



COLLEGE OF BUSINESS AND ECONOMICS

ASSESSING FREIGHT FORWARDING PRACTICES RELATED TO
LOGISTICS PERFORMANCE: THE CASE OF ETHIOPIAN
SHIPPING AND LOGISTICS

BY

TAMIRU ADMASSU

ADVISOR: DEMEKE CHIMDESSA (PhD)

JUNE, 2024

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Statement of declaration

I declare that the thesis entitled **Assessing Freight Forwarding Practices Related to Logistics Performance: The Case of Ethiopian Shipping and Logistics** is my original work.

Tamiru Admassu

Signature.....

Date.....

Certification

Addis Ababa University

College of Business and Economics

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performance: the case of Ethiopian Shipping and Logistics**
By

Tamiru Admassu

Board of Examiners

Name	Signature	Date
<u>Dr. Demeke Chimdessa</u> Advisor	<u>4 June, 2024</u>	<u></u>
<u>Dr. Dejene Tulu</u> Internal Examiner	<u>28 June, 2024</u>	<u></u>
<u>Dr. Mesfin Workineh</u> External Examiner	<u>01 July, 2024</u>	<u></u>

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The researcher, Tamiru Admassu

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Acronyms

CSCMP-Council of Logistics Supply Chain Management Professionals

ECC-Ethiopian Customs Commission

EDI-Electronic Data Interchange

ESL-Ethiopian Shipping and Logistics

FIATA-International Federation of Freight Forwarders

JIT-Just In Time

KPI-Key Performance Indicator

LLS-Landlocked States

LLDs-Landlocked Developing States

LPI-Logistics Performance Index

OECD- Organization for Economic Co-operation and Development

SCS-Supply Chain Security

SPSS-Statistical Package for Social Science

UNCTAD-United Nations Conference on Trade and Development

UNDP-United nations Development Program

WCO-World Customs Organization

Abstract

The main objective of this study was to assess freight forwarding practices related to logistics performance in the case of Ethiopian shipping and logistics. The study employed both qualitative and quantitative research approaches. The study also employed descriptive research design. Out of the entire population (499 study organization personnel), a sample size of 222 was determined. Of the 222 respondents, 195 filled out and returned the questionnaires; 88% of respondents responded. Data analysis was conducted using the statistical software SPSS 26. The research conclusion indicated that the logistics performance of Ethiopian Shipping and Logistics is negatively influenced by supply chain security, logistics complexity, and landlockedness factors. It is recommended that Ethiopian Shipping and Logistics and other participants in the country's freight forwarding industry benefit if they develop and put into practice appropriate strategies by assigning the required resources and emphasizing factors related to supply chain security, landlockedness, and logistics complexity, and they could play a major role in raising the nation's Logistics Performance Index (LPI) in international trade. There is an opportunity that the study will fill a lot of information and knowledge gaps about Ethiopia's freight forwarding sector.

Key words: landlockedness, logistics complexity, supply chain security

CHAPTER ONE

INTRODUCTION

1.1. Background of the study

As a landlocked nation, Ethiopia gets all of its imports and exports through Djibouti (95%), Addis Ababa airport (5%), and interior clearance stations inside its surrounding transit nations (WCO, 2011), and every item is cleared at inland clearing facilities in the transit nations that are nearby.

Ensermu (2015) states that the World Bank Group's annual report and other sources suggest that Ethiopia has among the highest logistical costs in the world, severely impairing business and rendering Ethiopian exports less competitive.

A country's logistics operations for import and export depend heavily on freight forwarders. In 2014, FIATA defined a freight forwarding service as any type of service that has to do with carrying, combining, storing, handling, packing, or distributing goods. It also includes ancillary and advisory services related to customs and fiscal matters, obtaining insurance for the goods, and collecting and obtaining payments related to the goods.

In Ethiopia, there are three different kinds of freight forwarding service providers: forwarding and shipping service providers, forwarding service providers, and customs clearing agents. The Ethiopian Council of Ministries Regulation No. 37/1998 defines and outlines the responsibilities of freight forwarders based on the definition given above.

Effective domestic and international logistics are prerequisites for national competitiveness, according to the World Bank (2018). According to the researcher, the freight forwarding industry could play a significant role in luring foreign direct investment and enhancing the effectiveness of the nation's international trade, which would produce hard currency, job opportunities, increased income, and an improvement in the standard of living for the people. Therefore, it is essential to research the variables influencing the freight forwarding service's logistical performance.

The state owns Ethiopian Shipping and Logistics (ESL), the biggest freight forwarding company in Ethiopia. Examining the logistical aspects of ESL can serve as a model for other Ethiopian freight-forwarding enterprises. Consequently, the study's primary goal is to identify the variables influencing the logistics performance of Ethiopian Shipping and Logistics.

Ethiopian academics have attempted to investigate the variables and limitations impacting the ESL's logistics performance, including Fikadu (2013), Kalkidan (2017), Birtukan (2019), and Addis (2017). These variables include insufficient fleets of freight vehicles in terms of both number and condition, the coordination of the goods transport system, logistics infrastructure, and the logistics management system.

To the best of the researcher's knowledge, no prior research has been done on the impact of supply chain security, logistics complexity, and landlockedness on Ethiopian Shipping & Logistics's (ESL) logistical performance.

Consequently, in order to improve the efficiency of the nation's forwarding sectors and raise the Logistics Performance Index, it is imperative to look into factors affecting freight forwarding performance away from customs operations, trade quality, logistics infrastructure, and logistics services.

The primary objective of this research was to look into the variables that influence the logistics performance of the ESL in freight forwarding services. The researcher was motivated to start this study by filling research gaps.

1.1.1. Background History of Ethiopian Shipping and Logistics (ESL)

Ethiopian Shipping and Logistics (ESL) was founded in 1956. Four other companies have merged to form ESL: Comet Transport Share Company, Ethiopian Maritime and Transit Service Enterprise, Dry Port Enterprise, and Ethiopian Shipping Line Share Company (ELSE). As of right now, Ethiopian Shipping and Logistics (ESL) owns fifteen different types of vessels. The business received nine of them in 2013. The two vessels are appropriate for transporting liquid cargo, and the company also possesses heavy-duty vehicles and sea and dry port facilities, among other things, that allow it to provide effective sea and land transport services. Ethiopian

Shipping and Logistics (ESL) processes the necessary shipping and transit paperwork and offers a variety of freight forwarding services to importers, exporters, and other parties (company website).

1.2. Statement of the problem

According to the World Bank 2023, countries check the Logistics Performance Index (LPI) report to evaluate their performance and set their objectives in the logistics industry. The objective of the Logistics Performance Index (LPI) data, which is developed by the World Bank, is to reveal the differences in logistics activities among countries.

In the above-mentioned Logistics Performance Index report of the World Bank, it is described that international logistics networks are intertwined and the logistics global supply chains are becoming more complex. It is also indicated that the requirements of diversified solutions for trade, commerce, and manufacturing should get consideration from policymakers and stakeholders to deal with a wide range of policies. The report added that most low-income countries in Africa or isolated areas are characterized by either being landlocked or having security problems in their supply chain.

In the 2018 World Bank LPI report, Ethiopia's rank was 104 out of 160 countries. The main logistics performance measuring criteria were the World Bank's six components of LPI. These are customs and border administration, logistics and quality of trade infrastructure and the effect of competency and quality of logistics service provisions.

Even though the World Bank's report slightly pointed out the impact of being landlocked, logistics complexity, and supply chain security, it didn't consider how these factors affect the logistics performance of countries.

Ethiopian Shipping and Logistics is the largest logistics service provider in Ethiopia. Various studies were undertaken by different scholars based on the factors that affect the logistics services of the company.

Fikadu (2013), in his study, raised some factors, such as inadequate fleets of freight vehicles in number and status, coordination of the goods transport system, logistics infrastructure, and the logistics management system, as well as warehouse management, to be a constraint of the company. In addition, he indicated that the performance of Ethiopian Shipping and Logistics is a constraint on ELS logistics system activity. Also, he finds out that the performance of Ethiopian Shipping and Logistics is affected by excessive delays in clearance and transportation and a lack of technical, financial, information technology, human, and material capacities.

Another researcher, Kalkidan In her study in 2017, showed that the multimodal transportation service being provided by Ethiopian Shipping and Logistics should go a long way to improve its service delivery, and she recommended the development of a self-development program and opening a special desk that handles the inquiries of customers with special needs, uses a real-time cargo tracing and tracking system, prepares a convenient waiting area for customers, and increases the types of trade assistance.

Birtukan 2019 also studied the factors influencing service delivery in Ethiopian shipping. The study was focused on the factors influencing the service delivery of the organization. In her study, she found that distribution support and information technology are the most important factors that affect the provision of service to the enterprise. Based on her findings, she recommended that the company utilize the information technology infrastructure and software to guarantee reliable service provision.

Addis (2017) studied the constraints that influence the performance of the ESL. The researcher found that warehouse, information technology, and inventory management are the main factors that affect the logistics performance of the company.

However, all the mentioned studies did not study the impact of landlockedness, logistics complexity, and supply chain security variables on the logistics performance of Ethiopian Shipping and Logistics. The unavailability of prior empirical research in Ethiopia inspired the researcher to initiate this study. So, it is important to carry out a study on this topic to gain new insight, and studying these variables makes this paper unique.

Therefore, this study assesses the freight forwarding practices related to the logistics performance of the ESL, and the outcome can represent other freight forwarding companies in Ethiopia.

1.3. Research Questions

1.3.1. How the landlockdeness impacts the logistics performance of Ethiopian Shipping & Logistics?

1.3.2. How logistics complexity impacts the logistics performance of Ethiopian Shipping & Logistics?

1.3.3. How supply chain security impacts the logistics performance of Ethiopian Shipping & Logistics?

1.4. Objective of the study

1.4.1. General Objective

The general objective of the study is to assess the impacts of freight forwarding service practices on the logistics performance of Ethiopian Shipping and Logistics.

1.4.2. Specific Objectives

The specific objectives of the study are as follows:

1.4.2.1. To assess the effect of landlockedness on the logistics performance of the ESL.

1.4.2.2. To assess the effect of logistics complexity on the logistics performance of the ESL.

1.4.2.3. To assess the effect of supply chain security on the logistics performance of the ESL.

1.6. Significance of the study

The assessment can serve as a reference for anyone wishing to carry out research in the logistics and freight forwarding fields and offer important data to academics, industry players, and other interested parties.

1.7. Scope of the study

The organization has a head office in Addis Ababa and seven branches throughout the country. The company's operational and geographic reach are broad. Due to this, the researcher's attention was generally limited to the company's headquarters due to financial, time, and resource constraints.

1.8. Limitation of the Study

Lack of availability in related research is one of the main constraints, and the other limitation is that the study didn't consider all other factors and stakeholders that might affect the logistics performance of Ethiopian Shipping and Logistics.

1.9. Organization of the paper

There are five chapters in the study. The study's introduction, including its background, the company's background, the problem statement, the research questions, the general and particular objectives of the study, the study's hypothesis, the study's scope, and the limitations of the study, are the contents of Chapter One. A conceptual framework has been constructed, and a review of the literature is presented in the second chapter. The population, sample size, sample size determination method, data collection tool, procedure and method, validity, and reliability test are all included in the study's methodology. The findings are presented and discussed in the fourth chapter and the conclusion and recommendations that have been generated in light of the data are presented in the fifth chapter.

CHAPTER TWO
LITERATURE REVIEW
INTRODUCTION

This section of the study's literature review explains the fundamental definitions, ideas, and theories that offer a general understanding of logistics and supply chains, as well as the forwarding industry, factors influencing landlockedness in logistics performance, logistics complexity and supply chain security, logistics performance, and frame of reference.

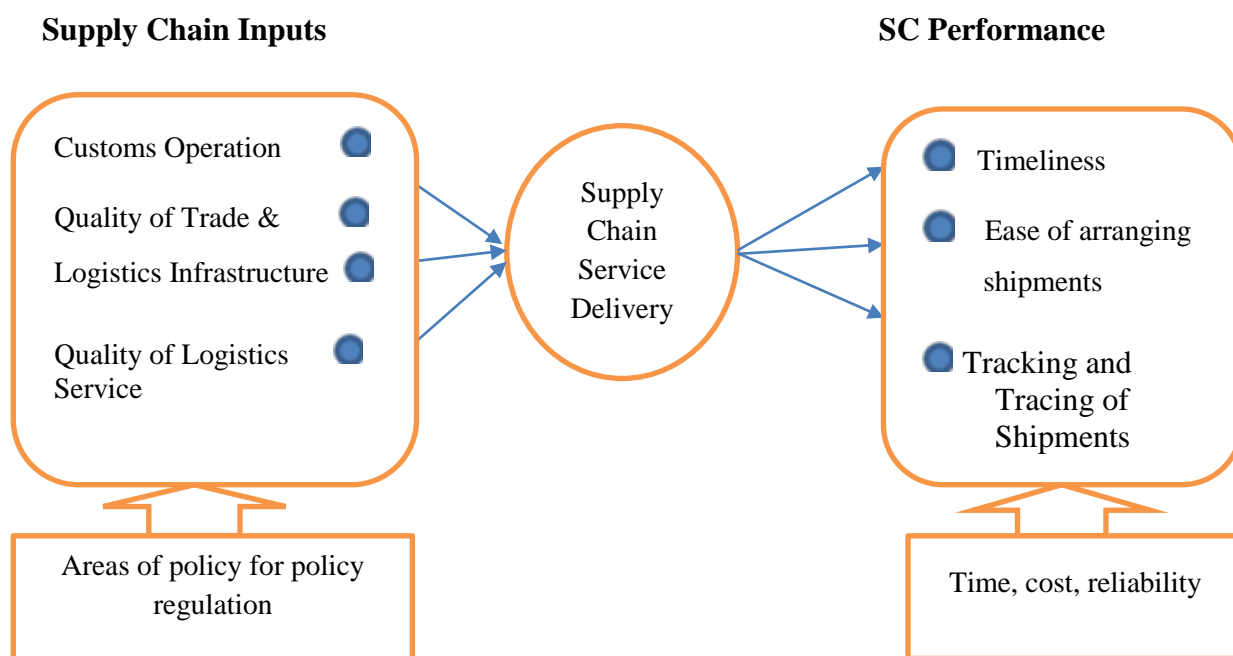
2.1. Actors Import/Export Trade Logistics

According to Kunaka et al. (2013), logistics services cover a wide range of businesses, including distribution, packaging, warehousing, and all forms of transportation. Logistics play a crucial part in this highly competitive climate, and logistics service providers are important for both arriving and exiting consignments. Numerous middlemen, including freight forwarders and drivers, are heavily involved in logistics service operations along the supply chain. There are various players who each have a specific role to perform, from the moment of sale to the items' final destination. The buyer or customer, the seller or supplier, the intermediary authority, the transport service provider, customs, the importer or exporter, the freight forwarder, and the chamber of commerce are a few of these actors.

3.2. The six components of the LPI

Theoretical and empirical research, as well as the practical knowledge of specialists in international freight forwarding logistics, served as a reference for choosing the components. The Logistics Performance Index (LPI) is a helpful surrogate for figuring out a nation's involvement in international value chains, claim Medovic et al. (2008). The six LPI indicators can be defined using regulatory requirements and supply chain performance outcomes. Policies pertaining to infrastructure, logistics quality and expertise, and customs are necessary due to three areas of challenge. Examples of supply chain performance outcomes that are correlated with cost, time, and dependability are overseas shipments, timeliness, and tracking and tracing systems (Arvis et al, 2018). It is possible to divide the six LPI parameters into two categories. The first three are related to rules and are considered inputs in the supply chain. The remaining three components are connected to the supply chain performance outcomes (World Bank, 2023).

Figure 2.2: Supply Chain Inputs and Supply Chain Performance (World Bank LPI, 2023)



Source: World Bank LPI Index, 2023

2.3. Logistics Performance of Ethiopia

Table 2.1: Ethiopia's Score in the Six LPI components from 2007-2016

S/No	LPI components	Overall Score				
		2007	2010	2012	2014	2016
1	Customs	2.14	2.13	2.03	2.42	2.6
2	Infrastructure	1.88	1.77	2.22	2.17	2.12
3	Logistics Competence	2.00	2.14	2.16	2.62	2.37
4	International Shipment	2.43	2.76	2.35	2.5	2.56
5	Timeliness	3.67	2.65	2.54	3.17	2.37
6	Tracking & Tracing	1.83	2.89	2.1	2.67	2.18

Source: World Bank LPI 2007-2016

Table 2.2: Ethiopian Logistics Performance Index score from 2007-2016

S/No	Description	Years				
		2007	2010	2012	2014	2016
1	Score	2.33	2.41	2.24	2.59	2.38
2	Rank	104	123	141	104	126

➤ **Source:** World Bank LPI 2007-2016

2.4. Factors Affecting the Logistics Performance

International networks for logistics are interconnected, and global supply chains for logistics are becoming more complicated, according to the World Bank LPI 2023. It also showed that different approaches to trade and commerce are required by stakeholders and policymakers handling a broad range of policies. It is said that most low-income and lower-middle-income African countries, along with isolated areas, are landlocked or have problems with supply chain security. Moreover, landlocked countries face intrinsic challenges related to geography or economies of scale when trying to get integrated into global supply chains.

According to JL Walden (2020), supply chains are growing longer and more global, which increases their complexity and security implications. As a result, the factors influencing landlocks, logistical complexity, and supply chain security are presented in depth below.

2.4.1. Factors related to Access to port (Landlockdnes)

Today, a company's ability to compete depends on its ability to manage complex logistics, and landlocked businesses stand to lose significantly from poor logistics (Arvis et al, 2020). In the world, about one in five countries are landlocked. The remaining twenty-four low-income economies, the most of which are in Sub-Saharan Africa, have a coastline but no direct access to marine resources, whereas just three of the 35 high-income economies are landlocked and have no access to the sea.

Since free access to the sea is necessary for international trade and goods entering or leaving LLS must pass through the borders of adjacent nations, transit is a problem that Least Landlocked Nations (LLS) face. Stated differently, these nations' locations imply that they will never be able to sail directly along the main marine routes; rather, they will have to detour via the territory of other states (Kishor Uprety, 2006).

Landlocked states, as reported by Arvis et al. (2010) and Faye et al. (2004), have lower export revenues and greater import expenses. Coastal countries might, nevertheless, be politically motivated to impose rules on landlocked countries. LLS is inaccessible to deep sea ocean vessels due to their geographic position. Commodities must be transshipped over international borders by trucks, railroads, inland waterways (lakes, rivers, or canals), or a combination of these. The developing LLS are situated far from international markets at the periphery of transportation networks. This drives up the cost of all imported and exported goods, wastes time, makes theft, loss, or damage more likely, and calls for the usage of trucks, wagons, trains, or other cargo transportation means.

According to Arvis et al. (2020), among the drawbacks of being landlocked are the following: Compared to coastal countries, landlocked countries typically require IMF support for longer. (1) Trade in landlocked nations is typically 30% less. (2) Landlocked countries often have slower growth than coastal ones; being landlocked lowers average growth by about 1.5%. For example, (Mac Kellar, et al., 2002) point out that transaction costs when crossing a border are extremely high because of processing fees and customs charges. A landlocked country so has lesser export revenue and higher import expenses. Coastal states may have financial or political incentives to force costs on landlocked states and it is more challenging to coordinate infrastructure development across national boundaries than it is inside one.

According to research conducted by Radalet et al. (1998), landlocked countries incur transport costs that are around 50% higher when using cost, insurance, and freight (CIF) or free on board (FOB) margins as proxies. Using freight payments as a percentage of total imports, (Stone, 2001) demonstrates how expensive transportation is for landlocked developing nations, particularly those in Africa: of 15 landlocked nations, 13 had ratios higher than 10%, and 2 had ratios even higher than 20%, compared to 4.7 percent for industrialized nations and 2.2 percent for the US.

2.4.1.1. Dimensions of Landlockedness

The landlocked nations' reliance on other nations' transit routes to get access to international markets can be largely blamed. At least four different forms of this reliance exist: Dependency on transit infrastructure, political ties with neighbors, peace and stability among transit neighbors, and transit administrative procedures are the first four sources of reliance.

2.4.1.2. Dependence upon infrastructure of transit countries

To get their goods to ports, landlocked countries are totally dependent on the transit networks of their neighbors. A multitude of issues, including inadequate finance, bad governance, armed conflict, and natural disasters, can exacerbate the weaknesses in this infrastructure. Whatever the cause, poor infrastructure raises direct costs for commerce passing through a transit country, making goods from landlocked nations less competitive on global markets. The relative impact of inadequate surrounding infrastructure is particularly severe for the least developed landlocked nations, who do not export high value goods or services, but rather primary commodities with low value to cost ratios. In landlocked nations, the return on investment for internal infrastructure is considerably reduced by poor transit infrastructure because of limited market prospects.

For example, the Ethiopian-Djiboutian corridor in the east has a good internal road network, but it is severely constrained by the transit neighbors' surrounding infrastructure. Because it's poor transit system, this region of Ethiopia is most affected. The most direct path from Ethiopia to the sea is by the Ethio-Djibouti corridor, which passes through Galafi or Dewale; however, Djibouti's infrastructure is in poor condition.

2.4.1.3. Political relationship between landlocked and transit countries

Strong political ties with transit nations are essential for landlocked countries. In the event of a military or diplomatic conflict between a landlocked nation and its transit neighbor, the latter can readily erect trade barriers or block borders. Countries that are landlocked are particularly susceptible to the political whims of their neighbors, even in the absence of an open conflict. While Article 125(1) of the United Nations Convention on the Law of the Sea (United Nations, 1982) provides a legal foundation for landlocked transit rights, in actuality, this right of access needs to be agreed upon with the transit neighbor (Articles 125(2) and (3))⁵ and is based on the countries' relationship.

Possibility of civil unrest in transit nations A landlocked nation nevertheless needs to rely on peace and stability within the transit country, even if relations with transit neighbors are cordial and the main transit infrastructure is solid. Transit routes may be damaged or closed in civil war-affected nations, necessitating the rerouting of important trade routes or, in the worst case scenario, the cessation of transit.

2.4.1.4. High administration burden due to transit

Landlocked countries are also subject to the administrative challenges associated with border crossings, which often translate into the highest shipping costs. While passing through a country, there are a number of direct transit and customs costs that must be paid; some must be paid in advance, and some must be paid on the spot. Ethiopians pay fees totaling more than \$1.5 billion a year to utilize Djibouti's ports, as reported by the New York Times on January 2, 2024. This is a substantial quantity of money for a nation that has had difficulty repaying its enormous debts. However, the direct costs are just one part of the narrative. International transit adds a significant administrative burden to shippers and is costly to deal with, in addition to necessitating a lot of paperwork and bureaucratic procedures.

Border crossings cause major delays for transit traffic in addition to direct administrative costs. These delays are causing great concern for several landlocked developing countries and regions in Africa (Faye et al., 2007). It is common to see merchants worrying more about transit unpredictability and time delays than direct costs because these factors make it harder to meet delivery commitments without maintaining substantial inventories.

LLDCs usually have to wait longer to send and receive commodities from international markets and spend more than twice as much on transportation than transit nations. These high transportation costs discourage investment, impede economic growth, and limit LLDCs' capacity to achieve sustainable development.

Most Africa landlocked countries export goods. The primary barrier to the economic development of LLDCs is not their export of commodities per se, since other developing countries also export commodities primarily. However, LLDC exports are less competitive due to higher transportation costs.

Variation was again ascertained by contrasting the exports per capita of a country with the regional average. In contrast, only a small number of landlocked countries outperform the global average in terms of exports per capita. The three anomalies are Turkmenistan, Swaziland, and Kazakhstan, each of which has a distinct circumstance. While Swaziland maintains an extraordinarily open trade policy that closely links its economy to that of South Africa, Kazakhstan and Turkmenistan primarily sell natural gas and oil to their neighbors (Faye et al., 2007).

Uganda exports substantially more than the other landlocked countries in eastern Africa. The main transit route's inland distance roughly corresponds to the amount of exports per person. Secondly, there is little variation in the export levels in western Africa. They are all extremely low, indicating the severe political and infrastructure issues these countries are currently facing. The least developed nations' (LDCs') economic performance is significantly influenced by global trade. However, because landlocked least developing countries (LLDCs) usually experience extremely high trade costs, geographic trade barriers like landlockedness significantly limit trade for these nations (Dessie, 1998). The most logistically restricted developing nations are those that are landlocked, particularly those in Africa. They usually experience limited access to competitive markets for logistical services, high transport costs and delays due to geographic disadvantages, and reliance on the performance of other transit countries.

The war between Ethiopia and Eritrea, its neighboring neighbor, has severely hurt Ethiopia. Up until 1997, 75% of Ethiopian trade moved through Eritrean port of Assab, but Ethiopia's access to this port was prohibited due to the two nations' war. Ethiopia's trade routes have undergone a significant change, with the port of Djibouti now handling the vast majority of Ethiopian trade instead of Assab. However, there are few port facilities and a badly maintained railroad that hinder the Djibouti corridor. A landlocked nation's economy can be seriously hampered by relations with its neighbors without resorting to military war (Faye et al., 2007).

2.5. Factors related to logistics complexity

The concept of complicated logistics systems is not new, and that is how logistics complexity is defined. When he said that transportation is the transfer of people or products from one place to another, (Manheim, 1979) was among the first researchers to draw attention to the complexity of essential logistics system components. This necessitates the use of energy from humans, animals, or machines. In many instances, particularly in developed nations, transportation is accomplished through extremely intricate procedures involving the interaction of humans and machines inside frequently expansive and complex institutions in order to provide transportation services to clients (Manheim, 1979). Despite the fact that the logistics system is made up of complex processes, as noted by (Manheim, 1979).

According to Christopher, 1998, the logistics task appears to be growing exponentially more complex. Technology advancements and lowered trade barriers have made it possible for businesses to grow their sourcing and distribution networks both domestically and

internationally. Higher levels of interdependence among participating enterprises are predicted to make it harder for management to coordinate logistical activities both inside and across firms. This increased complexity in logistics has an impact on businesses' capacity to supply and transport goods to each other. As per Christopher (2005), a company's ability to effectively handle the complex network of connections and movements that constitutes its supply chains would progressively give it a competitive edge over enterprises functioning in worldwide networks.

As a functional business sector, logistics management activities can be viewed as a complex system since they contain interdependent actors who interact and make tradeoffs frequently (Stock and Lambert, 2001). Complexity of any kind within the SC will negatively affect operations (Bozarth et al., 2009), cause interruptions (Chopra et al., 2014), and make decision-making more difficult. While managing complexity is not always simple, research has demonstrated that effective handling of complexity can improve system performance (Koudal, 2015).

By meeting several international shippers, carriers, and logistics providers, (Rao et al., 1994) proposed that the main causes of logistics complexity are: the volume and variety of transactions affecting physical and information tasks; the differences in the number and order of transactions required for different products moving in different parts of the world; and the interdependency of tasks within the supply chain process, which emphasizes coordination and control. According to the results of Rao and Young's (1994) research, these elements consist of network complexity, process complexity, and product complexity.

2.5.1. Network complexity

The geographic distribution of a company's trading partners and the volume of interactions with certain trading partners are two factors that make up network complexity. Volume leveraging effects may result from these network characteristics (Rao and Young, 1994). The complexity of logistics operations increases for managers who work with a wide-ranging, dispersed network of suppliers and customers. In these situations, the company's capacity to coordinate this very complicated network is a necessary component of efficient management to gain a competitive edge (Masson et al., 2007). Furthermore, according to Lawson (2007), a

firm's operational strategy will be influenced by the quantity and diversity of stock keeping units (SKUs) that pass through this network.

2.5.2. Process complexity

Process complexity refers to the degree of time and task compression or lack thereof in the supply chain. When the logistics process is complicated by the number of activities that need to be finished and coordinated in a short amount of time, like in JIT environments, several cost/service tradeoffs and functional interdependencies arise in operations (Rao and Young, 1994). In this instance, greater levels of collaboration are required, including co-managed inventory, synchronous supply, and cooperative product creation (Masson et al., 2007). Consequently, the level of intricacy increases. For example, Nilsson 2006 discovered that a significant source of uncertainty in managers' daily logistics tasks is internal processes related to functional integration (such as sales, marketing, and logistics).

2.5.3. Product complexity

The phrase "product complexity" refers to the special needs that materials and goods have as a result of the complex environment (temperature, humidity, etc.) that influences handling, storage, and transit. Hazardous materials, products with short shelf lives or those are prone to damage, and other physical attributes complicate logistics (Rao and Young, 1994). Operations will be impacted by product attributes including durability and shelf life, as mentioned by (Lowson, 2007).

2.6. Factors related to supply chain security

Individual-level sociological and psychological concepts first gave rise to the concept of security. The sense of having insurance against danger is what sociological literature defines as security (Fairchild, 1944). Opportunities, efficacy, autonomy, and a positive outlook on the future are a few aspects of human security. Security is defined as "a stable, relatively predictable environment in which an individual or group may pursue its ends without disruption or harm and without fear of disturbance or inquiry," by Fischer et al. (2004). Some recurrent themes in definitions of security are raising awareness and lowering worry and dread. Furthermore, security is the ability to understand and react to situations without dread because there is less uncertainty (Mead, 1937).

Security-related concerns with logistics systems have become increasingly significant in recent years and have taken center stage in logistics. Researchers and practitioners are paying more and

more attention to the subject of supply chain security. Everything done to guarantee the security of goods moving through the supply chain is referred to as supply chain security. Supply chain security can affect customer response, supply chain prices, and the behaviors of important participants along the supply chain (JL Walden, 2020).

According to JL Walden 2020, supply chain security is a global issue that affects everyone involved in supply chain management. Criminal activity, such as cargo counterfeiting and theft, indicates supply chain vulnerabilities that should be taken seriously. The security of infrastructure, facilities, carriers, people, cargo, and information is instantly brought up when the supply chain is secured. These concerns include cyberspace security, RFID data, camera phones, thumb drives, terrorism/piracy, and obsolescence, pilferage, and information breaches. According to JL Walden (2020), supply chain security is seriously threatened by a number of security issues.

2.6.1. Types of supply chain security problems

It is important to understand that the term "security" has several different connotations. There are many different aspects that could affect how secure logistics systems are. While some of them are recognizable and repeated, others startle us by being novel and unheard of (Andrzej Szymonik R, 2014).

Security performance is the evaluation and comparison of real security achievement levels. While supply chain security management can lead to higher costs when adopting security measures, it also has several benefits, including a reduction in cargo theft, cybercrime, terrorism, smuggling, counterfeit goods, and damage to items (Gutierrez and Hints, 2006).

2.6.1.1 Cargo theft

Organizations have become victims of theft at many phases of the supply chain. In 2019, 87% of cargo thefts worldwide included transport vehicles; by 2020, that number dropped to 71%. Facilities accounted for 10% of these thefts in 2019 and 25% of them in 2020. During this time, the percentage of thefts by other means rises from 3% to 4% (Ryan Smith, 2021).

2.6.1.2. Counterfeiting, contraband & smuggling

Counterfeit items are produced, distributed, and sold by criminal networks. Supply chains are at risk from these actions. Weapons and drugs that are trafficked illegally can find their way into supply chains, which can have negative effects on reputation and the law. Operational planning, obtaining raw materials, producing, shipping, and distributing illegal goods are all activities

carried out by criminal organizations (Gautam Basu, 2013). Smuggling is the covert transfer of goods and services from one legal jurisdiction to another. This covert operation may entail the import or export of products that are forbidden or the avoidance of taxes and customs charges on goods that are subject to duty.

2.6.1.3. Human trafficking

The act of using people for forced labor or sexual exploitation is known as human trafficking. This can appear in supply chains as

- Forced Labor: Victims are forced to labor in abusive settings. They might have difficult working circumstances, have their passports revoked, or be tricked throughout the hiring process.
- Sexual exploitation: When people are exploited for sex, they are frequently women and children. European council, 2017.

2.6.1.4. Ocean piracy

Even though it hasn't made headlines since it peaked in 2011, marine shipping is still at risk from piracy. It demonstrates how exporting companies respond to piracy by moving from maritime to air transportation, and how ships reroute to avoid impacted areas.

Long-lasting effects of pirate attacks on exporting behavior have been demonstrated, especially for small businesses that may be more severely impacted by increased insurance premiums.

The world's attention has recently been drawn to the issue by the wave of pirate attacks in the Gulf of Aden, close to Somalia, and the southern entry to the Red Sea. The cost of P&I insurance has increased to the point that annual premiums are comparable to the risk premium for a single trip due to the region's transit. Ships might reroute through the Cape of Good Hope to avoid the area. But any trade route gains a significant amount of distance from this detour. A method to comparative voyage costing was used.

2.6.1.5. Cyber crimes

The global supply chain is growing increasingly intricate these days. Information technology is now used more and more to boost productivity and facilitate coordination and communication across network suppliers, manufacturers, distributors, and even transportation service providers. The bulk of cybercrime does not fit the picture of a hacker hiding behind a desk and looking for holes in security systems. In order to effectively reduce the likelihood of cyberattacks, businesses must be aware of the different kinds of risks they face.

2.7. Supply chain security strategies and measures

The goal of the supply chain security strategy is to propel the growth of a logistics industry that is more effective and efficient. According to (Van Oosterhout et al. 2007), supply chain security techniques fall into two major groups. Preventive and remedial measures are the two groups. Preventive measures aim to stop security related risks from occurring in the supply chain, while corrective measures focus on limiting the impact that security-related risks can have. Preventive measures include physical security as well as non-physical security, such as facilities security, cargo security, information security, and human resource management security. Therefore, taking appropriate remedial action when an unforeseen crisis arises in the supply chain is another option for supply chain owners to safeguard their chain. When a supply chain encounters a crisis, prompt remedial action will enable businesses to rapidly return to normal. Examples of the corrective measures method are resilience management and business network management (Van Oosterhout et al., 2007). Increased visibility, improved customer satisfaction, decreased lead times, and overall cost savings are all possible outcomes of an effective and safe supply chain.

The following items, factories, supply chain partners and suppliers, supply chain facilities, freight carriers, people, and information are among the supply networks' vulnerabilities that make supply chain protection challenging (Sarathy, 2006). Organizations must implement SCS programs if they wish to safeguard their workers, infrastructure, intellectual property, consumers, and brands. Supply Chain Security Strategy (SCS) is therefore crucial.

2.8. Logistics performance

The three main components of overall logistics performance are supply chain time, cost, and reliability. The World Bank Logistics Performance Index (LPI), 3023 lists international shipment tracking and tracing as a Key Performance Index (KPI), along with timeliness and simplicity of arranging foreign shipping at competitive pricing.

2.8.1. Timeliness

One of the logistics performance metrics used by freight forwarders is transit time. It involves fulfilling delivery commitments and timelines and skillfully managing any challenges or delays. Shipments that can be delivered at the right time and location are referred to as "timeliness". According to Hummels & Schaur (2013), there will be a 0.4% rise in bilateral commerce for every 1% drop in the seller's container processing time, and a 0.2% increase in trade and

investment for every 1% decrease in the unpredictable nature of shipping delays. It might be argued that improved communication and anticipating the arrival times of shipments can improve trade. Reducing travel times is one of the transportation policy's key objectives. It also describes the frequency with which shipments reach the destination within the designated delivery window.

Long import and export processes as well as time delays between nations reduce trade volumes and deter companies from accessing international markets (Nordås et al., 2006). Significant delays carry hazards that operators need to manage and policymakers need to be aware of. Some factors, such as scheduling, that the freight forwarder or the owner of the commodities can control may account for some of this variation in stay lengths; however, other factors, like the uncertainty of when the products will be cleared or loaded and emptied, may not be within their control. As a result, the lead time distribution shows the overall reliability of the supply chain.

The transit time is the entire amount of time that passes between the consignor's shipment of the items and the carrier's delivery of the goods to the consignee. Since it determines the quantity of in-transit inventories and influences the consignee's stock holdings, the transit time can be explained in terms of inventory carrying costs. Short transit durations will reduce the need to hold items in far-off markets and the expense of in-transit inventory (Owuor, 2014).

2.8.2. Ease of arranging international shipments

This dimension offers an approximate figure of how well the country manages cost-effective shipping arrangements. A key element of an organization's logistics performance is its capacity to organize shipments at a competitive price, which has an impact on the nation's competitiveness. Hausman et al. (2013) state that a 1% drop in the "distance" measure results in a 1.4% increase in commerce, or a decrease in transportation costs. Similar to this, Hausman et al. (2013) discovered that a 1% drop in total trade-related processing expenses would be followed by a 0.5% increase in bilateral trade. The LPI's indicator of how easy it is to arrange shipments at reasonable rates is shipping expenses. Given that macroeconomic problems frequently result in increased service prices and can make it more difficult to arrange low-cost shipments, they might be engaged in this (Arvis et al., 2014). Over the past 10 years, the relevance of this LPI component has increased due to increased competition between freight carriers and shipping brokers in response to improving export dynamics, which has led to more competitive pricing for services and charters (Martí, et al., 2014).

Furthermore, international shipping entails negotiating advantageous terms and prices with carriers, providing a range of shipping options to satisfy different needs and preferences, and simplifying the process of organizing reasonably priced shipments. Traders who expect lengthy delays will need to pay more to establish trustworthy relationships with suppliers and customers in international marketplaces. From a policy perspective, interventions focused at supply chain reliability at trade gateways have the largest impact on trade costs, even if these delays account for a minor percentage of the overall lead time in the supply chain (World Bank, 2023).

2.8.3. Tracking & tracing of international shipments

Tracking every shipment's precise position and path until it is delivered to the final recipient is crucial. Since every link in the supply chain for the items is involved in this process, traceability is the end product of the logistics industry's overall activity. It is giving clients accurate and timely information by employing digital technology to track the whereabouts and status of shipments.

Given that lower-income nations stand to gain considerably from improved tracking and tracing, it makes sense to prioritize this investment among other trade logistics expenditures in the future. When conditions like ship stalling or arbitrary delays at customs prevent consignees from tracking or anticipating the passage of containers, it matters a great deal. Trade is significantly more prone to delays when it is not moving through ports, airports, or multimodal facilities than when it is moving by ships. Approximately two-thirds of the time is spent traveling. New technologies like supply chain visibility platforms are even more appealing. However, adequate shipping tracking continues to be a big problem in most underdeveloped countries. This can be partly explained by a lack of understanding about how to adjust logistics procedures and handle new technologies. Although it is clear that sharing information improves the supply chain overall, many companies place a higher priority on internal processes than external communications (LPI Index, 2023).

Traceability is a result of the logistics sector overall, as every link in the supply chain adds to it. Prioritizing this sector for upcoming trade logistics investments makes sense because improved monitoring and tracing helps the majority of stakeholders (Korinek & Sourdin, 2011). Shipment tracking and tracing capabilities can be assessed with the use of information and communication technologies.

2.9. Empirical Literature Review

According to the World Bank 2023 mentioned Logistics Performance Index report of the World Bank, it is described that international Logistics networks are intertwined and the Logistics global supply chains as becoming more and more complex also it is indicated that the requirements of diversified solutions for trade, commerce, and manufacturing that should get consideration from policymakers and stakeholders to deal with a wide range of policies. The report added that most low income in Africa or isolated areas are characterized by either being landlocked or having security problems in their supply chain. Even though the World Bank's report slightly pointed out the impact of being landlocked, logistics complexity, and supply chain security, the report didn't consider how these factors affect the logistics performance of countries.

A study that was conducted by Kuo-Chung Shang¹ and Chin-Shan Lu, 2015 used factor analysis to classify the identified CRM attributes into four critical service dimensions: customer response, knowledge management application, information technology, and benefit interaction, the importance of such maritime liner service attributes as transit time, frequency of service, on-time pick-up and delivery, reliability of delivery, ability to provide specialized equipment and requirement, low loss and damage records, and fast response to shippers' requirements to assist management's improvement of service performance and a practical point of view, the understanding of relationships between customer response, information technology, knowledge management application, profit interaction, and organizational performance may provide a clue as to how freight forwarding companies can adjust customer relationship creation processes to sustain their performance.

As quoted by Chakir A. Berrada Aida Ciro Tuto in their study identified the bottleneck affecting the activity of freight forwarders in West coast Africa that the bottlenecks (namely infrastructure and international shipments), are on a national level and affect the activity of all freight operators in the country. The study highlighted the importance of reforms, as crucial to improvements in both time and cost terms.

The logistics performance has recently received attention in the context of benchmarking initiatives globally to assess the ease of doing business in different countries, and the efficiency

of logistics and transportation services is increasingly seen as a major contributor to high import costs and long delays (Raballand et al. 2012). The logistics performance is positively impacted by the management strategy of the supply chain and has a direct impact on marketing performance, which in turn influences the financial performance (Green et al. 2008). Logistics management in the Export/import is essential because shipping costs and shipping efficiency determine the competitiveness of bottom-line transactions (Cook et al. 2012). An efficient transport system can be achieved through efficient use of transport modes, terminals, warehouses, and all other resources, it also requires understanding and availability of options and alternatives and freight support and logistics service selection decisions.

Logistics performance depends on many factors, as supply chains are complex systems with complex processes, such as services in business, regulations, investment climate, perceptions of enterprises and policymakers.

According to Kalkidan G, 2017, inability to perform the service in a certain time, failure to show sincere interest in solving customers' problems, less sailing schedule reliability as well as inability to maintain an error-free record management are affecting the reliability dimension of service quality in the Enterprise and responsiveness dimension is highly affected by an inability to provide timely information related to customers' shipment, delay in providing the necessary cargo related documents as well as busyness of the Enterprise's employees to handle customer's request.

As per the findings by Addis G., 2017, each dimension of logistics performance (logistics differentiation, logistics efficiency, and logistics effectiveness) has under performance in service delivery.

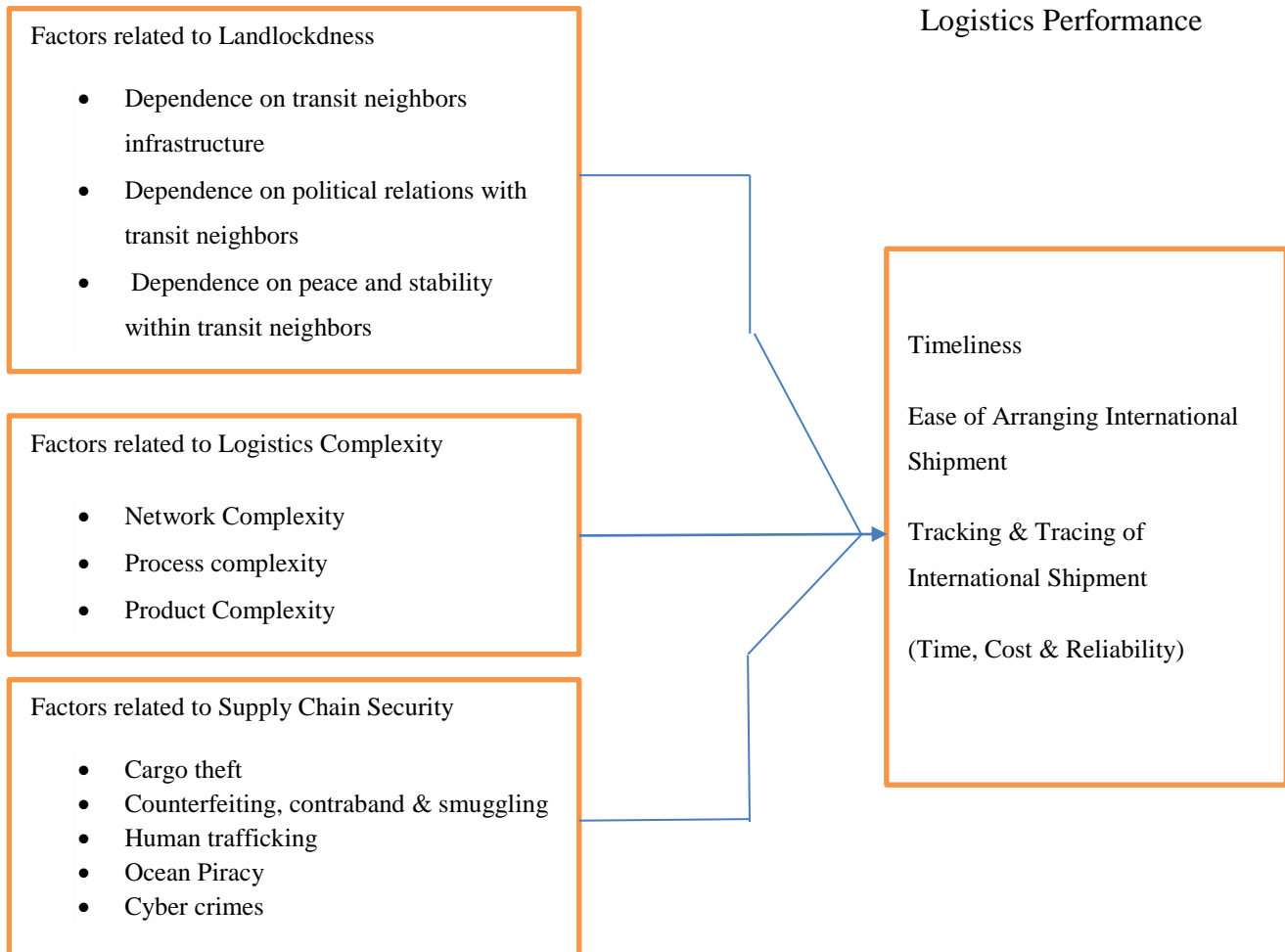
According to Birtukan E., 2019 information technology systems accelerate the communication between the company and its customers, which would ultimately improve quality, reduce time and costs, and generate future growth. also indicated that a stable and successful investment in the ICT context is essential for the efficient and effective provision of logistics services. In this sense, the study deduces that the efficiency and effectiveness of logistic operations can be significantly increased in function of a better use of information communication technology of the ELSE, and also study also concludes that distribution support affects the company's logistics service delivery competence.

2.10. Conceptual framework of the study

Independent Variable

Dependent Variable

Logistics Performance



Conceptual framework (Source: World Bank LPI, 2023 & Adapted)

CHAPTER THREE
METHODOLOGY OF THE RESEARCH
INTRODUCTION

The study's methodology is the focus of this chapter. It included every step of the study procedure. This includes the population, sample size, sample size determination method, data collection tool, procedure and method, validity and reliability test, and ethical considerations in addition to the research approach and design.

3.1. Research Approach

Various research methodologies exist. Three types of research methodologies are frequently used: mixed, qualitative, and quantitative. Creswell, 2005 states that the decision to use a certain approach depends on the researcher's preferences for conducting the research. As a result, the study used a hybrid method, using a qualitative approach to variables that cannot assume a numerical value and a quantitative approach to variables with numerical values.

3.2. Research Design

Studies that describe the characteristics of an individual or group are known as descriptive research studies. These kinds of research include a variety of surveys and fact-finding inquiries (Kothari, 2004). Depending on the objectives of the study, descriptive research design is used.

3.3. Population and Sampling Design

The target population for this study was the various sectors of Ethiopian shipping and logistics (ESL). Respondents from the corporate, port and terminal, and freight forwarding sectors provided information. The sample frame is therefore mentioned below. In this instance, the target population was 499.

Table 3.1: Target Population

S/No.	Ethiopian Shipping and Logistics Sectors	Population
1	Freight Forwarding sector	217
2	Port and terminal sector	144
3	Corporate service sector	138
	Total	499

Source: Own survey, 2024

3.3.1. Sampling Technique

According to Saunders et al. (2007), purposive sampling is a helpful & convenient sampling technique that enables a researcher to obtain information from a population sample that one believes best about the topic matter. Because the targeted respondents are those who are knowledgeable about the topic area being studied, the study has chosen to employ the purposive sampling method.

3.3.2. Sample size

The total population for the employee group is 499. To calculate the sample size, after stratification; the researcher utilized the formula developed by Yamane, (1967). Here's how the sample size is calculated.

$$n = \frac{N}{1 + N * e^2}$$

Where

n=Sample size

N=Population size

e=Level of precision

$$n = \frac{499}{1 + 499 * 0.0025} = \frac{499}{2.2475} = 222$$

3.4. Source of data

The study made use of both primary and secondary data to obtain data that was reliable. The company's employees and supervisors provided the primary data, while various literature sources that have been examined for the study's purpose provided the secondary data.

3.5. Data collection tool

Structured questioners are a good way to collect data for survey research (Askia, 1999). Employees and supervisors' responses were analyzed in this study using a standardized,

closed-ended, five-point Likert scale questionnaire. Respondents marked options 1 through 5.5 for strongly disagree, 4 for disagree, 3 for neutral, 4 for agree and 5 for strongly agree.

3.6. Method of data collection

The researcher distributed the targeted Ethiopian Shipping & Logistics employees the structured questions. The sectors represented by the responders were corporate services, port and terminal, and freight forwarding and gathered.

3.7. Data collection procedure

A questionnaire was employed by the researcher to collect data from the participants. The respondents were given the questionnaires. In order to prevent misunderstandings and streamline administration, the researcher verified the accuracy and completeness of the completed questionnaires once they were gathered. The process of gathering data was generally closely monitored.

3.8. Method of Data Analysis

Descriptive statistics method was used to analyze the data.. The data collected through the questionnaire were processed and analyzed using the statistical software called Statistical Package for the Social Science/SPSS/.This descriptive statistics enabled the researcher to convert raw data collected into tables, mean, standard deviation and percentage.

3.9. Test of reliability and validity

3.9.1. Test of validity

According to Schindler (2003), validity ensures the accuracy of the research findings or whether a researcher measures what it desires to analyze. The researcher has examined relevant literature and previous theses, used an expert to evaluate the validity, maintain the consistency of the material, and guarantee that the questions were reorganized per the expert's comments and a pilot test was conducted by logistics professionals with previous experience in the freight forwarding sector.

3.9.2. Test of reliability

The dependability of the data was evaluated utilizing the Cronbach alpha coefficient. When an item on the scale has the highest Cronbach alpha coefficient, it indicates that it is internally consistent and measures the same underlying construct.

Table 3.2. Reliability test

Variables	Items	Cronbach alpha
Landlockdness	10	0.889
Logistics Complexity	10	0.894
Supply Chain Security	12	0.899
Logistics Performance	10	0.832
	Average	0.8785

Source: Own survey, 2024

An appropriate test of scale dependability is one that yields a Cronbach's alpha value greater than 0.70 (Cronbach, 1951). The table above displays the dimensions' resulting Cronbach's alpha values: As a result, table 3.2 indicates that every variable that was chosen was reliable.

3.10. Ethical Considerations

In terms of ethical issues, the study's goals were explicitly communicated to the participants, and a brief explanation was included in the questionnaire. The respondents stated that the research was only intended for academic purposes and to ensure that no manipulation or misuse was done. The researcher asked respondents to return the questionnaire without disclosing their true names to protect the confidentiality of the information they provided.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

INTRODUCTION

The presentation and analysis of data are covered in this chapter. The following section contained a presentation of the demographics of Ethiopian logistics and shipping. Mean, Standard Deviation and percentage. The data analysis was presented and interpreted using descriptive analysis.

4.1. Demographic Characteristics

Both percentages and frequency were utilized to discuss and show the respondents' demographic characteristics. The demographics of the organization age, gender, education, and work experience have been disclosed. All of this data can be seen in Table 4.1. Out of the 222 respondents, only 195 filled and returned the questionnaire, meaning that 88% of the respondents did so.

Table 4.1. Demographic characteristics of the respondents

Sex of respondents		
	Frequency	Percent
Male	102	52.3
Female	93	47.7
Total	195	100%
Age of respondents		
18-25	18	9.2
26-35	100	51.3
36-45	67	34.4
Above 45	10	5.1
Total	195	100%
Respondents education		
Diploma/Certificate	50	25.6
First Degree	96	49.2

MA Degree	49	25.1
Total	195	100%
Position of respondents		
Junior Level	52	26.7
Medium Level	123	63.1
Senior Level	20	10.3
Total	195	100%
Experience of respondents		
1 to 5 years	66	33.8
5 to 10 years	104	53.3
Above 10 years	25	12.9
Total	195	100%

Source: Own survey, 2024

TABLE 4.1

The demography of respondents for the study on assessing freight forwarding practices related to logistics performance at Ethiopian Shipping and Logistics reveals a balanced gender distribution. Out of 195 respondents, 52.3% are male (102 respondents), and 47.7% are female (93 respondents). This nearly equal representation ensures that the findings reflect perspectives from both genders, providing a comprehensive understanding of the workforce involved in freight forwarding practices within the organization. A balanced gender representation can also indicate an inclusive work environment that leverages diverse perspectives and experiences, which is beneficial for problem-solving and innovation within the logistics sector.

The age distribution of the respondents indicates a predominantly young to middle-aged workforce. The majority, 51.3%, fall within the 26-35 age bracket (100 respondents), followed by 34.4% aged 36-45 (67 respondents). A smaller portion, 9.2%, are between 18-25 years old (18

respondents), and only 5.1% are above 45 years old (10 respondents). This suggests that the logistics sector at Ethiopian Shipping and Logistics is largely staffed by individuals in the prime of their working years, who are likely to be dynamic and adaptable to new practices and technologies. The concentration of employees in the 26-35 age range could imply a workforce that is energetic and open to change, which is crucial for implementing new strategies and improving logistics performance. Additionally, the presence of a significant portion of employees in the 36-45 age range indicates a balance of experience and maturity, which is essential for mentoring younger staff and maintaining operational stability.

Educational qualifications among the respondents highlight a well-educated workforce, with 49.2% holding a first degree (96 respondents), 25.6% possessing a diploma or certificate (50 respondents), and 25.1% having an MA degree (49 respondents). The high level of education among the workforce suggests that the employees possess the necessary academic knowledge to handle complex logistics operations and contribute to strategic decision-making processes. The positional distribution shows that a significant majority of the respondents occupy medium-level positions (63.1%, or 123 respondents), followed by junior-level positions (26.7%, or 52 respondents) and senior-level positions (10.3%, or 20 respondents). This indicates a strong middle management presence, which is crucial for executing company policies and bridging the gap between senior management and operational staff. Additionally, the experience levels indicate that more than half of the respondents have between 5 to 10 years of experience (53.3%, or 104 respondents), while 33.8% have 1 to 5 years (66 respondents), and 12.9% have over 10 years of experience (25 respondents). This diverse range of educational backgrounds and professional experiences suggests a robust mix of theoretical knowledge and practical expertise within the company, essential for enhancing logistics performance and adapting to industry demands. The substantial experience in the workforce also points to a depth of practical knowledge and skills, which can be leveraged to improve operational efficiency and innovate freight forwarding practices.

4.2. Descriptive Statistics

The study's percentile, mean and standard deviation (SD), the results are shown in tables below; the average of the data is denoted by the mean in this title, while the variation from the mean is represented by the standard deviation.

4.2.1. Descriptive analysis of factors related to Landlockedness variable

Table 4.2: Dependence upon the infrastructure

Items		Frequency	Percent	Cumulative Percent	Mean	SD
Dependence upon the infrastructure of the coastal country affects the timely delivery of the shipments of the ESL	Disagree	53	27.2	27.7	3.85	1.244
	Neutral	4	2.1	29.8		
	Agree	52	26.7	57.1		
	Strongly Agree	82	42.1	100.0		
Dependence upon the infrastructure of the coastal country affects the arrangement of the ELS consignments with competitive price	Disagree	58	29.7	29.9	3.79	1.246
	Agree	60	30.8	60.8		
	Strongly Agree	76	39.0	100.0		
Dependence upon the infrastructure of the coastal country affects the tacking & tracing ability of Shipments by the ELS	Strongly disagree	5	2.6	2.6	3.57	1.279
	Disagree	57	29.2	32.5		
	Neutral	13	6.7	39.3		
	Agree	56	28.7	68.6		
	Strongly Agree	60	30.8	100.0		

Source: Own survey, 2024

TABLE 4.2

The descriptive analysis of factors related to the variable of landlockedness, specifically the dependence upon the infrastructure of the coastal country, reveals several key insights into logistics performance for Ethiopian Shipping and Logistics (ESL). The first item assessed is the impact of this dependence on the timely delivery of shipments. The data indicates that 42.1% of respondents strongly agree and 26.7% agree that reliance on the coastal country's infrastructure affects timely delivery, totaling 68.8% in agreement. Conversely, 27.2% disagree and a small portion, 2.1%, remains neutral. With a mean score of 3.85 and a standard deviation of 1.244, it is evident that most respondents perceive significant challenges in timely delivery due to infrastructure dependencies, reflecting substantial variability in their views.

The second item addresses the effect of coastal country infrastructure on arranging consignments at competitive prices. Here, 39.0% of respondents strongly agree and 30.8% agree, resulting in

69.8% in agreement overall. A notable 29.7% disagree, indicating that while a majority sees competitive pricing as an issue due to infrastructure dependence, a substantial minority do not. The mean score for this item is 3.79 with a standard deviation of 1.246, suggesting a similar perception pattern to the first item, with respondents acknowledging significant impacts but with considerable dispersion in their responses.

The third item explores the influence of coastal country infrastructure on the tracking and tracing ability of shipments. Responses show that 30.8% strongly agree and 28.7% agree, summing up to 59.5% in agreement. However, 29.2% disagree and a smaller portion of 6.7% remains neutral, while 2.6% strongly disagree. The mean score is 3.57 with a standard deviation of 1.279, indicating that while majorities recognize the impact on tracking and tracing, there is a notable minority who disagree, highlighting differing experiences or perceptions regarding this logistical challenge. Overall, these findings underscore the significant influence of coastal infrastructure on various aspects of logistics performance for ESL, pointing to critical areas for strategic focus and potential improvement.

Table 4.3. Dependence on political relation

Items		Frequency	Percent	Cumulative Percent	Mean	SD
Political relationship between Ethiopia and the coastal country determines the timely delivery of the shipments of the ESL	Strongly disagree	6	3.1	3.1	3.55	1.281
	Disagree	58	29.7	32.8		
	Neutral	13	6.7	39.5		
	Agree	59	30.3	69.7		
	Strongly Agree	59	30.3	100.0		
Political relationship between Ethiopia and the coastal country determines the arrangement of the ELS consignments with competitive price.	Strongly disagree	6	3.1	3.1	3.37	1.222
	Disagree	65	33.3	36.8		
	Neutral	12	6.2	43.0		
	Agree	72	36.9	80.3		
	Strongly Agree	38	19.5	100.0		
Political relationship between Ethiopia and the coastal country determines the tacking & tracing ability of Shipments by the ELS	Strongly disagree	5	2.6	2.6	3.38	1.288
	Disagree	75	38.5	41.0		
	Neutral	4	2.1	43.1		

	Agree	63	32.3	75.4		
	Strongly Agree	48	24.6	100.0		
	Total	195	100.0			

Source: Own survey, 2024

TABLE 4.3

The table analyzing the dependence on political relations between Ethiopia and the coastal country reveals significant insights into the logistics performance of Ethiopian Shipping and Logistics (ESL). The first item assesses how political relations impact the timely delivery of shipments. The data indicates that 30.3% of respondents strongly agree and another 30.3% agree, resulting in a total of 60.6% in agreement. However, a notable 29.7% disagree and 3.1% strongly disagree, with 6.7% remaining neutral. The mean score for this item is 3.55, with a standard deviation of 1.281, suggesting that while a majority recognize the political relationship as a determinant of timely delivery, there is a considerable variation in opinions.

The second item evaluates the effect of political relations on arranging consignments at competitive prices. Here, 36.9% of respondents agree and 19.5% strongly agree, summing up to 56.4% in agreement. Conversely, 33.3% disagree and 3.1% strongly disagree, indicating that a significant portion of respondents do not perceive political relations as a primary factor for competitive pricing, while 6.2% remain neutral. The mean score of 3.37 with a standard deviation of 1.222 highlights a moderate level of agreement with some variability, showing a balanced but slightly divergent view on the influence of political relationships on pricing.

The third item examines the impact of political relations on the tracking and tracing ability of shipments. Responses show that 32.3% agree and 24.6% strongly agree, totaling 56.9% in agreement. However, a substantial 38.5% disagree and 2.6% strongly disagree, with 2.1% neutral. The mean score for this item is 3.38, with a standard deviation of 1.288, indicating that although a majority of respondents see political relations as influencing tracking and tracing, a significant portion disagree, reflecting diverse perspectives on this issue.

Overall, these findings underscore the importance of political relations in various aspects of logistics performance for ESL. The data reveals a nuanced view, with a majority recognizing the impact of political relations, but also a considerable minority holding differing opinions. This highlights the complexity and variability in how political factors are perceived to influence logistics operations, suggesting that strategic efforts should consider these diverse perspectives to enhance overall logistics performance.

Table 4.4: Dependence on Administrative burden

Items		Frequency	Percent	Cumulative Percent	Mean	SD
High Administrative Burden by coastal country influences the timely delivery of the shipments of the ESL	Disagree	62	31.8	32.1	3.69	1.253
	Neutral	4	2.1	34.2		
	Agree	59	30.3	64.8		
	Strongly Agree	68	34.9	100.0		
High Administrative Burden by coastal country influences the arrangement of the ELS consignments with competitive price	Strongly disagree	9	4.6	4.6	3.38	1.347
	Disagree	72	36.9	41.5		
	Neutral	4	2.1	43.6		
	Agree	56	28.7	72.3		
	Strongly Agree	54	27.7	100.0		
High Administrative Burden by coastal country influences the tacking & tracing ability of Shipments by the ELS	Strongly disagree	14	7.2	7.3	3.40	1.578
	Disagree	66	33.8	41.5		
	Neutral	10	5.1	46.6		
	Agree	51	26.2	73.1		
	Strongly Agree	48	24.6	97.9		
Due to delay in port Djibouti affects the logistics performance of the Ethiopian Shipping and Logistics	Disagree	54	27.7	27.7	3.86	1.243
	Neutral	4	2.1	29.7		
	Agree	53	27.2	56.9		
	Strongly Agree	84	43.1	100.0		

Source: Own survey, 2024

TABLE 4.4

The analysis of dependence on administrative burden reveals its significant influence on logistics performance for Ethiopian Shipping and Logistics (ESL). The first item examines how high

administrative burden by the coastal country affects the timely delivery of shipments. The data shows that 34.9% of respondents strongly agree and 30.3% agree, totaling 65.2% in agreement. However, 31.8% disagree, and 2.1% remain neutral. The mean score of 3.69 with a standard deviation of 1.253 indicates a strong consensus that administrative burdens significantly impact timely deliveries, though a substantial minority of respondents disagrees.

The second item assesses the impact of high administrative burden on arranging consignments at competitive prices. Here, 27.7% of respondents strongly agree and 28.7% agree, summing up to 56.4% in agreement. Conversely, 36.9% disagree, and 4.6% strongly disagree, with 2.1% neutral. The mean score of 3.38 and a higher standard deviation of 1.347 highlight a more divided perspective, suggesting that while a majority recognize the administrative burden as a factor for pricing challenges, there is significant dissent among respondents.

The third item looks at the effect of high administrative burden on the tracking and tracing ability of shipments. The responses show that 24.6% strongly agree and 26.2% agree, totaling 50.8% in agreement. However, 33.8% disagree and 7.2% strongly disagree, with 5.1% neutral. The mean score of 3.40 and a standard deviation of 1.578 suggest a moderate agreement with notable variability, indicating mixed opinions on how administrative burdens affect tracking and tracing capabilities.

Overall, these findings illustrate that administrative burdens imposed by the coastal country play a crucial role in various logistics performance aspects for ESL. The data reflects a significant concern among respondents about the negative impacts of these administrative burdens on timely deliveries, competitive pricing, and tracking and tracing abilities. The responses emphasize the need for strategic measures to mitigate these administrative challenges to enhance logistics performance and efficiency.

According to the results of the above analysis, most respondents agreed that dependence on high administrative burdens by coastal countries negatively affect the timely delivery of the shipments of the ESL, arranging consignments of the ESL with a competitive price, and the ability to track and trace ESL shipments. Also, the findings show that the delay in Djibouti port affects the logistics performance of Ethiopian Shipping and Logistics.

4.2.2. Descriptive analysis of factors related to Logistics Complexity variable

Table 4.5. Network complexity

Items		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	SD
Network Complexity influence the timely delivery of the shipments of the ESL	Strongly disagree	6	3.1	3.1	3.1	3.51	1.325
	Disagree	67	34.4	34.4	37.4		
	Neutral	4	2.1	2.1	39.5		
	Agree	57	29.2	29.2	68.7		
	Strongly Agree	61	31.3	31.3	100.0		
Network Complexity influence the arrangement of the ELS consignments with competitive price	Strongly disagree	6	3.1	3.1	3.1	3.14	1.288
	Disagree	90	46.2	47.1	50.3		
	Neutral	4	2.1	2.1	52.4		
	Agree	53	27.2	27.7	80.1		
	Strongly Agree	38	19.5	19.9	100.0		
Network Complexity influence influences the tacking & tracing ability of Shipments by the ELS	Disagree	82	42.1	42.1	42.1	3.42	1.307
	Neutral	9	4.6	4.6	46.7		
	Agree	44	22.6	22.6	69.2		
	Strongly Agree	60	30.8	30.8	100.0		

Source: Own survey, 2024

TABLE 4.5

The analysis of network complexity reveals its substantial impact on logistics performance for Ethiopian Shipping and Logistics (ESL). The first item assesses how network complexity influences the timely delivery of shipments. The data shows that 31.3% of respondents strongly agree and 29.2% agree, totaling 60.5% in agreement. On the other hand, 34.4% disagree, and 3.1% strongly disagree, with 2.1% remaining neutral. The mean score of 3.51 with a standard deviation of 1.325 indicates a moderate to strong consensus that network complexity significantly impacts timely deliveries, though a considerable portion of respondents hold a contrary view.

The second item examines the influence of network complexity on arranging consignments at competitive prices. Here, 19.5% of respondents strongly agree and 27.2% agree, summing up to 46.7% in agreement. Conversely, a significant 46.2% disagree, and 3.1% strongly disagree, with 2.1% neutral. The mean score of 3.14 and a standard deviation of 1.288 suggest a more divided perspective, indicating that while some respondents recognize network complexity as a factor affecting competitive pricing; nearly half of the respondents disagree.

The third item looks at how network complexity influences the tracking and tracing ability of shipments. The responses show that 30.8% strongly agree and 22.6% agree, totaling 53.4% in agreement. However, 42.1% disagree, and 4.6% are neutral. The mean score of 3.42 and a standard deviation of 1.307 suggest a moderate agreement with notable variability, indicating mixed opinions on how network complexity affects tracking and tracing capabilities.

Overall, these findings illustrate that network complexity plays a crucial role in various logistics performance aspects for ESL. The data reflects significant concern among respondents about the negative impacts of network complexity on timely deliveries, competitive pricing, and tracking and tracing abilities. The responses emphasize the need for strategic measures to simplify and streamline network complexity to enhance logistics performance and efficiency.

Table 4.6: Process Complexity

Items		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	SD
Process Complexity influence the timely delivery of the shipments of the ESL	Disagree	80	41.0	41.0	41.0	3.41	1.254
	Neutral	5	2.6	2.6	43.6		
	Agree	61	31.3	31.3	74.9		
	Strongly Agree	49	25.1	25.1	100.0		
Process Complexity influence the arrangement of the ELS consignments with competitive price	Strongly disagree	6	3.1	3.1	3.1	3.45	1.324
	Disagree	67	34.4	34.4	37.4		
	Neutral	16	8.2	8.2	45.6		
	Agree	45	23.1	23.1	68.7		
	Strongly Agree	61	31.3	31.3	100.0		
Process Complexity	Disagree	81	41.5	41.5	41.5	3.21	1.163

influence the tacking & tracing ability of Shipments by the ELS	Neutral	26	13.3	13.3	54.9		
	Agree	54	27.7	27.7	82.6		
	Strongly Agree	34	17.4	17.4	100.0		

Source: Own survey, 2024

TABLE 4.6

The analysis of process complexity within Ethiopian Shipping and Logistics (ESL) demonstrates its significant impact on various aspects of logistics performance. Regarding the timely delivery of shipments, the data shows that 31.3% of respondents agree and 25.1% strongly agree, making up a combined 56.4% in agreement. However, a notable 41.0% disagree, and 2.6% remain neutral. The mean score of 3.41 with a standard deviation of 1.254 indicates a moderate consensus that process complexity significantly influences timely deliveries, though a considerable proportion of respondents do not share this view.

When it comes to arranging consignments at competitive prices, the responses are varied. 23.1% of respondents agree and 31.3% strongly agree, totaling 54.4% in agreement. On the contrary, 34.4% disagree, 3.1% strongly disagree, and 8.2% are neutral. The mean score of 3.45 and a standard deviation of 1.324 suggest a moderate agreement, highlighting that while many respondents recognize process complexity as affecting competitive pricing, a significant portion holds a different opinion.

In terms of the tracking and tracing ability of shipments, 27.7% of respondents agree and 17.4% strongly agree, resulting in a combined 45.1% in agreement. However, 41.5% disagree, and 13.3% are neutral. The mean score of 3.21 with a standard deviation of 1.163 indicates a lower level of agreement compared to the other factors, reflecting mixed views on how process complexity impacts tracking and tracing capabilities.

Overall, the findings suggest that process complexity is perceived to significantly influence logistics performance at ESL, particularly in timely delivery and competitive pricing of consignments. However, the mixed responses indicate the need for streamlining processes to mitigate these complexities and enhance overall logistics efficiency.

Table 4.7: Product Complexity

Items		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	SD
Product Complexity influence the timely delivery of the shipments of the ESLS	Strongly disagree	6	3.1	3.1	3.1	3.18	1.250
	Disagree	81	41.5	41.5	44.6		
	Neutral	17	8.7	8.7	53.3		
	Agree	53	27.2	27.2	80.5		
	Strongly Agree	38	19.5	19.5	100.0		
Product Complexity influences the arrangement of the ESL consignments with competitive price.	Strongly disagree	11	5.6	5.6	5.6	3.07	1.285
	Disagree	87	44.6	44.6	50.3		
	Neutral	9	4.6	4.6	54.9		
	Agree	54	27.7	27.7	82.6		
	Strongly Agree	34	17.4	17.4	100.0		
Product complexity influences the tracking and tracing ability of ELS shipments	Strongly disagree	16	8.2	8.2	8.2	2.93	1.304
	Disagree	92	47.2	47.2	55.4		
	Neutral	8	4.1	4.1	59.5		
	Agree	47	24.1	24.1	83.6		
	Strongly Agree	32	16.4	16.4	100.0		
The organization has well defined and articulated strategy to manage the supply chain complexity	Strongly disagree	6	3.1	3.1	3.1	2.87	1.220
	Disagree	112	57.4	57.4	60.5		
	Neutral	8	4.1	4.1	64.6		
	Agree	40	20.5	20.5	85.1		
	Strongly Agree	29	14.9	14.9	100.0		

Source: Own survey, 2024

TABLE 4.7

The analysis of product complexity and its impact on logistics performance at Ethiopian Shipping and Logistics (ESL) reveals varying degrees of influence on different logistics aspects. Regarding the timely delivery of shipments, the data indicates that 27.2% of respondents agree and 19.5% strongly agree, totaling 46.7% in agreement. However, a significant 41.5% disagree, 3.1% strongly disagree, and 8.7% remain neutral. The mean score of 3.18 with a standard

deviation of 1.250 suggests a moderate perception that product complexity impacts timely deliveries, but there is considerable disagreement among respondents.

When considering the arrangement of consignments at competitive prices, responses show a slight shift in opinion. 27.7% of respondents agree and 17.4% strongly agree, making up 45.1% in agreement. On the other hand, 44.6% disagree, 5.6% strongly disagree, and 4.6% are neutral. With a mean score of 3.07 and a standard deviation of 1.285, the data indicates a similar moderate agreement as with timely delivery, but also highlights substantial disagreement, suggesting that product complexity is seen as a significant but contentious factor in arranging competitively priced consignments.

Tracking and tracing capabilities are also affected by product complexity, according to the survey. Here, 24.1% of respondents agree and 16.4% strongly agree, resulting in 40.5% in agreement. However, 47.2% disagree and 8.2% strongly disagree, with 4.1% remaining neutral. The mean score of 2.93 and a standard deviation of 1.304 indicate a lower level of agreement compared to the other aspects, suggesting that product complexity is perceived as having a substantial but less uniformly acknowledged impact on tracking and tracing shipments.

The assessment of the organization's strategy to manage supply chain complexity reveals even more pronounced skepticism among respondents. Only 20.5% agree and 14.9% strongly agree, totaling 35.4% in agreement. In contrast, a significant 57.4% disagree and 3.1% strongly disagree, with 4.1% being neutral. The mean score of 2.87 and a standard deviation of 1.220 reflect a general dissatisfaction with the current strategies in place to manage supply chain complexities, indicating a need for more robust and clearly articulated strategies to address these challenges.

Overall, the findings suggest that product complexity is recognized as a significant factor affecting various logistics performance metrics at ESL. However, the substantial disagreement among respondents highlights the challenges the organization faces in managing these complexities effectively. To improve logistics performance, ESL might need to focus on developing more comprehensive strategies that are well-communicated and implemented across all levels of the organization.

4.2.3. Descriptive analysis of factors related to supply chain security variable

Table 4.8: Criminal activities

Items		Frequency	Percent	Cumulative Percent	Mean	SD
Criminal activities such as theft and counterfeiting, contraband & smuggling, and human trafficking impact the timely delivery of the shipments of the ESL	Disagree	32	16.4	16.4	0.056	0.777
	Neutral	120	61.5	77.9		
	Agree	33	16.9	94.9		
	Strongly Agree	7	3.6	98.5		
Criminal activities such as theft and counterfeiting, contraband & smuggling, and human trafficking impact the tacking & tracing ability of the ELS Shipments	Strongly disagree	51	26.2	26.2	0.061	0.846
	Disagree	97	49.7	75.9		
	Neutral	40	20.5	96.4		
	Agree	3	1.5	97.9		
	Strongly Agree	4	2.1	100.0		
Criminal activities such as theft and counterfeiting, contraband & smuggling, and human trafficking impact the tacking & tracing ability of Shipments by the ELS	Strongly disagree	51	26.2	26.2	0.072	1.001
	Disagree	94	48.2	74.4		
	Neutral	31	15.9	90.3		
	Agree	11	5.6	95.9		
	Strongly Agree	8	4.1	100.0		

Source: Own survey, 2024

TABLE 4.8

The assessment of the impact of criminal activities on the logistics performance of Ethiopian Shipping and Logistics (ESL) reveals critical insights into how these illicit activities affect the organization. Criminal activities such as theft, counterfeiting, contraband smuggling, and human trafficking significantly influence the timely delivery of shipments. The data shows that a

significant portion of respondents, 61.5%, remain neutral, indicating uncertainty or a lack of direct experience with the impact of these activities. Meanwhile, 16.9% agree, and 3.6% strongly agree, highlighting a subset of respondents who perceive a notable impact. Conversely, 16.4% disagree, reflecting a divided opinion. The mean score of 0.056 and a standard deviation of 0.777 suggest a low average agreement, but with substantial variability in responses, indicating differing perceptions among the respondents.

When it comes to the impact of criminal activities on the tracking and tracing ability of ESL shipments, the responses indicate a stronger consensus. A notable 49.7% of respondents disagree, and 26.2% strongly disagree, making a combined 75.9% who perceive that criminal activities do not significantly impact tracking and tracing. Only 1.5% agrees, and 2.1% strongly agree, with 20.5% remaining neutral. The mean score of 0.061 and a standard deviation of 0.846 further reinforce the general disagreement, suggesting that most respondents do not see a substantial link between criminal activities and tracking and tracing capabilities.

Examining the detailed influence of criminal activities on tracking and tracing ability, the responses become slightly more nuanced. While 48.2% disagree and 26.2% strongly disagree (totaling 74.4%), a smaller proportion, 15.9%, remain neutral. A minimal number of respondents, 5.6% agree, and 4.1% strongly agree, indicating that a small segment does believe criminal activities have a detrimental effect. The mean score of 0.072 and a higher standard deviation of 1.001 reflect a broader range of opinions, though the general trend leans towards disagreement.

The overall analysis suggests that while criminal activities are recognized as a potential threat to logistics performance, particularly in timely deliveries, there is a considerable proportion of the workforce that does not see these activities as severely impacting tracking and tracing capabilities. The high levels of neutrality and disagreement could be indicative of effective existing measures or a lack of direct impact experienced by the respondents.

This analysis highlights the need for ESL to continue reinforcing its security measures and to communicate effectively about the risks and mitigation strategies related to criminal activities. By addressing the concerns and perceptions of the workforce, ESL can ensure a more secure and

efficient logistics operation, thereby improving overall performance and reliability in freight forwarding practices.

Table 4.9: Cybercrimes

Items		Frequency	Percent	Cumulative Percent	Mean	SD
Cybercrime impacts the Logistics performance of the timely delivery of the shipments of the ESL	Strongly disagree	53	27.2	27.2	0.066	0.926
	Disagree	88	45.1	72.3		
	Neutral	42	21.5	93.8		
	Agree	7	3.6	97.4		
	Strongly Agree	5	2.6	100.0		
Cybercrime impacts the Logistics performance of the arrangement of the ELS consignments with competitive price	Strongly disagree	57	29.2	29.7	0.062	0.865
	Disagree	89	45.6	75.4		
	Neutral	41	21.0	96.4		
	Agree	4	2.1	98.5		
	Strongly Agree	3	1.5	100.0		
Cybercrime impacts the tacking & tracing ability of Shipments by the ELS	Strongly disagree	52	26.7	26.7	0.063	0.875
	Disagree	74	37.9	64.6		
	Neutral	62	31.8	96.4		
	Agree	5	2.6	99.0		
	Strongly Agree	2	1.0	100.0		

Source: Own survey, 2024

TABLE 4.9

The data on the impact of cybercrimes on the logistics performance of Ethiopian Shipping and Logistics (ESL) indicates varying perceptions among respondents regarding different aspects of

logistics operations. In terms of the timely delivery of shipments, a significant majority of respondents, 45.1%, disagree that cybercrimes have a substantial impact, while 27.2% strongly disagree. This combined 72.3% suggests a general consensus that cybercrimes do not heavily affect timely delivery. However, 21.5% remain neutral, indicating some uncertainty or lack of direct experience with cybercrime impacts. A small percentage, 3.6%, agrees, and 2.6% strongly agree, suggesting a minor segment perceives a notable impact. The mean score of 0.066 and a standard deviation of 0.926 reflect this overall tendency towards disagreement but with considerable variance in opinions.

When considering the impact of cybercrimes on the arrangement of ESL consignments with competitive pricing, the responses are similarly skewed towards disagreement. A substantial 45.6% of respondents disagree, and 29.2% strongly disagree, making a total of 75.4% who do not see a significant impact. A notable 21% of respondents remain neutral, indicating a level of uncertainty or lack of direct exposure to such impacts. Only 2.1% agree, and 1.5% strongly agree, suggesting that very few respondents perceive cybercrimes as a considerable threat to competitive pricing arrangements. The mean score of 0.062 and a standard deviation of 0.865 further underscore the predominant view of disagreement with relatively low agreement levels.

In terms of the tracking and tracing abilities of shipments, the responses exhibit a similar pattern. A combined 64.6% of respondents disagree (37.9%) and strongly disagree (26.7%) that cybercrimes significantly impact this aspect of logistics performance. A higher percentage of respondents, 31.8%, remain neutral, indicating that a notable portion of the workforce is uncertain or ambivalent about the extent of the impact. A very small percentage, 2.6% agree, and 1.0% strongly agree, perceiving a significant effect. The mean score of 0.063 and a standard deviation of 0.875 indicate a general trend towards disagreement with a substantial number of respondents expressing neutrality.

These findings suggest that while the majority of the workforce does not perceive cybercrimes as severely impacting various facets of logistics performance, there is still a significant level of neutrality or uncertainty. This could imply that the respondents have not directly encountered or are unaware of the potential impacts of cybercrimes on logistics operations. The relatively high levels of disagreement might also suggest that current cyber security measures are perceived as effective in mitigating the risks associated with cybercrimes.

Given these insights, it is crucial for Ethiopian Shipping and Logistics to continue investing in robust cyber security measures and to enhance awareness among employees regarding the potential threats posed by cybercrimes. By fostering a culture of cyber security awareness and preparedness, the organization can better protect its logistics operations from cyber threats, thereby ensuring more reliable and efficient freight forwarding practices.

Table 4.10: Ocean Attacks by pirates

Items		Frequency	Percent	Cumulative Percent	Mean	SD
Ocean pirates impacts the timely delivery of the shipments of the ESL	Disagree	50	25.6	25.6	3.97	0.926
	Agree	50	25.6	51.3		
	Strongly Agree	95	48.7	100.0		
Ocean pirates impacts the arrangement of the ELS consignments with competitive price	Strongly disagree	6	3.1	3.1	3.56	1.324
	Disagree	65	33.3	36.4		
	Agree	61	31.3	67.7		
	Strongly Agree	63	32.3	100.0		
Ocean pirates impacts the tacking & tracing ability of Shipments by the ELS	Strongly disagree	6	3.1	3.1	3.37	1.283
	Disagree	72	36.9	40.0		
	Neutral	8	4.1	44.1		
	Agree	62	31.8	75.9		
	Strongly Agree	47	24.1	100.0		

Source: Own survey, 2024

TABLE 4.10

The data on the impact of ocean pirates on the logistics performance of Ethiopian Shipping and Logistics (ESL) reveals significant perceptions and concerns among respondents regarding the timely delivery of shipments. A substantial majority, 48.7%, strongly agree that ocean pirates have a notable impact on timely delivery, while an additional 25.6% agree. This overwhelming 74.3% consensus underscores a widespread belief among respondents that ocean pirates pose a significant threat to the timely delivery of shipments handled by ESL. The mean score of 3.97

and a standard deviation of 0.926 indicate a high level of agreement among respondents, suggesting a consistent perception of the severity of this issue within the organization.

Regarding the arrangement of ESL consignments with competitive pricing, the responses show a nuanced perspective. While 32.3% strongly agree and 31.3% agree that ocean pirates impact pricing arrangements, a notable 36.4% disagree, and 3.1% strongly disagree. This suggests a divided opinion among respondents, with a significant minority perceiving a direct impact on pricing competitiveness. The mean score of 3.56 and a standard deviation of 1.324 indicate a moderate level of agreement, reflecting varying degrees of perception regarding the extent of this impact.

In terms of the tracking and tracing abilities of shipments, the data indicates a similar trend. A combined 55.9% of respondents agree (31.8%) and strongly agree (24.1%) that ocean pirates affect tracking and tracing capabilities. However, 40.0% disagree, including 36.9% who strongly disagree. This divided perspective suggests that while a substantial number acknowledge an impact on tracking abilities, a significant portion believes otherwise or is uncertain. The mean score of 3.37 and a standard deviation of 1.283 suggest moderate agreement among respondents, with a notable variation in opinions.

These findings underscore the operational challenges posed by ocean pirates in the logistics operations of ESL. The high level of agreement regarding their impact on timely delivery highlights a critical area of concern for the organization, necessitating robust strategies to mitigate risks associated with maritime security threats. The varied responses concerning pricing arrangements and tracking abilities indicate the complexity of addressing these issues comprehensively. ESL may benefit from enhancing maritime security measures, fostering partnerships with security agencies, and integrating advanced tracking technologies to bolster resilience against pirate activities.

In conclusion, while ocean pirates significantly impact timely delivery according to the majority of respondents, perceptions regarding their influence on pricing arrangements and tracking abilities are more diverse. Addressing these concerns effectively requires ESL to adopt a multifaceted approach that includes both operational enhancements and strategic collaborations

aimed at safeguarding shipments and maintaining competitive logistics performance in challenging maritime environments.

Table 4.11: Organizational Measures

Items		Frequency	Percent	Cumulative Percent	Mean	SD
The organization has a preventive strategy to protect infrastructure, vehicles, systems, workers and others	Strongly disagree	18	9.2	9.2	2.87	1.184
	Disagree	80	41.0	50.3		
	Neutral	22	11.3	61.5		
	Agree	59	30.3	91.8		
	Strongly Agree	16	8.2	100.0		
The organization takes corrective measures to limit the impact of the risks in its supply chain	Strongly disagree	18	9.2	9.2	2.93	1.286
	Disagree	80	41.0	41.0		
	Neutral	22	11.3	11.3		
	Agree	59	30.3	30.3		
	Strongly Agree	16	8.2	8.2		
The organization gives attention and spends sufficient money, time, and resources to ensure the supply chain security	Strongly disagree	18	9.2	9.2	2.87	1.325
	Disagree	83	42.6	42.6		
	Neutral	20	10.3	10.3		
	Agree	43	22.1	22.1		
	Strongly Agree	31	15.9	15.9		

Source: Own survey, 2024

TABLE 4.11

The table on organizational measures related to supply chain security provides insights into Ethiopian Shipping and Logistics' (ESL) strategies and readiness in mitigating risks and protecting its operations.

Firstly, regarding preventive strategies to safeguard infrastructure, vehicles, systems, and personnel, the data reveals that 38.5% of respondents agree (30.3%) or strongly agree (8.2%) that ESL has effective preventive measures in place. However, a significant portion, 50.3%, either disagree (41.0%) or strongly disagree (9.2%). The mean score of 2.87 and a standard deviation of 1.184 indicate a moderate level of agreement among respondents, suggesting room for improvement in enhancing preventive strategies to protect critical assets and personnel.

Secondly, in terms of corrective measures to mitigate risks within ESL's supply chain, the responses show a similar trend. While 38.5% agree (30.3%) or strongly agree (8.2%) that ESL takes effective corrective actions, 50.2% either disagree (41.0%) or strongly disagree (9.2%). The mean score of 2.93 and a standard deviation of 1.286 reflect moderate agreement, indicating varied perceptions among respondents regarding the adequacy of ESL's measures to limit risk impacts.

Thirdly, concerning ESL's allocation of resources towards ensuring supply chain security, the data highlights a mixed perspective. While 37.9% agree (22.1%) or strongly agree (15.9%) that ESL devotes sufficient resources, 52.9% either disagree (42.6%) or strongly disagree (9.2%). The mean score of 2.87 and a standard deviation of 1.325 suggest a moderate level of agreement, underscoring the organization's ongoing challenge in effectively allocating resources to bolster supply chain security.

These findings indicate opportunities for ESL to strengthen its approach to supply chain security. Enhancing preventive strategies, such as implementing advanced security measures and training programs, could mitigate risks associated with infrastructure vulnerability and personnel safety. Moreover, improving corrective measures to respond swiftly to disruptions within the supply chain is essential for maintaining operational resilience. Allocating adequate resources and prioritizing investments in security infrastructure and technology are crucial steps for ESL to enhance its supply chain security framework.

In conclusion, while ESL demonstrates some level of commitment to supply chain security, the survey results highlight areas where improvements are necessary. Addressing these challenges comprehensively will not only safeguard ESL's operations against potential risks but also enhance its overall logistics performance and competitiveness in the industry. Adopting a proactive stance towards risk management and resource allocation will be pivotal in fortifying ESL's resilience in the dynamic and challenging logistics landscape.

Table 4.12: Logistics Performance

Items		Frequency	Percent	Valid Percent	Cumulative Percent	Mean	SD
The organization delivers shipments as scheduled	Strongly disagree	18	9.2	9.2	9.2	2.31	0.878
	Disagree	83	42.6	42.6	51.8		
	Neutral	20	10.3	10.3	62.1		
	Agree	43	22.1	22.1	84.1		
	Strongly Agree	31	15.9	15.9	100.0		
Landlockedness of the country affects Import/Export on-time delivery of shipments	Strongly disagree	18	9.2	9.2	9.2	3.39	1.315
	Disagree	96	49.2	49.2	58.5		
	Neutral	10	5.1	5.1	63.6		
	Agree	36	18.5	18.5	82.1		
	Strongly Agree	35	17.9	17.9	100.0		
Logistics complexity determines the on-time delivery of Ethiopian Shipping and Logistics (ESL) consignments	Strongly disagree	14	7.2	7.2	7.2	3.44	1.197
	Disagree	143	73.3	73.3	80.5		
	Neutral	6	3.1	3.1	83.6		
	Agree	28	14.4	14.4	97.9		
	Strongly Agree	4	2.1	2.1	100.0		

Supply chain security influences causing delays in delivering shipments	Strongly disagree	4	2.1	2.1	2.1	3.23	1.123
	Disagree	79	40.5	40.9	43.0		
	Agree	58	29.7	30.1	73.1		
	Strongly Agree	52	26.7	26.9	100.0		
Does Ethiopian Shipping and Logistics (ESL)'s sea freight price is competitive	Disagree	72	36.9	36.9	36.9	3.06	1.120
	Neutral	9	4.6	4.6	41.5		
	Agree	71	36.4	36.4	77.9		
	Strongly Agree	43	22.1	22.1	100.0		
Ethiopian Shipping and Logistics (ESL) deliver cargo safely	Disagree	83	42.6	42.6	42.6	2.93	1.103
	Neutral	6	3.1	3.1	45.6		
	Agree	84	43.1	43.1	88.7		
	Strongly Agree	22	11.3	11.3	100.0		
The organization available 100 percent tracking and tracing system and technologies to expedite the ESL shipments while in transit	Strongly disagree	6	3.1	3.1	3.1	2.27	0.880
	Disagree	79	40.5	40.5	43.6		
	Neutral	26	13.3	13.3	56.9		
	Agree	65	33.3	33.3	90.3		
	Strongly Agree	19	9.7	9.7	100.0		
The logistics performance of the Ethiopian Shipping and logistics (ESL) is excellent among Ethiopian Freight	Strongly disagree	12	6.2	6.2	6.2	2.47	0.943
	Disagree	79	40.5	40.5	46.7		
	Neutral	24	12.3	12.3	59.0		
	Agree	70	35.9	35.9	94.9		
	Strongly Agree	10	5.1	5.1	100.0		

Forwarders	Agree						
The logistics performance of the Ethiopian Shipping and logistics (ESL) is well above the industry average	Strongly disagree	6	3.1	3.1	3.1	2.35	1.001
	Disagree	79	40.5	40.5	43.6		
	Neutral	26	13.3	13.3	56.9		
	Agree	65	33.3	33.3	90.3		
	Strongly Agree	19	9.7	9.7	100.0		
The logistics performance of the Ethiopian Shipping and logistics is industry average in Ethiopia.	Strongly disagree	12	6.2	6.2	6.2	2.71	0.863
	Disagree	79	40.5	40.5	46.7		
	Neutral	24	12.3	12.3	59.0		
	Agree	70	35.9	35.9	94.9		
	Strongly Agree	10	5.1	5.1	100.0		

Source: Own survey, 2024

TABLE 4.12

The analysis of logistics performance metrics for Ethiopian Shipping and Logistics (ESL) reveals both strengths and areas needing improvement across various facets of operations. ESL faces challenges in meeting delivery schedules, as indicated by 51.8% of respondents who feel the organization struggles to deliver shipments as scheduled, reflected in a mean score of 2.31. This suggests a need for ESL to enhance operational efficiency and reliability to better meet customer expectations and improve overall service consistency. Respondents acknowledge the impact of Ethiopia's landlocked status on ESL's logistics, with 67.1% agreeing or strongly agreeing that it effects on-time delivery, supported by a mean score of 3.39. Strategies like optimizing transport routes and strengthening coordination with transit countries could mitigate these challenges, improving ESL's delivery performance in landlocked regions.

Despite perceptions of logistical complexity, significant majorities (80.5%) either disagree or strongly disagree that it impedes ESL's ability to deliver consignments on time, reflecting a mean score of 3.44. This highlights confidence in ESL's logistical capabilities and strategic planning, underscoring its effective management of complex logistical operations. Supply chain security

emerges as a critical factor influencing delivery delays, with 55.8% of respondents agreeing or strongly agreeing that it impacts ESL's operations, supported by a mean score of 3.23. Enhancing security measures within the supply chain could mitigate disruptions and improve delivery efficiency, addressing operational vulnerabilities.

In terms of pricing competitiveness, ESL receives mixed feedback, with 36.9% disagreeing that its sea freight prices are competitive, contrasted by 22.1% strongly agreeing. This perception is reflected in a mean score of 3.06, indicating varied opinions among respondents regarding ESL's pricing strategy. Transparent pricing structures and value-added services could potentially align ESL more closely with market expectations and enhance its competitive edge. ESL gathers positive ratings for cargo safety, with 54.4% of respondents agreeing or strongly agreeing that ESL delivers cargo safely, supported by a mean score of 2.93. However, perceptions around tracking and tracing capabilities reveal a need for improvement, as 40.5% feel these systems are not fully effective. Enhancing real-time monitoring and visibility across the supply chain could address these concerns and bolster customer confidence in ESL's service reliability.

Overall, while ESL demonstrates strengths in managing cargo safety and logistical complexities, addressing challenges related to delivery schedule adherence, pricing competitiveness, and tracking capabilities will be crucial for enhancing overall performance. Strategic measures such as enhancing supply chain security, optimizing pricing strategies, and improving tracking technologies could position ESL more competitively within the industry, aligning its operations with customer expectations and industry standards. Continuous benchmarking and feedback mechanisms will be essential for ESL to sustain and further improve its logistics performance over time.

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATION
INTRODUCTION

There are four sections in this chapter. The first section provides an overview of the study's key findings; the second section discusses the conclusions; and the third portion offers recommendations based on the study's findings. The last part underlines the directions that need to be studied further.

5.1. Summary of the findings

The key findings drawn from the study's analysis of the collected and analyzed data were as follows:

5.1.1. Demographic characteristics

According to the findings, 195 respondents were participated in the survey. The study's findings indicate that the majority of respondents 52.3% were male and 47.7% were female, both genders were fairly involved, indicating that gender bias was unlikely to have affected the study's findings. In terms of educational attainment, the results indicate that 25.6% of the population holds a diploma. Of the respondents, 49.2% had a first degree. A master's degree or above was held by the remaining 25.1% of the population, suggesting that the respondents knew enough about the subject to have an impact on the study. 12.6% of employees had been with the company for more than ten years, while the majority had been in the organization for five to ten years. The findings indicate that the respondents had been with the organization for a significant amount of time, suggesting that they were qualified to provide insightful information for this research.

5.1.2. Landlockdness

As per the data analysis result, the majority of the respondents agreed that dependence on the infrastructure of the coastal country negatively affected the timely delivery of shipments, arranging consignments ESL with a competitive price and the ability to track and trace ESL shipments.

Based on the analysis results, the majority of the respondents agreed that dependence on the political relationship between Ethiopia and the coastal country negatively affected the timely delivery of the shipments of the ESL, arranging consignments of the of the ESL with a competitive price and the ability to track and trace ESL shipments.

According to the analysis result, the majority respondents agreed that the high administrative burden of coastal countries negatively affected the timely delivery of the shipments of the ESL, arranging consignments of the ESL with a competitive price and the ability to track and trace ESL shipments. Also, the findings show that the delay in Djibouti port affects the logistics performance of Ethiopian Shipping and Logistics.

The descriptive analysis indicates that all statements linked to landlockness-related issues have a mean score greater than 3.37, indicating that all of the respondents are agreed that landlockness negatively impacted the logistics performance of the Ethiopian Shipping and Logistics.

5.1.3. Logistics Complexity

According to the above analysis results, the majority respondents agreed that network complexity negatively affected the timely delivery of the shipments of the ESL, arranging consignment ESL with a competitive price and the ability to track and trace ESL shipments.

As per the analysis result, the majority respondents agreed that logistics complexity negatively affected the timely delivery of the shipments of the ESL, arranging consignment ESL with a competitive price and the ability to track and trace ESL shipments.

Based on the analysis results, the majority respondents agreed that logistics process complexity negatively affected the timely delivery of the shipments of the ESL, arranging consignment ESL with a competitive price and the ability to track and trace ESL shipments.

As per the data analysis, respondents agree with all statements on logistical complexity-related variables, as indicated by the descriptive analysis, which shows that all claims involving these factors have a mean score higher than 2.87, this shows that complexity negatively impacted the logistics performance of the Ethiopian Shipping and Logistics.

5.1.4. Supply Chain Security

Based on the analysis result, the majority respondents disagreed that criminal activities such as theft and counterfeiting, contraband and smuggling, and human trafficking negatively affected the timely delivery of the shipments of the ESL, arranging consignments with a competitive price and the ability to track and trace ESL shipments.

According to the analysis result, the majority respondents disagreed that cybercrime negatively affected the timely delivery of the shipments of the ESL by arranging consignments with a competitive price and the ability to track and trace ESL shipments.

As per the analysis result, the majority respondents agreed that terrorist acts like ocean pirates negatively affected the timely delivery of the shipments of the ESL, arranging consignments with a competitive price and the ability to track and trace ESL shipments.

The above analysis results have shown that majority of the respondents 71 (36.4%) disagreed that the organization has a preventive strategy to protect infrastructure, vehicles, systems, workers, and others, takes corrective measures to limit the impact of the risks in its supply chain, and gives attention, and spends sufficient money, time, and resources to ensure supply chain security.

The descriptive analysis indicates that there is agreement amongst the respondents about the negative effect of the supply chain security variable, particularly the negative effect of the ocean pirates on the logistics performance of Ethiopian Shipping and Logistics. Among the issues raised, the majority of the respondents disagreed on the effect of criminal activities such as theft and counterfeiting, contraband and smuggling, human trafficking, and cybercrime on the logistics performance of the ESL.

5.2. Conclusions

Factors related to independent variables landlockedness negatively affected timely delivery of international shipments, arranging international shipments with competitive prices and the ability to track and trace international shipments.

The independent variables logistics complexity negatively affected timely delivery of international shipments, arranging international shipments with competitive prices and the ability to track and trace international shipments.

The third independent variable supply chain security particularly by ocean attacks being observed in the Gulf of Aden negatively affected timely delivery of international shipments, arranging international shipments with competitive prices and the ability to track and trace international shipments.

The study also showed that the organization has no preventive strategy, based on the three variables of the study, to limit the impact of the risks in its supply chain and spends sufficient resources to ensure supply chain security.

5.3. Recommendation of the study

The results of this study demonstrated that the performance of Ethiopian shipping and logistics freight forwarding was influenced by three factors: landlockedness, logistics complexity, and supply chain security.

Therefore, Ethiopian Shipping and Logistics (ESL) should have a preventive strategy to minimize and control the negative impact of landlockedness, logistics complexity, and supply chain security, and also the ESL should allocate sufficient money, time, and other resources to implement the designed strategy.

The ESL should work collaboratively with concerned government bodies and participants in the country's freight forwarding sector; as a result, they will benefit and be able to arrange their shipments at competitive prices, track and trace their shipments effectively, and deliver their shipments on time. Consequently, they develop into reliable providers of freight forwarding services and will play a major role in raising the nation's Logistics Performance Index (LPI) in international trade.

Overall, while ESL demonstrates strengths in managing cargo safety and logistical complexities, addressing challenges related to delivery schedule adherence, pricing competitiveness, and tracking capabilities will be crucial for enhancing overall performance. Strategic measures such as enhancing supply chain security, optimizing pricing strategies, and improving tracking

technologies could position ESL more competitively within the industry, aligning its operations with customer expectations and industry standards. Continuous benchmarking and feedback mechanisms will be essential for ESL to sustain and further improve its logistics performance over time.

5.4. Areas for future research

This study looked into the freight forwarding practices related to logistical performance in Ethiopian Shipping and Logistics as a case study. The respondents to the research were only members of the company. Thus, it would be preferable for future research to incorporate participants from many stakeholders. Since this could yield a more accurate outcome that better represents the industry, It is also preferable if future researchers incorporate other variables that might have impacts on the logistics performance of Ethiopian Shipping and Logistics.

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Annex: Questionnaire

Addis Ababa University
College of Business and Economics
Department of Management

Dear respondents

The objective of this questionnaire is to collect firsthand information that will help to study. **Factors Affecting the Logistics Performance of Freight Forwarding service: the case of Ethiopian Shipping and Logistics.** This study is undertaken as partial fulfillment of the requirement for completion of Masters of Science in International business.

All data and information that will be collected through this questionnaire will be used for only the purpose of the research and remain confidential. Therefore, you are kindly requested to fill the questionnaire utmost good faith, freely and to the best of your knowledge. There is no need write your name on the questioner.

Thank you for your cooperation

Tamiru Admassu 0911638927

Instruction: Please put (√) mark in which you want to select.

Part One: Questions related with background information.

1. Gender

Male Female

2. Age 18—25 years 26---35 years 36—45 years above 45 years

3. Educational Qualification

Below diploma College diploma First Degree MA/PhD

4. Position in the company Junior Level Medium Level Senior Level

5. Year of service in the current position.

Below 1 year 1 to 5 years 5 to 10 years Above 10 years

Part Two: Please record your answer by ticking in the space provided by the scale provided

1. Strongly disagree 2. Disagree 3. Neutral 4. Agree 5. Strongly agree

Statement	Rate				
	1	2	3	4	5
Landlockdness					
Dependence upon the infrastructure of the coastal country affects the timely delivery of the shipments of the ESL					
Dependence upon the infrastructure of the coastal country affects the arrangement of the ELS consignments with competitive price.					
Dependence upon the infrastructure of the coastal country affects the tacking & tracing ability of Shipments by the ELS					
Political relationship between Ethiopia and the coastal country determines the timely delivery of the shipments of the ESL					
Political relationship between Ethiopia and the coastal country determines the arrangement of the ELS consignments with competitive price.					
Political relationship between Ethiopia and the coastal country determines the tacking & tracing ability of Shipments by the ELS					
High Administrative Burden by coastal country influences the timely delivery of the shipments of the ESL					
High Administrative Burden by coastal country influences the arrangement of the ELS consignments with competitive price					
High Administrative Burden by coastal country influences the tacking & tracing ability of Shipments by the ELS					
Due to delay in port Djibouti affects the logistics performance of the Ethiopian Shipping and Logistic					

Logistics Complexity					
Network Complexity influence the timely delivery of the shipments of the ESL					
Network Complexity influence the arrangement of the ELS consignments with competitive price					
Network Complexity influence influences the tacking & tracing ability of Shipments by the ELS					
Process Complexity influence the timely delivery of the shipments of the ESL					
Process Complexity influence the arrangement of the ELS consignments with competitive price					
Process Complexity influence the tacking & tracing ability of Shipments of the ELS					
Product Complexity influence the timely delivery of the shipments of the ESL					
Product Complexity influence the arrangement of the ELS consignments with competitive price					
Product Complexity influence the tacking & tracing ability of Shipments of the ELS					
The organization has well defined and articulated strategy to manage the supply chain complexity					
Supply Chain Security					
Criminal activities such as theft and counterfeiting, contraband & smuggling, and human trafficking impact the timely delivery of the shipments of the ESL					
Criminal activities such as theft and counterfeiting, contraband & smuggling, and human trafficking impact the tacking & tracing ability of the ELS Shipments					
Criminal activities such as theft and counterfeiting, contraband & smuggling, and human trafficking impact the tacking &					

tracing ability of Shipments by the ELS					
Cybercrime impacts the Logistics performance of the timely delivery of the shipments of the ESL					
Cybercrime impacts the Logistics performance of the arrangement of the ELS consignments with competitive price					
Cybercrime impacts the tacking & tracing ability of Shipments by the ELS					
Ocean pirates impacts the timely delivery of the shipments of the ESL					
Ocean pirates impacts the arrangement of the ELS consignments with competitive price					
Ocean pirates impacts the tacking & tracing ability of Shipments by the ELS					
The organization has a preventive strategy to protect infrastructure ,vehicles ,systems, workers and other resources from unlawful acts					
The organization takes corrective measures to limit the impact of the risks in its supply chain .					
The organization gives attention and spends sufficient money, time and resources to ensure the supply chain security.					
Logistics Performance					
The organization delivers shipments as scheduled					
Landlockedness of the country affects Import/ Export on-time delivery of shipments					
Logistics complexity determines the on-time delivery of Ethiopian Shipping and Logistics (ESL) consignments					
Supply chain security influences causing delays in delivering shipments.					
Does Ethiopian Shipping and Logistics (ESL)'s sea freight price is competitive.					

Ethiopian Shipping and Logistics (ESL) deliver cargo safely					
The organization available 100 percent tracking and tracing system and technologies to expedite the ESL shipments while in transit					
The logistics performance of the Ethiopian Shipping and Logistics is excellent among Ethiopian Freight Forwarders					
The logistics performance of the Ethiopian Shipping and Logistics is well above the industry average.					
The logistics performance of the Ethiopian Shipping and Logistics is industry average in Ethiopia.					

PART THREE:

Additional comments/Recommendations

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Thank you so much!