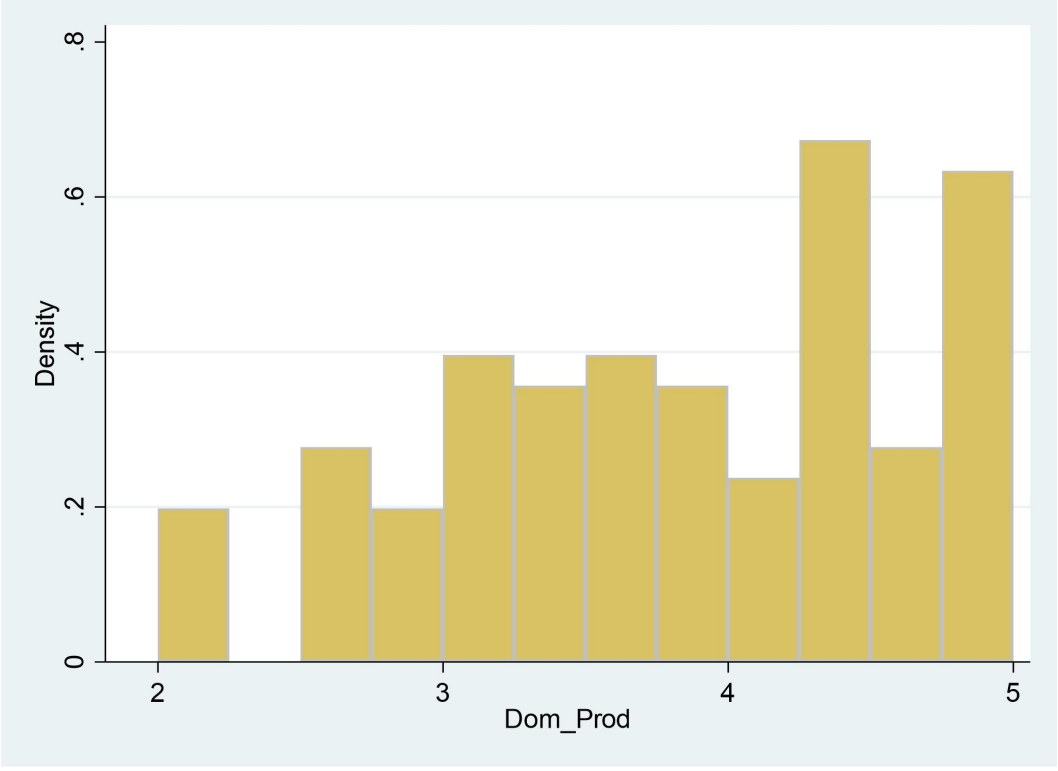
Variable	Obs.	Mean	Std. dev.	Min	Max
Domestic Production	101	3.720297	0.839112	2	5
Quality	101	3.549505	0.9347592	2	5
Domestic Price	101	3.074257	1.156798	1	5
Global Price	101	3.482673	1.008872	1.75	5
World Production	101	3.217822	1.089532	1.25	5
Logistics	101	4.022277	.6991951	3	5

Source: Stata output from survey data, 2026

The histogram shows that most responses cluster around the average values, especially between 3.5 and 3.75, which corresponds closely to the previously calculated mean of approximately 3.72 (Tadele, 2013; Abiot, 2025). Higher scores, from 3.5 to 5.0, are more frequent, while lower scores, from 2.0 to 3.0, are relatively rare, indicating a tendency of respondents to give fairly positive assessments, with only a few assigning low marks (Tadele, 2013; Ethiopian Coffee Export Performance Study, 2022).

The pattern also suggests that many coffee exporters operate at similar production or performance levels, as reflected by the concentration of responses at certain points and the large gaps at others, implying limited variation in output or capacity across firms (Contextual summary of structure and performance of Ethiopia's coffee export sector, 2024; Ethiopian Coffee Exports: Development Performance, Challenges and Prospects, 2013).

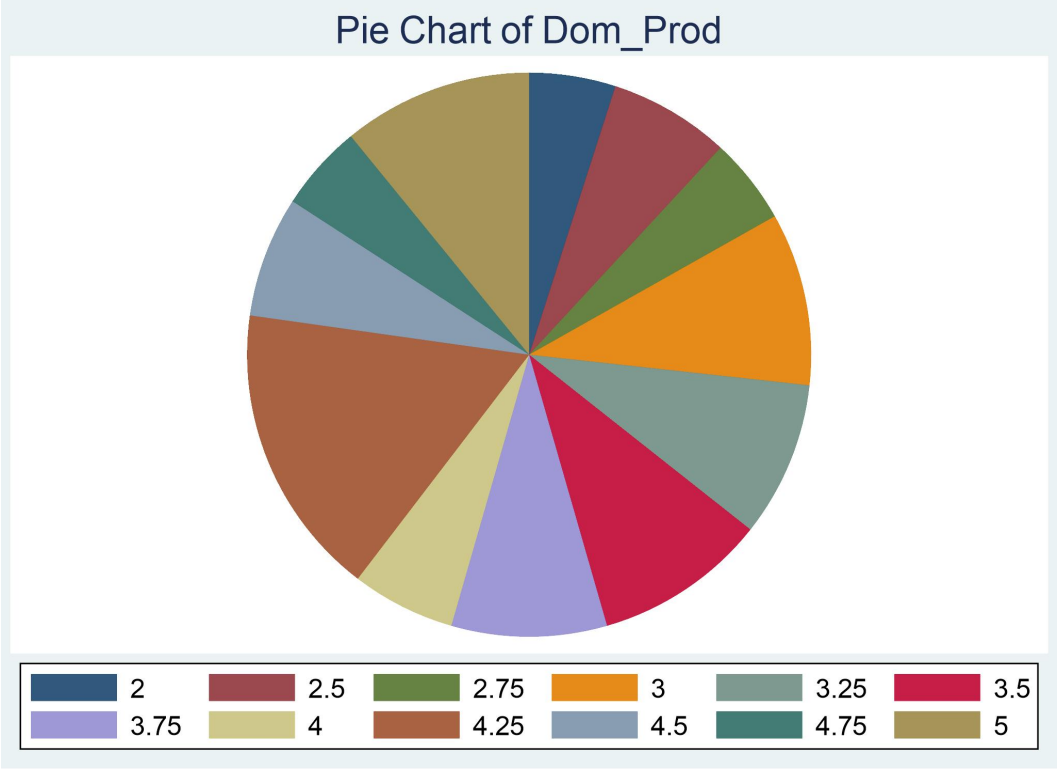
Figure 2: Histogram of domestic production



Source: Stata output from survey data, 2026

The pie chart on Ethiopian coffee sellers highlights a diverse structure of producers, with 11 distinct groups ranging from small-scale to large-scale operators, reflecting considerable heterogeneity in production capacities and success levels (Minten et al., 2014; Ethiopian Coffee Exporters' Association, 2024). Large producers, represented by sizable segments such as the khaki slice labeled 4.25, demonstrate high output potential, while smaller groups, such as the dark blue slice marked 2.0, show more limited production, indicating differences in resource access, scale, and organization (Tadele, 2013). Medium-sized groups, exemplified by the orange slice (3.25) and the blue slice (4.75), occupy an intermediate position, suggesting that many exporters operate at moderate scales with room to grow (Minten et al., 2014). The chart underscores that firms with higher production capacity are more likely to participate successfully in export markets, reinforcing domestic production as a key determinant of export performance in Ethiopia's coffee sector (Minten et al., 2014; Arslan & Reicher, 2011).

Figure 3: Graph pie Log Export, over (production)



Source: Stata output from survey data, 2026

4.1.3. Likert scale-type items description statistics result

The item-level descriptive statistics reveal a significant combination of high mean scores in the market integration challenges areas. Frequent delays at the Djibouti port hinder our ability to meet delivery deadlines, and obeying the EUDR (Deforestation) regulations significantly increases our operational costs, recording the highest total means of 4.1 and 4.0, respectively, with low standard deviations of 0.636 and 0.666. These results show that all exporters face challenges related to logistics and quality demands, but their internal production strengths and ability to respond to changes in global prices largely depend on their decisions and market position.

This indicates that nearly all exporters agree that poor transportation and logistical infrastructure are the main issues in the industry. Two out of the four items for quality (maintaining high-quality standards (Specialty, Grade 1/2) is vital for securing premium prices, and implementing end-to-end traceability is the most challenging aspect of our quality control) also had mean scores of 3.910 or higher. This shows that Ethiopian coffee exporters are very motivated to meet international quality standards.

However, the decline in international coffee market prices is the primary cause of the fall in our exports (Mean = 3.4), which has a noticeably low score. This figure falls, suggesting that exporters believe they are lacking in a specific area. The perceptions regarding global and world prices, as well as domestic policy, show more variation in responses, indicating a more complex market situation. This variation, along with the relatively high standard deviations in the domestic coffee price volatility (between 0.897 and 0.944), indicates that internal capabilities and external price perceptions differ across the industry.

In global coffee price fluctuation area Some items such as The decline in international coffee market prices is the primary cause of the fall in our exports (mean =3.475) and frequent global price fluctuations prevent us from making long-term capital investments (mean = 3.574), we use forward contracts to protect our firm against global price drops (mean = 3.514) and external price shocks are often beyond the moderation capacity of our domestic policies with mean of 3.564 has lower mean from all items as a group.

Table 6: Likert scale-type items description statistics result

Dimensions	Items	Mean	SD
Domestic Coffee Production	Growth in national coffee harvest volumes has increased our export fulfillment capacity.	3.693	0.845
	We can consistently source enough raw coffee to meet our existing export contracts.	3.712	0.898
	Expansion in coffee agricultural areas has led to a more reliable supply for our export business.	3.742	0.820
	Seasonality and climate-related production shifts significantly affect our export volumes.	3.722	0.838
Coffee Quality	Maintaining high-quality standards (Specialty, Grade 1/2) is vital for securing premium prices.	3.910	0.837
	Implementing end-to-end traceability is the most challenging aspect of our quality control.	3.910	0.801
	Our factories invest heavily in processing technology to meet international quality requirements.	4.009	0.818
	Fluctuations in coffee quality directly result in the cancellation of international contracts.	3.930	0.777
Domestic Coffee Price Volatility	High domestic purchase prices often make it unprofitable for us to sell in the global market.	3.574	0.909
	High local consumption prices make it more profitable to sell coffee locally than to export.	3.603	0.906
	Competition for cherries at the farm-gate level significantly increases our operational costs.	3.584	0.897
	The Vertical Integration pricing system is highly sensitive to local supply shortages.	3.524	0.944
Global Coffee Price	The decline in international coffee market prices is the primary cause of the fall in our exports.	3.475	0.855
	Frequent global price fluctuations prevent us from making long-term capital investments.	3.574	0.840
	We use forward contracts to protect our firm against	3.514	0.878

Fluctuation	global price drops.		
	External price shocks are often beyond the moderation capacity of our domestic policies.	3.564	0.887
World Coffee Production	Increased supply from Brazil and Vietnam reduces the global demand for Ethiopian coffee.	3.643	0.900
	Global oversupply of Arabica coffee leads to lower unit prices for our exports.	3.702	0.843
	Ethiopia's unique flavor profile provides us with a reasonable edge despite global supply surges.	3.653	0.888
	Market share losses are common when competitor nations have plentiful harvest years.	3.633	0.796
Market Integration Challenges	High domestic transportation costs from cleaning sites to the port reduce our profit margins.	4.356	0.667
	Frequent delays at the Djibouti port hinder our ability to meet delivery deadlines.	4.415	0.636
	Obeying the EUDR (Deforestation) regulations significantly increases our operational costs.	4.405	0.666
	The 2024/25 currency liberalization has improved our competitive position in the market.	4.306	0.731

Source: Stata output from survey data, 2026

4.2. Inferential Statistics Results

4.2.1. Correlation result

The correlation matrix offers a statistical basis for understanding the linear relationships between coffee export performance and its key influencing factors. Strong positive correlations are observed between the log of export performance and Quality (r = 0.5337), as well as Logistics (r = 0.4990), indicating that enhancements in product standards and infrastructure are closely linked to increased export values (Minten et al., 2014; Lemma & Alemayehu, 2021).

In contrast, Domestic Price shows a significant negative correlation with export performance (r = −0.5629), consistent with evidence that high domestic prices divert supply from export channels and reduce export competitiveness (Coffee Market Crisis, 2016; Ethiopian Coffee Exporters' Association, 2024).

The negative correlation between Logistics and Domestic Production (r = −0.3174) indicates that an increase in production volume may put pressure on the logistical infrastructure, or that larger- scale production is concentrated in regions with less efficient transportation networks, consistent with evidence that Ethiopia's transport bottlenecks and high logistics costs disproportionately constrain high- volume regions (UNCTAD, 2021; Shiferaw & Mitiku, 2021; Meron Admasu, 2025). The weak correlations between World Production and other domestic factors suggest that Ethiopia's coffee export success is more influenced by internal factors such as quality control and logistical efficiency than by variations in global production levels, reinforcing findings that domestic infrastructure and quality- related improvements are more decisive than external supply fluctuations (Fekadu, 2013; Ethiopian Coffee Exporters' Association, 2024). This underscores the importance of domestic policy measures focused on improving infrastructure and quality assurance as the most effective strategies for boosting the country's coffee export performance (Evans, R. H., 1996; UNCTAD, 2021).

Table 7: Correlation analysis result

	Log Export	Dom_Prod	Quality	Dom_Price	Glo_Price	World_pro	Logistics
Log_Export	1.0000						
Dom_Prod	0.2668	1.0000					
Quality	0.5337	-0.1646	1.0000				
Dom_Price	-0.5629	0.0570	-0.1173	1.0000			
Glo_Price	0.1494	0.1338	0.0036	-0.1172	1.0000		
World_ pro	0.0958	0.1357	0.0734	0.1219	-0.0073	1.0000	
Logistics	0.4990	-0.3174	0.2355	0.0296	-0.0437	-0.0327	1.0000

Source: Stata output from survey data, 2026

4.2.2. Regression Analysis Results

The results of Multiple Linear Regression (MLR) analysis displayed that six important factors had a significant effect on the performance of coffee export at the 1% significance level ($p < 0.01$).

Domestic production and quality: Domestic production ($\beta = 2.739$) and quality ($\beta = 1.866$) both display positive and substantial effects, strengthening the literature that both the quantity and quality of coffee matter for export achievement (Bayissa, 2024). Current Ethiopian data show that rising production supported by replanting and yield-enhancing policies has enabled exports to reach record levels (over 5.6 million bags in 2023/24), while quality-focused initiatives have assisted narrow the gap between domestic output and export-ready, higher-grade beans (Ethiopia Coffee Report, 2025; Gudina, 2024). Projects to improve quality, such as rural quality laboratories and extension aimed at smallholder farmers, have enlarged awareness of grading and processing standards, indicating why higher quality tends to raise export value and competitiveness even when global volumes expand (Gudina, 2024).

World production and global price: World production ($\beta = 0.316$) and global price ($\beta = 0.152$) are significant but relatively small in magnitude, implying that, while external market conditions matter, domestic structural factors such as logistics, domestic supply, quality, and pricing play a larger role in shaping Ethiopian export performance (Bayissa, 2024). This pattern is consistent with sector-level evidence that Ethiopian exporters are price takers on the world market, but their success depends heavily on how well domestic institutions manage supply chains, quality control, and domestic-export price relationships (Bayissa, 2024; Shiferaw *et al*., 2024).

In other words, even when global production or price conditions are satisfactory, the gains for Ethiopia are fully realized only when domestic distortions (e.g., misaligned domestic prices or weak logistics) are minimized (Lemma and Alemayehu, 2021; Shiferaw et al., 2024).

Domestic price: Domestic price emerges as the only significant negative predictor (β = −2.096), showing that higher local prices can crowd out export supply and reduce global competitiveness. This is consistent with observations that, when domestic prices rise well above export parity, traders and farmers may prefer local markets, leading to reduced exportable surplus and higher internal price instability (Coffee Market Crisis, 2016; Coffee Platform, 2022). In Ethiopia, wide gaps between domestic and international prices, sometimes with local prices several times higher than export benchmarks, have been linked to informal trade, delayed shipments, and pressure on foreign- exchange earnings, all of which can weaken export performance despite strong production or quality (Coffee Market Crisis, 2016; Lemma & Alemayehu, 2021).

Logistics factors: The strong positive influence of logistics (β = 3.628) on coffee export performance aligns with evidence that efficiency in transport, warehousing, and coordination is a key driver of Ethiopian exporters' competitiveness in global markets (Lemma and Alemayehu, 2021; Shiferaw *et al*., 2024). Research on Ethiopia's coffee export supply chain shows that poor logistics integration lengthens lead times, surges loss and damage, and weakens distribution reliability, all of which decrease export volumes and discourage participation in time- sensitive specialty markets (Lemma and Alemayehu, 2021; Melesse and Tadesse, 2024). Improving road infrastructure, port connectivity, and information distribution among exporters and government agencies can significantly lower trade costs and directly contribute to higher export performance, as reflected in the big coefficient of logistics in the multiple linear regression (MLR) model (Lemma and Alemayehu, 2021; Shiferaw *et al*., 2024).

The adjusted R-squared is 0.9924, meaning that the included variables explain about 99.2% of the variation in coffee export performance. The Prob > F value is 0.0000, indicating that the model is significant. This shift in the determinants from individual-level to systemic determinants underlines the importance of policy measures focusing on infrastructure development and market-based strategies rather than capacity building for exporters alone.

Source	SS	df	MS	Number of obs =	101
				F (8, 92) =	1623.64
Model	1803.31467	8	225.414334	Prob > F =	0.0000
Residual	12.7726419	92	.138833064	R-squared =	0.9930
				Adj R-squared =	0.9924
Total	1816.08731	100	18.1608731	Root MSE =	.3726

Table 8: Regression analysis results

Log Export	Coefficient	Std. err.	t	P>t
Domestic Production	2.739479	.0481649	56.88	0.000
Quality	1.866167	.0418121	44.63	0.000
Domestic Price	-2.096375	.0331187	-63.30	0.000
Global Price	0.1517775	.0375973	4.04	0.000
World production	0.3163312	.0353294	8.95	0.000
Logistics	3.628401	.0575359	63.06	0.000
_cons	14.53147	.4104673	35.40	0.000

Source: Stata output from survey data, 2026

Multicollinearity test

This Variance Inflation Factor (VIF) result is decent for the soundness of the regression model, as it specifies that there is no serious multicollinearity among the independent variables. In research, a VIF value beyond 10, or sometimes 5 in stricter research, is typically taken as an indication that variables are too strongly related, which can misrepresent standard errors and parameter estimates (Burns, 2008). The outcomes of multicollinearity tests on the independent variables display a mean VIF of only 1.08, with no individual variable exceeding 3 thresholds.

This shows that each predictor in the model, domestic production, quality, world production, domestic price, educational status, experience, and logistics, contributes unique, independent information to the regression, thereby supporting the robustness and interpretability of the estimated coefficients (Andy, 2006).

Table 9: Multicollinearity Test

Variable	VIF	1/VIF
Domestic production	1.18	0.849945
Logistics	1.17	0.857863
Quality	1.10	0.908842
Word Pro	1.07	0.937003
Domestic price	1.06	0.945868
Global Price	1.04	0.964957
Mean VIF |	1.08	

Source: Stata output from survey data, 2026

Heteroscedasticity test

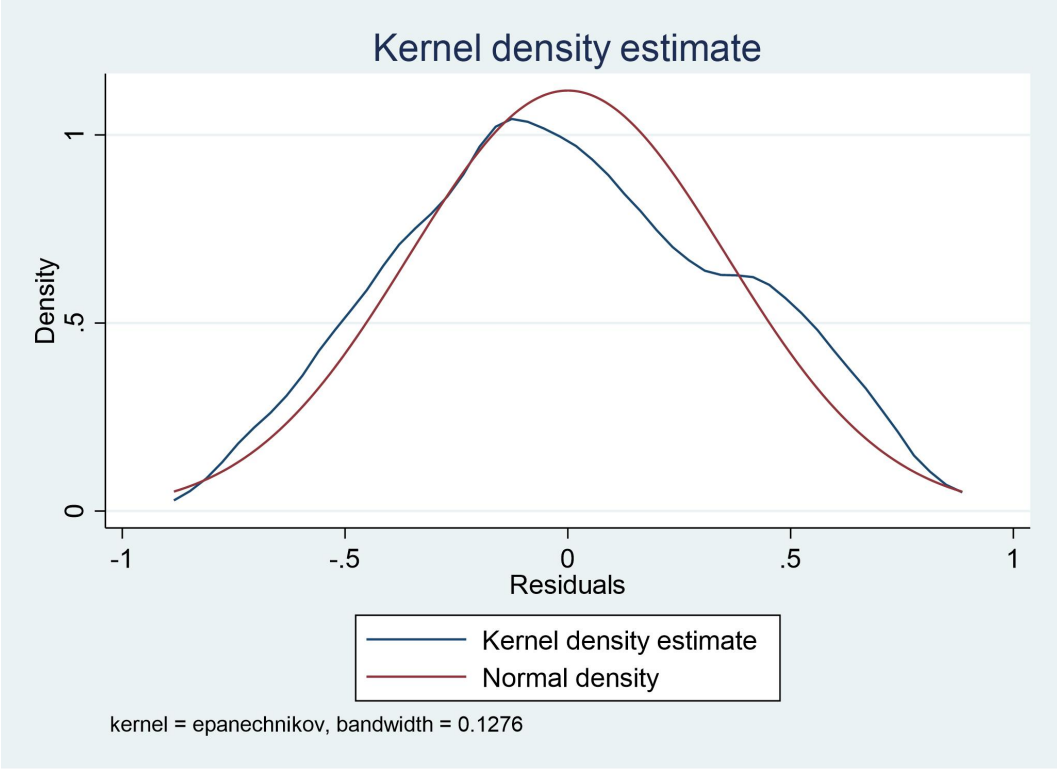
The Breusch–Pagan/Cook–Weisberg test was used to check the assumption of homoskedasticity in the Multiple Linear Regression (MLR) model. The test produced a chi- square value of 0.00 with a corresponding p- value of 0.9674, which is well above the 5% significance threshold, indicating that the null hypothesis of constant variance can be retained (Wooldridge, 2016; Gujarati and Porter, 2009). This outcome ensures that the standard errors of the coefficients are correctly estimated and that the statistical significance of the predictors, mostly logistics and domestic production, is not overstated due to heteroskedasticity- induced bias, thereby establishing the validity of inference in the regression (Wooldridge, 2016; Gujarati & Porter, 2009).

Breusch- Pagan/Cook-Weisberg test for heteroskedasticity Assumption: Normal error terms Variable: Fitted values of Log Export H0: Constant variance chi2(1) = 0.00 Prob > chi2 = 0.9674

Normality test

The Kernel Density Estimate (KDE) plot visually supports the normality assumption for the regression residuals in the coffee export determinants model. The blue line, representing the actual distribution of residuals, thoroughly follows the bell-shaped path of the red normal density curve, demonstrating that the error terms are unevenly normally distributed about a mean of zero (Silverman, 1986; Wasserman, 2004). Though there are minor deviations and a small secondary peak near the 0.5 mark, the overall symmetry proposes that departures from normality are not simple enough to overturn the reliability of the model's t-tests or confidence intervals (Wasserman, 2004; Wooldridge, 2016). This graphic evidence, combined with the formerly confirmed Shapiro–Wilk test results, supports the statistical integrity of the projected effects on Ethiopia's coffee export performance.

Figure 4: Normality test



Source: Stata output from survey data, 2026

4.3. Time series data analysis

When dealing with time series data, in order to specify the regression model, we first need to check the stationarity of the data and to determine its order of integration. A unit root test was carried out by means of an Augmented Dickey-Fuller (ADF) test for each variable in the model, Takele (2024). The Augmented Dickey Fuller (ADF) unit root test findings show that all of the variables are not stationary at the level, as the null hypothesis of the unit root cannot be rejected at the 1, 5, and 10% level of significance, as shown below.

4.3.1. Unit root test Volume Metric Tons

The stationarity of the Volume Metric Tons variable was tested to prevent the risk of spurious regression in the time series analysis. At its level form, the ADF test statistic of -1.362 is suggestively less negative than the 5% critical value of -3.600, obtaining a high p-value of 0.8718. Thus, we fail to reject the null hypothesis, approving that the export volume is non-stationary and covers a unit root. Though upon taking the first difference (D. Volume Metric Tons), the series experienced an important transformation. The test statistic lifted to -3.757, which is more negative than the 5% critical value of -3.600. With a p-value of 0.0189, the null hypothesis is rejected at the 5% significance level. This confirms that the variable is stationary at first difference, or I (1). This finding is a critical precondition for the co-integration analysis, as it shows that while the export volume varies in the short run, it may share a long-term equilibrium relationship with other I (1) variables like world prices and production status (Zelealem, 2019).

Table 10: Unit root test of Volume Metric Tons

Variable	Form	ADF Statistic	5% Critical Value	p-value	Result
Volume (MT)	Level	-1.362	-3.600	0.8718	Non-Stationary
Volume (MT)	1st Diff	-3.757	-3.600	0.0189	Stationary I (1)

Source: Stata output from survey data, 2026

4.3.2. Unit Root Test of Value Million USD

The stationarity analysis for Value Million USD shows a higher order of integration related to other variables. The primary Augmented Dickey-Fuller (ADF) test on the first difference generated a p-value of 0.1570, failing to reject the null hypothesis of a unit root at the 5% significance level. This implies that the first difference of export value still holds a stochastic trend, likely due to the combination effects of price instability and inflationary pressures during the 2000–2024 period.

However, upon testing the second difference (D2. Value Million USD), the series achieved stationarity. The test statistic of -5.758 is significantly more negative than the 1% critical value of -3.750, with a MacKinnon estimated p-value of 0.0000. Thus, the null hypothesis is rejected with high confidence, finding that the value variable is integrated of order two, I (2). While the physical volume of exports stabilizes comparatively quickly, the financial value wants deeper transformation to achieve a mean-reverting state, a factor that must be accounted for in the following co-integration modeling to avoid false findings.

Table 11: Unit Root Test Value Million USD

Variable	Form	ADF Statistic	5% Critical Value	p-value	Result
Value (USD)	Level	0.110	-3.600	0.9952	Non-Stationary
Value (USD)	1st Diff	-2.348	-3.000	0.1570	Non-Stationary
Value (USD)	2nd Diff	-5.758	-3.000	0.0000	Stationary I (2)

Source: Stata output from survey data, 2026

4.3.3. Unit Root Test of Unit Price

The first-difference transformation of the Unit Price USD kg variable effectively attained stationarity, as demonstrated by the Augmented Dickey-Fuller (ADF) test results. The test statistic of -4.400 is meaningfully more negative than the 1% critical value of -3.750. With a MacKinnon estimate p-value of 0.0003, we reject the null hypothesis of a unit root at the 1% significance level. This approves that while the absolute price per kilogram of coffee fluctuates according to global market trends, the annual change (growth rate) in price is stationary. Thus, the unit price variable is integrated of order one, I (1), as long as there is a stable basis for the following co-integration analysis together with export volume.

Table 12: ADF Test Results for Unit Price (USD/kg)

Variable	Form	ADF Statistic	1% Critical Value	5% Critical Value	p-value	Result
Unit Price	Level	-2.168	-4.380	-3.600	0.5077	Non-Stationary
Unit Price	1st Difference	-4.400	-3.750	-3.000	0.0003	Stationary I(1)

Source: Stata output from survey data, 2026

4.3.4. Lag-Order Selection

The co-integration test is usually headed by a test of ideal lag length, as the findings of the test is exaggerated by the number of lags comprised in the Vector Autoregressive (VAR) model. In the Johansson maximum likelihood approach, the first step towards the co-integration analysis is the determination of an appropriate lag length that is going to be used in the VAR approximation. Many tests can be used to choose a lag length, the Likelihood Ratio test (LR), the Final Prediction Error test (FPE), the Akaike information criteria (AIC), the Schwarz information criteria (SIC), and the Hannan-Quinn information criteria (HIC) are used to regulate the optimal lag length of the VAR model for the co-integration test Tadesse, 2025).

The test results of the different lag selection methods show that the suitable lag length in this research is two, at 5% level of significance, and are obtainable in the table below. Choosing the correct lag is essential to ensure that the residuals of the model are white noise and that the long-run relationships are precisely estimated. As shown in Table 4.11, the selection criteria present a small variation in the recommended lag length. The SBIC implies an optimal lag of 1 (26.428), whereas the AIC (26.048), HQIC (26.156), and the Final Prediction Error (FPE) all suggest an optimal lag of 2. Given that coffee production and export often involve year-over-year adjustments and biological cycles, selecting Lag 2 is theoretically sound as it allows the model to account for two years of historical data. Therefore, the research proceeds with a lag length of 2 for the Johansen Co-integration test and the subsequent Vector Error Correction Model (VECM) Takele (2024).

Table 13: Lag-Order Selection Criteria Results

Lag	LL	LR	P	FPE	AIC	HQIC	SBIC
0	-287.58			3.3e+09	27.58	27.60	27.68
1	-268.36	38.45	0.000	7.7e+08	26.13	26.19	26.43*
2	-263.51	9.71	0.046	7.2e+08*	26.05*	26.16*	26.55
3	-261.17	4.67	0.323	8.7e+08	26.21	26.36	26.90

** Indicates optimal lag order selected by the criterion.*

4.3.5. Johansen Co-integration Test

To analyze the existence of a long-run equilibrium relationship between coffee export volume and unit price, the Johansen co-integration test was executed using a lag length of 2. The null hypothesis for this test (rank=0) is that there are no co-integrating equations. As presented in Table 4.12, the Trace Statistic for a rank of zero is 7.79, which is significantly less than the 5% critical value of 15.41. Thus, the study fails to reject the null hypothesis of no co-integration.

Table 14: Johansen Co-integration Test Results

Maximum Rank	Eigenvalue	Trace Statistic	5% Critical Value
0*	.	7.7913*	15.41
1	0.23861	1.5213	3.76
2	0.06400		

**Selected rank indicates no co-integration.*

These findings show that Volume Metric Tons and Unit Price USD kg do not partake in a stable, long-run "synchronization" or equilibrium that jerks them back together after a surprise. In real terms for the Ethiopian coffee sector, this proposes that physical export volumes and global unit prices move somewhat independently of each other over time. Because the variables are stationary in their first differences (I (1)) but not co-integrated, the suitable model for the last analysis is a Vector Autoregression (VAR) in first differences, rather than a Vector Error Correction Model (VECM) Fassil, 2024).

var d. Volume Metric Tons d. Unit Price USD/kg, lags (1/2)

Sample: 2003 through 2024 Number of obs = 22

Log likelihood = -276.7366 AIC = 26.06696

FPE = 7.29e+08 HQIC = 26.18379

Det (Sigma_ ml) = 2.89e+08 SBIC = 26.56289

Equation	Parms	RMSE	R-sq	chi2	P>chi2
D_ Volume Metric ~s	5	42579	0.2876	8.879657	0.0642
D_ Unit Price USD kg	5	.526663	0.3524	11.97303	0.0176

Table 15: Vector Auto regression results

	Coefficient	Std. err.	z	P>|z|	[95% conf. interval]	
D_ Volume Metric Tons						
Volume Metric Tons						
LD.	-.6479076	.3926584	-1.65	0.099	-1.417504	.1216887
L2D.	-.73231	.4609085	-1.59	0.112	-1.635674	.1710541
Unit Price USD/kg						
LD.	-17645.48	16933.03	-1.04	0.297	-50833.61	15542.65
L2D.	10168.4	15441.84	0.66	0.510	-20097.06	40433.86
_cons	25650	10013.18	2.56	0.010	6024.527	45275.48
D_ Unit Price USD/kg						
Volume Metric Tons						
LD.	8.20e-06	4.86e-06	1.69	0.091	-1.32e-06	.0000177
L2D.	-3.84e-06	5.70e-06	-0.67	0.501	-.000015	7.33e-06
Unit Price USD/kg						
LD.	.1280881	.2094461	0.61	0.541	-.2824188	.538595
L2D.	-.2446888	.1910015	-1.28	0.200	-.6190449	.1296673
_cons	.164924	.1238539	1.33	0.183	-.0778252	.4076733

Source: Stata output from survey data, 2026

4.3.6. Vector Auto Regression (VAR) Analysis

The vector autoregressive (VAR) model findings expose the short-term interdependencies between the growth rates of coffee export volume and unit prices. For the Export Volume equation, the model explains approximately 28.7% of the variance (R^2 = 0.2876). Particularly, the first lag of export volume (LD. Volume Metric Tons) has a coefficient of -0.647 with a p-value of 0.099, signifying a marginal self-correcting mechanism where a surge in volume in one year is frequently followed by a small contraction in the next lag.

However, changes in Unit Price do not appear to have a statistically significant direct impact on the volume of coffee exported ($p > 0.05$), showing that Ethiopian exporters may not be able to adjust their supply volumes rapidly in response to international price signals due to the recurrent nature of coffee production Tadesse, (2025). In the Unit Price equation, the model shows a stronger fit ($R^2 = 0.3524$) and is statistically significant overall ($p = 0.0176$). Remarkably, the first lag of Export Volume (LD. Volume Metric Tons) shows a marginal positive influence on price changes ($p = 0.091$). This could imply that shifts in Ethiopia's supply volume have a small market-moving effect or are closely linked with broader global supply trends that dictate price. The results propose that the coffee export sector is characterized by stickiness, where local production cycles and historical volumes are more influential in the short run than immediate price instability. This is in line with research by Solomon (2021).

Equation	R-sq	chi2	P > chi2	Interpretation
D. Volume Metric Tons	0.2876	8.879	0.0642	Marginally Significant
D. Unit Price USD/kg	0.3524	11.973	0.0176	Significant

Source: Stata output from survey data, 2026

4.4. Export Volume Trends (2000–2025)

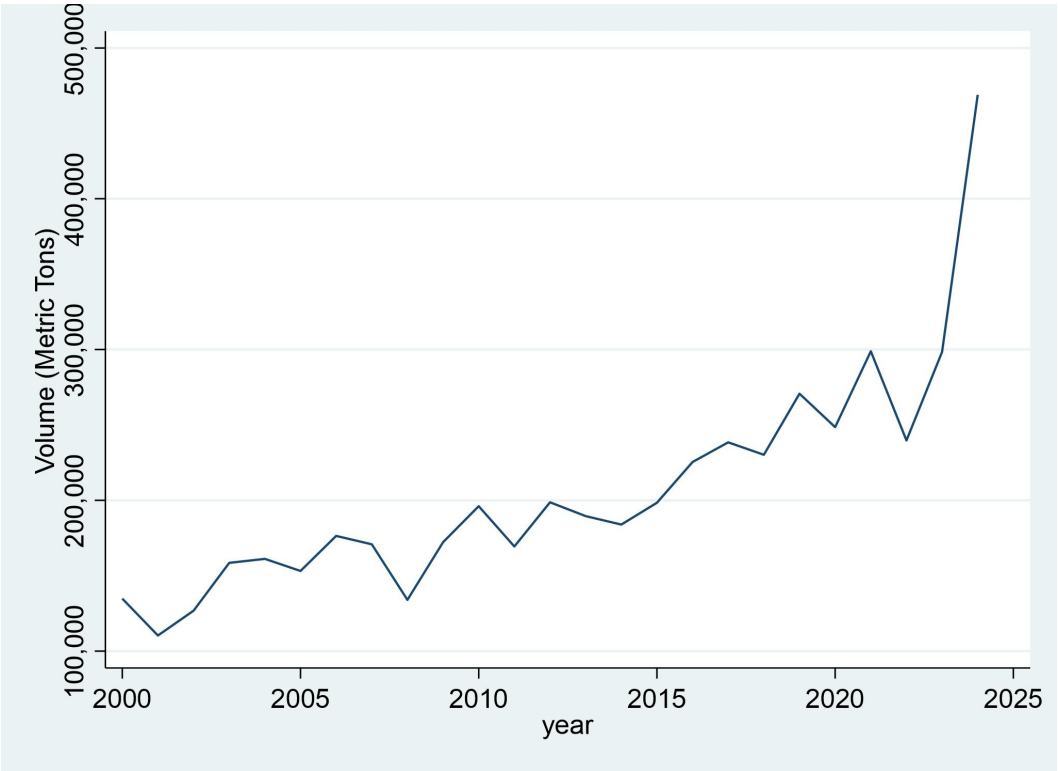
The figure below displays the sector's physical growth over two and a half decades. The trend can be divided into three distinct phases:

The Foundational Phase (2000–2010): This period shows stable but modest growth, with volumes fluctuating between 100,000 and 200,000 metric tons. The high-pitched depression in 2008 likely reproduces the impact of the worldwide financial disaster and domestic supply chain disruptions Veli Anıl Çakan, *et al*., 2025).

The Growth and Consolidation Phase (2011–2020): During this decade, the area broke through the 200,000-ton ceiling. The jagged nature of the line shows the sector's sensitivity to climatic conditions and biennial production cycles essential in coffee farming, Tamru and Minten (2023).

The Reform Surge (2021–2024): The most significant result is the exponential point starting around 2022. The volume jumped from about 300,000 tons to nearly 500,000 tons in just two years. This affected vertical climb likely reflects the success of recent Ethiopian coffee sector reforms, such as the introduction of vertical integration and direct export inducements. When Ethiopian coffee exports are fragmented down by key partners, it becomes clear that the volume of coffee exports to each partner nation has been falling while the value of coffee exports to each partner nation has been rising Fassil, 2024).

Figure 5: Export Volume trends (2000-2024)



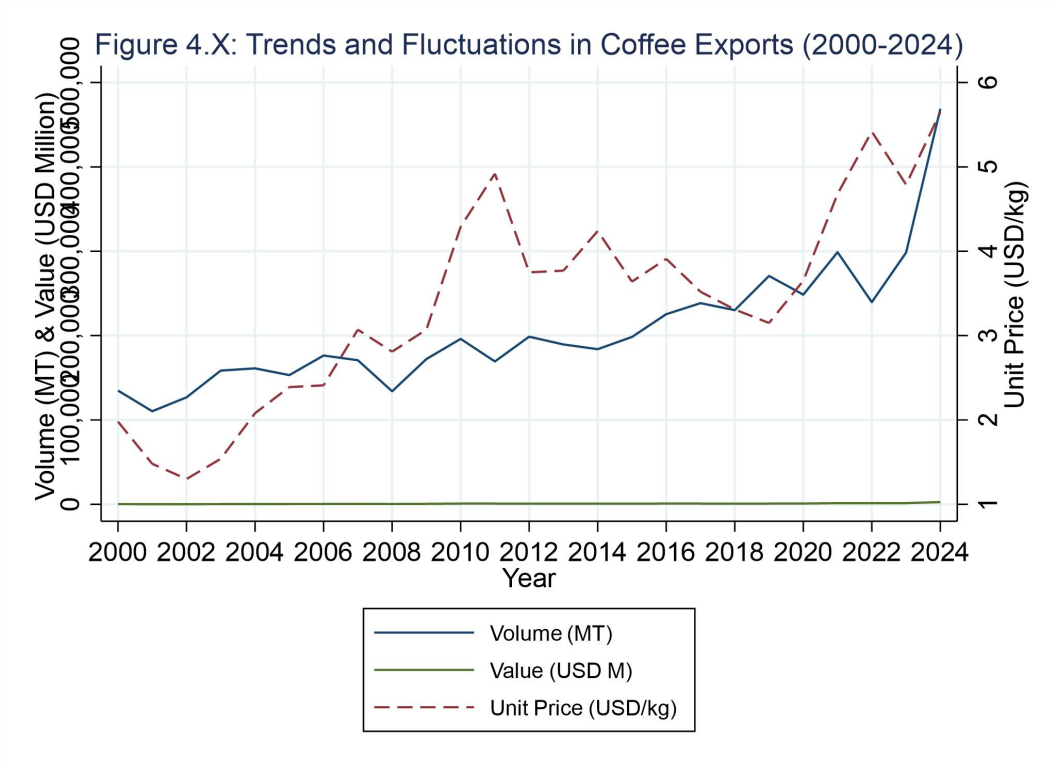
Source: Stata output from time series data, 2026

4.4.1. Trends and fluctuations in Ethiopian coffee export (2000 -2025)

The figure that comes out of this is a more advanced way to indicate that the Ethiopian coffee export market has two tracks. The Volume (solid blue line) shows a clear, long-term rising trend, with a big jump after 2020 that takes it to record levels of almost 500,000 metric tons by 2024.

The Unit Price is very unbalanced and has sawtooth instabilities that occur in cycles. This picture displays that even though Ethiopia's capability to produce and export coffee has progressively enlarged over the past 25 years, the price per kilogram is still exaggerated by volatile worldwide market forces that are often not related to Ethiopia's own production success. This is in line with the findings of Berihun (2021). A critical observation from the graph is the Price-Value dissociation seen in different periods, notably around 2008 and 2011. During the 2011 peak, the unit price reached nearly 5.5 USD/kg, yet total volume remained comparatively stable, emphasizing that points in export revenue during that era were driven primarily by global price increases rather than enlarged local output. The recent trend (2021–2024) period signifies a golden era for Ethiopian exports, where physical supply growth aligned with favorable global pricing to drive record-breaking total value, as shown by the gradual rise of the Value (solid green line) from its preceding flat baseline, Berihun (2021).

Figure 6: Trends and Fluctuations in Ethiopian coffee export (2000 – 2025)



Source: Stata output from timeseries data, 2026

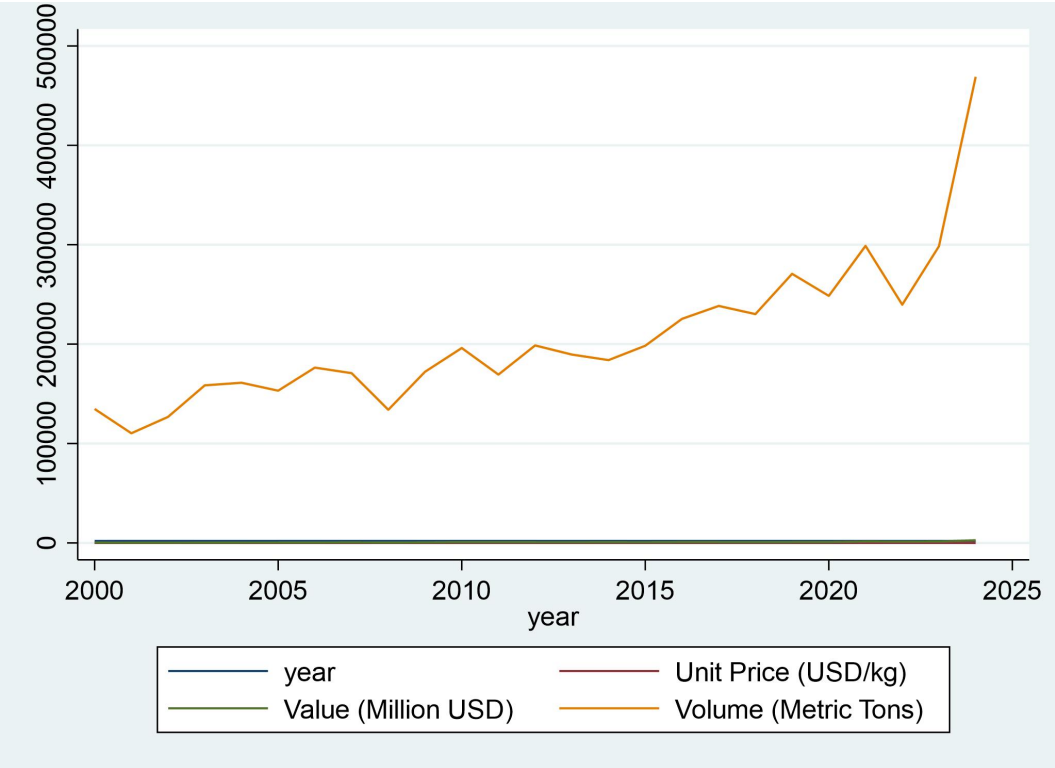
4.4.2. Ethiopia's coffee export performance from 2000 to 2025

The figure below displays a comprehensive visual indication of Ethiopia's coffee export performance from 2000 to 2024. The most striking feature is the steep upward trend in Export Volume (Metric Tons), mainly the sharp exponential point after 2020, when volumes surged toward the 500,000-ton mark. The current sectoral reforms or production expansions have knowingly enhanced the industry's physical yield. The data reveals a clear decoupling between physical volume and unit pricing dynamics. The steady, volatile growth in volume highlights Ethiopia’s increasing capacity as a global supplier; so far, the recurrent jagged movements in the price and value line underscore the sector's vulnerability to international commodity price shocks.

In contrast, the Value (Million USD) and Unit Price (USD/kg) lines appear comparatively flat at the bottom of the scale, highlighting the vast difference in units (hundreds of thousands for volume versus single or triple digits for price and value). The variables imply consistent fluctuations that mirror world market instability, mostly during the notable peaks of 2011 and 2021. One-time price booms, which could be a windfall, are followed by long-term price slumps that significantly affect producers. An increase in the world price may not pass to the producer price due to the overvaluation of local currencies, Berihun (2021).

The sharp rise in volume toward the end of the period (2022–2025) indicates a period of high performance that likely outpaced the growth in unit prices, indicating that the recent rise in total export earnings is driven more by the quantity of coffee sold than by a significant increase in the global price per kilogram. This reinforces your earlier VAR findings that volume acts as a primary driver within the domestic export framework, necessitating a focus on volume-based logistics to sustain these financial gains. This is in line with the result of Zelealem (2019).

Figure 7: Export Performance (2000-2024)



Source: Stata output from timeseries data, 2026

4.5. Qualitative Analysis Results

To support the findings from descriptive statistics, inferential statistics, and vector autoregressive (VAR) regression findings, this study also conducted qualitative data analysis based on data collected through various methods. One of these methods was interviews. Experienced Ethiopian coffee exporters and top exporters were deliberately included in these interviews. The researcher conducted the interviews in person. The findings from interviews are summarized as follows: The combined data indicate that this sector is mainly driven by internal operational efficiencies rather than external market signals. The survey findings show that quality and production status are the two most important positive factors influencing export performance. When domestic coffee prices increase, exporters face higher purchasing costs, making it problematic to supply the world coffee market.

In terms of quality issues, Ethiopia lacks a maintainable and clear traceability management system, which weakens its trustworthiness in international markets. To alleviate the impact of global coffee prices, respondents recommended increasing promotion, diversifying markets, and boosting exports of specialty and value-added coffee. Participants also pointed out poor logistics, including insufficient transportation, which negatively affects coffee export performance. Martha Endalew (2024) likewise stressed that poor logistics and long supply chains damage coffee export effectiveness.

Qualitative response from the interviews identified the Djibouti-Addi's corridor and rising internal freight costs as significant stressors. The main challenge for Ethiopian coffee export performance is not a lack of managerial or technical skills but rather structural and logistical issues causing variations in the export trend. Future performance will likely depend on matching professional know-how with better infrastructure to stabilize the historical instability, as noted by Assefa (2018). The qualitative feedback highlighted the "Djibouti-Addi's corridor" and increasing inland freight costs as primary stressors affecting export performance. This aligns with Assefa (2018), who described infrastructural inadequacies in Ethiopia as a burden on exporters, reducing potential profits before the products reach the port.

However, this research expands on researchers' work by showing that these logistical challenges are more than just cost problems; they also significantly drive market volatility. Moreover, the data suggest that the main barrier to Ethiopian coffee export success is not a lack of managerial or technical skills but rather structural issues. The survey indicated a highly skilled workforce, with 60.4% holding advanced degrees, denying the idea that poor human capital leads to underperformance. This supports Minten *et al.* (2019), who found that while professionalization has improved quality in the Ethiopian coffee value chain, institutional challenges often weaken these enhancements. Ethiopian coffee exporters possess strong technical and market expertise that should enable them to compete effectively in global markets, but their performance is affected by inconsistent and unreliable logistics systems (Debela, 2013).

Interviews with exporters indicate that stays at ports, fragmented inland transport, and dependence on a single corridor (e.g., Addis Ababa–Djibouti) create bottlenecks that erode delivery reliability and raise trade costs, restricting the sector's ability to respond to international demand signals (UNCTAD, 2021). This mismatch between high human-capital capabilities and underdeveloped infrastructure underpins periodic instability in export flows, even when production and quality conditions are favorable (Gebreyesus, 2015). Ethiopia is a price taker rather than a price setter on the world coffee market. This aligns with Durevall and Sjø (2012), who indicate that domestic coffee prices in Ethiopia are only lightly tied to the New York "C" price and are strongly influenced by domestic supply shocks and policy distortions (Durevall and Sjø, 2012; Coffee Market Dynamics in Ethiopia, 2011). Exporters must therefore adapt to external price movements rather than shape them, reinforcing the importance of non-price competitive advantages such as quality, reliability of supply, and logistics performance (Fekadu, 2013).

Qualitative evidence suggests that separating price and volume is a strategic response to this price-taker condition. Exporters, aware of persistent fluctuations in global prices and domestic policy uncertainty, prioritize rapid volume growth as a way to stabilize revenues over time, a pattern also documented in recent USDA reports highlighting sustained volume increases in Ethiopian coffee exports despite price volatility (USDA, 2024). This "volume-first" strategy allows firms to maintain cash flow and contractual relationships with international buyers, even when the margin per unit is constrained by thin price spreads (Comunicaffe, 2025; Coffee Export Supply Determinants in Ethiopia, 2025).

Ethiopia's industrial policy should move toward logistics-led growth, embedding infrastructure and transport modernization at the core of export-oriented structural transformation (Gebreyesus, 2015; Brookings, 2016). Even with high-quality standards (mean $\approx$ 4.49), persistent transport risks and weak logistical coordination prevent the sector from capitalizing fully on its quality and skill advantages, underscoring the need for long-term public and private investment in logistics, port-corridor efficiency, and traceability-enabled supply-chain management (USDA, 2024).

CHAPTER FIVE

5. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1. Summary

The study aimed to study the factors affecting Ethiopian coffee export performance by joining a time-series analysis (2000–2025) with cross-sectional survey data from industry stakeholders. The multiple linear regression (MLR) analysis found that six variables significantly affect Ethiopian coffee export performance at the 1% significance level. Main positive factors include logistics, domestic production, and quality, indicating the significance of efficient infrastructure, higher output, and quality standards. Conversely, higher domestic prices negatively affect exports, indicating that when local prices exceed export parity, more coffee is sold domestically, reducing export volumes. External factors like world production and global prices also affect exports, but to a lesser extent.

The quantitative findings from the Vector Autoregression (VAR) and Granger Causality tests indicated a unidirectional relationship, signifying that variations in export volume are a significant predictor of future unit price fluctuations, rather than the opposite. This implies that while Ethiopia has successfully scaled its physical export capacity, evidenced by the dramatic surge to nearly 500,000 metric tons by 2024, the sector remains a price taker on the world stage. The lack of long-run co-integration between volume and price further underscores that the financial value of exports is highly sensitive to external global market shocks.

The thematic analysis showed that logistical problems and infrastructure bottlenecks are still the greatest difficulties that stop export performance from getting better. Even though managers have extensive education, the logistics quality link was found to be the main reason why high production levels don't translate into stable, high-value revenues. Therefore, it is summarized that the absence of a stable long-run equilibrium with global prices demands a strategic shift toward value addition and logistical efficiency to keep the sector from international market instability.

5.2. Conclusions

The empirical evidence and thematic discussions in this research lead to different fundamental conclusions about the factors that affect Ethiopia's coffee export performance. The research discoveries that the Ethiopian coffee sector has made have altered how it makes things in a big way. The research finds that the sector has a lot of highly educated people working in it, with most exporters having advanced degrees. Though these experts are presently limited by problems with logistics and infrastructure. Ethiopia's coffee export sector is highly skilled, with most stakeholders holding advanced degrees, representing strong professional expertise.

In conclusion, the multiple linear regression (MLR) results show that Ethiopian coffee export performance is primarily shaped by domestic structural factors rather than external market conditions alone. Strong positive effects of logistics, domestic production, and quality indicate that investments in infrastructure, supply- side expansion, and grading/processing standards are critical for improving competitiveness. The significant negative impact of domestic price suggests that price- policy biases between local and international markets can weaken export volumes, while the comparatively small coefficients on world production and global price confirm that global conditions complement but do not replace the need for sound domestic institutions and market integration. Sustaining and grading Ethiopian coffee exports will rely on coordinated reforms in logistics, quality management, and domestic- export price placement, supported by stable global demand.

Enhancing infrastructure and digitalization is crucial to align high-level expertise with efficient supply chains, reducing unpredictability and allowing the sector to move beyond being a price taker toward stable, value-driven growth. In the next ten years, Ethiopia’s success in coffee will depend less on planting more land and more on making sure the coffee gets from the farms to the port quickly and efficiently. If Ethiopians were to use modern technology and better transportation systems, it could make their farming more consistent and fruitful.

5.3. Recommendations

Based on the combination of the descriptive, regression results, and time series analysis, the following policy and strategic suggestions are made to improve the performance of Ethiopia's coffee export:

Key recommendations include investing in transportation infrastructure and streamlining customs to reduce logistics costs; expanding replanting programs, supporting smallholders, and ensuring sustainable land use for domestic production; strengthening quality control, expanding rural labs, and promoting specialty certifications to access higher global prices; improving price transparency and linking domestic and export prices to prevent diversion; and monitoring global production and diversifying markets and products to mitigate risks from global supply instability. Moreover, it recommends using financial tools such as forward contracts and building buffer stocks to manage global price instability while maintaining domestic market stability.

Logistics was found to be the major problem, so the government and private sector should put more money into cold-chain infrastructure for coffee transport corridors. Exporters will be able to fulfill high-value specialty contracts that are less sensitive to price changes seen in the price value data if the time between the farm gate and the port is shorter. Develop Dry Port Coffee Hubs in key coffee-producing regions such as Jimma and Hawassa. These hubs will enable on-site quality grading and containerization, reducing the risk of quality loss during transportation by bringing these processes closer.

To solve the problem of volume and price not being long-term co-integrated, Ethiopia wants to stop being a price taker of raw beans and start being a price maker of treated goods. There should be incentives for roasting, packaging, and branding coffee in the country. The absence of co-integration between volume and price specifies that relying solely on raw bean exports is unsustainable in the long term. To enhance value, establish Export Processing Zones (EPZs) devoted to finished coffee products. Offer incentives from the government to companies that roast, package, and brand Ethiopian coffee for the international market.

Create a Brand Ethiopia Marketing Fund, funded by a small portion of export royalties. This fund will provision global marketing efforts intended at positioning Ethiopian coffee as a premium consumer brand similar to the Colombian Juan Valdez model rather than just a commodity. This method assistances shift the volatility associated with raw coffee prices into more stable pricing for branded, consumer-ready products.

Institutional Support for Price Risk Management: The time-series analysis presentations that prices are very unstable, so the ECTA needs to rapidly add more advanced hedging tools. Establish an ECTA-supported Hedging Facility. Many exporters do not have sufficient capital to be involved in international futures markets. The government should create a Centralized Hedging Pool that permits exporters to purchase price insurance to secure a minimum selling price. Implementation steps include building capacity among professional risk officers. Given the sector's strong educational background, ECTA should offer certified training in commodity derivatives and risk management. This will raise the expertise of exporters, converting them from technocratic operators into sophisticated financial participants capable of handling price instability effectively.

Recommendation for future research

Recommendations for future research can be made to address the problems. Therefore, the researcher recommends that future researchers include traceability as crucial in the coffee value chain to sustain exports. So, it's better if the future research focuses on the importance of traceability and how to maintain it. The domestic coffee pricing system adversely affects Ethiopian coffee export performance, so future research should be concentrated on the pricing system of coffee.

The Ethiopian coffee export market depends on different factors like global coffee production volume and international coffee pricing; to sustain in the export market, diversification is the most important, according to the respondents. So, market diversification areas like encouraging specialty and value-added coffee exports should be the study area of future research.

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7. APPENDICES

ADDIS ABABA UNIVERSITY

SCHOOL OF COMMERCE

DEPARTMENT OF MARKETING MANAGEMENT

Appendix I

Table: Granger Causality Wald Test Results

Null Hypothesis (H0)

Equation	Excluded	chi2	df	Prob > chi2
D_ Volume Metric T~s	D. Unit Price USD/kg	1.3535	2	0.508
D_ Volume Metric T~s	ALL	1.3535	2	0.508
D_ Unit Price USD/kg	D. Volume Metric T~s	8.7354	2	0.013
D_ Unit Price USD/kg	ALL	8.7354	2	0.013

Summary of ADF Unit Root Test Results (2000–2024)

Variable	Level (p-value)	1st Diff (p-value)	2nd Diff (p-value)	Order of Integration
Volume (Metric Tons)	0.8718	0.0189**	--	I(1)
Value (Million USD)	0.9952	0.1570	0.0000***	I(2)
Unit Price (USD/kg)	0.5077	0.0003***	--	I(1)

*Significant at 10%; **Significant at 5%; ***Significant at 1% level

Appendix II Questionnaire

Dear respondent!

This questionnaire is prepared by an MA Candidate from Addis Ababa University School of Commerce Department of Marketing Management *in Partial Fulfillment of the Requirements for the Awards Degree of Masters of Arts in Marketing Management* with the title ***"Examining Market Determinants of Ethiopian Coffee Exports (2000-2025).*** Then you are kindly requested to answer the following questions, apparently without hesitating in order to assess the Market Determinants of Ethiopian Coffee Exports (2000-2025) for the improvement of the country's challenges.

Thank you in advance for your cooperation.

Confidentiality Note: The information provided will be used strictly for academic research only. No individual firm data will be disclosed.

Part I- Respondents' Background Information

Please read each question carefully and tick (√) in the box matching the response.

1. Sex: Male ☐ Female ☐

2. Respondent's Years of Experience in the Coffee Sector: _____

3. Educational Status: College Diplor... ☐ Degr ☐ Master's or a... ☐

Part II: Determinants of Coffee export performances and market integration challenges

Please indicate your level of agreement with the following statements regarding the determinants of coffee export performances.

Scale: 1 = Strongly Disagree | 2 = Disagree | 3 = Neutral | 4 = Agree | 5 = Strongly Agree

Variable (Dimension)	No	Measurement Item (Statement)	Scale

1. Domestic Coffee Production	1	Growth in national coffee harvest volumes has increased our export fulfillment capacity.	1 2 3 4 5
	2	We can consistently source enough raw coffee to meet our existing export contracts.	1 2 3 4 5
	3	Expansion in coffee agricultural areas has led to a more reliable supply for our export business.	1 2 3 4 5
	4	Seasonality and climate-related production shifts significantly affect our export volumes.	1 2 3 4 5
2. Coffee Quality	5	Maintaining high-quality standards (Specialty, Grade 1/2) is vital for securing premium prices.	1 2 3 4 5
	6	Implementing end-to-end traceability is the most challenging aspect of our quality control.	1 2 3 4 5
	7	Our factories invest heavily in processing technology to meet international quality requirements.	1 2 3 4 5
	8	Fluctuations in coffee quality directly result in the cancellation of international contracts.	1 2 3 4 5
3. Domestic Coffee Price Volatility	9	High domestic purchase prices often make it unprofitable for us to sell in the global market.	1 2 3 4 5
	10	High local consumption prices make it more profitable to sell coffee locally than to export.	1 2 3 4 5
	11	Competition for cherries at the farm-gate level increases our operational costs significantly.	1 2 3 4 5
	12	The Vertical Integration pricing system is highly sensitive to local supply shortages.	1 2 3 4 5
4. Global Coffee Price Fluctuation	13	Decline of international coffee market prices is the primary cause of falling of our exports.	1 2 3 4 5
	14	Frequent global price fluctuations prevent us from making long-term capital investments.	1 2 3 4 5
	15	We use forward contracts to protect our firm	1 2 3 4 5

		against global price drops.	
	16	External price shocks are often beyond the moderation capacity of our domestic policies.	1 2 3 4 5
5. World Coffee Production	17	Increased supply from Brazil and Vietnam reduces the global demand for Ethiopian coffee.	1 2 3 4 5
	18	Global oversupply of Arabica coffee leads to lower unit prices for our exports.	1 2 3 4 5
	19	Ethiopia's unique flavor profile provides us with a reasonable edge despite global supply surges.	1 2 3 4 5
	20	Market share losses are common when competitor nations have plentiful harvest years.	1 2 3 4 5
6. Market Integration Challenges	21	High domestic transportation costs from cleaning sites to the port reduce our profit margins.	1 2 3 4 5
	22	Frequent delays at the Djibouti port hinder our ability to meet delivery deadlines.	1 2 3 4 5
	23	Obeying the EUDR (Deforestation) regulations significantly increases our operational costs.	1 2 3 4 5
	24	The 2024/25 currency liberalization has improved our competitive position in the market.	1 2 3 4 5

Part III- Qualitative Interview/Open-Ended Questionnaire

1. In your experience over the past two decades, what have been the most significant changes in domestic coffee production and quality that have either helped or hindered your ability to compete globally?

_____

_____

_____

2. How do the fluctuations in domestic coffee prices affect your decision-making when committing to global export market?

_____

_____

_____

3. How has your firm adapted its risk management strategies to handle the frequent price fluctuations in the New York "C" market and the increasing competition from World Coffee Production (e.g., Brazil/Vietnam)?

_____

_____

_____

4. What are the most critical logistical or institutional bottlenecks (e.g., Djibouti port, transport costs, or ECTA regulations) that currently prevent your firm from fully integrating into high-value global supply chains?

_____

_____

_____

Recommendation: What do you think will improve Ethiopian coffee export performance for the coming years?

_____

_____

_____

_____

Thank you for your participation!