DETERMINANT OF LOGISTICS PERFORMANCE: EMPERICAL ANALYSIS OF THE TRANSPORT FUNCTION AT HABESHA BREWERIES S.C

BY

NATNAEL TESEMA

A THESIS SUBMITTED TO ADDIS ABABA UNIVERSITY SCHOOL OF COMMERECE FOR THE PARTILA FULFILMENT, THE DEGREE OF MASTER OF ART IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT.

ADVISOR

MATIWOS ENSERMU (PROFESSOR)

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DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN MANAGMENT

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I, the undersigned, declare that this thesis titled "**DETERMINANT OF LOGISTICS PERFORMANCE: EMPERICAL ANALYSIS OF THE TRANSPORT FUNCTION AT HABESHA BREWERIES S.C"** is my original work, and has not been submitted for any other qualification.

BY: NATNAEL TESEMA

DATE: MAY 2026

SIGNATURE: _____

CONFIRMATION

I Certify that this thesis "**DETERMINANT OF LOGISTICS PERFORMANCE EMPERICAL ANALYSIS OF THE TRANSPORT FUNCTION AT HABESHA BREWERIES S.C"** has been completed under my guidance. And here by submitted to Addis Ababa University, College of Business and Economics, Department of Logistics and Supply Chain Management.

PROFESSOR MATIWOS ENSERMU

DATE: MAY 2026

SIGNATURE: _____

ABSTRACT

Logistics performance is vital for gaining an edge in the fluctuating beverage industry in Ethiopia. This study focused on the transportation function at Habesha Breweries S. C. It identified five key factors affecting logistics performance: Responsiveness and Speed, Dependability and Reliability, Service Quality, External Factors (like Fuel and Security), and Technology Integration. A mixed-methods approach was used, gathering data from 110 employees and conducting interviews with logistics leaders.

The analysis indicated that Habesha Breweries performs well in transportation, primarily driven by technology integration and dependability. However, its logistics efficiency is limited by external factors. Recommendations include investing in real-time tracking systems and developing contingency plans for fuel shortages and security issues.

Key Words: *Logistics Performance, Transportation Function, Technology Integration*

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ABBREVIATIONS AND ACRONYMS

KPI: Key Performance Indicators

SPSS: Statistical Package for the Social Sciences

FMCG: Fast-Moving Consumer Goods

RBV: Resource-Based View

ESX: Ethiopian Stock Exchange

(SEM): Structural Equation Modelling

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CHAPTER ONE
INTRODUCTION

1.1.Background of Study

The concept of Supply Chain Management (SCM) has evolved through various phases, influenced by shifting business philosophies and practices. Earlier stages were characterized by a heavily product-focused model of business, where supply chains primarily worked for the manufacture and physical distribution of products, without significant considerations for several SCM's strategic issues. In today's environment, the supply chain has become a more fully integrated business model, one that provides competitive advantage, drives the core mission of the enterprise, and actively manages and develops supplier and customer relationships. Modern supply chain operates in environments characterized by fewer suppliers, global manufacturing and distribution, arrangements between buyers and sellers that are akin to partnerships, and the use of technology to facilitate information flows as well as other key supply chain activities. (Dr. Purna Chandra Pradhan, Dr. Nitin Sharad Joshi, Rahul Navalkishor Soni and Gowri Pisolkar Deshpande, 5th Edition, p.13)

The term SCM was originally introduced by consultants in the early 1980's7 and subsequently has become widely used. Until recently most practitioners, consultants and academics viewed SCM as not appreciably different from the contemporary understanding of logistics management, as defined by the Council of Logistics Management (CLM) in 1986. That is, SCM was viewed as logistics that was integrated with customers and suppliers. Logistics as defined by the CLM always represented a supply chain orientation, "from point-of-origin to point-of consumption." Then, why the confusion? It is probably because logistics is a function within companies and is also a bigger concept that deals with the management of material and information flows across the supply chain. This is like the confusion over marketing as a concept and marketing as a functional area. Thus, the quote from the CEO who said, "Marketing is too important to be left to the marketing department." The marketing concept, customer focus, integrated effort and make a profit, does not apply just to the marketing department. Everyone in the organization should focus on serving the customer's needs at a profit. (Douglas M. Lambert. 4th Edition)

According to Robert A. Novack, Brian J. Gibson, Yoshinori Suzuki and John J. Coyle,8th Edition, Studie supply chain management represents the third phase of an evolution that started

in the 1960s with the development of the physical distribution concept, which focused on finished goods or the outbound side of a firm's logistics system—in other words, the distribution-related activities that occurred after a product was produced. In the 1980s, the concept of business logistics or integrated logistics was developed and added the inbound side to the outbound side. Logistics management was the second phase of development for the supply chain concept. As indicated previously, the supply chain management concept was developed primarily in the 1990s and represented the third phase of development.

1.2 Key Influencing Factors

Infrastructure

An area's roads, waterways, airports, seaports, and/or telecommunication networks make up its logistics infrastructure. (Cf. Słownik terminologii logistycznych, M. Fertsch (ed.), IliM, Poznan 2006, pp. 64, 65.)

Technology

utilising data analytics, tracking, and contemporary systems to increase productivity and visibility.

Customs & Regulations: Trade policies and border clearance efficiency have a big impact on expenses and delays.

Human Capital

Competent, trained, and motivated staff are crucial for operational success.

Inventory Control: Optimal management of inventory involves balancing costs and customer satisfaction.

Information Flow

Better communication and information exchange minimize risks.

Relationships with Suppliers/Partners: Good relationships facilitate better cooperation and performance.

Customer Focus

The ability to know and satisfy customers' needs is important for quality service.

Risk Management: Anticipation of possible disruptions and taking preventive measures.

Internal Processes

Good planning, forecasting, and execution are essential.

1.3 Major Performance Indicators (KPIs)

- Time efficiency: On-time delivery to customers.
- Cost efficiency: Costs of picking and packing items, cost of shipment, customs duties.
- Reliability: Dependable services that allow tracking of shipments.
- Satisfaction of customers: Meeting the "7 Rs": right item, quantity, quality, location, timing, person, and price. (John J. Coyle, C. John Langley, Jr., Robert A. Novack and Brian J. Gibson, P.54)

1.3 Background of the organization

Habesha Breweries S.C. is an important Ethiopian beer company owned by local investors in association with international partners such as Swinkels Family Brewers that produce "Habesha" beers, which represent the Ethiopian spirit of togetherness, culture, and great beer making with the use of locally sourced products such as barley grown in Debre Birhan. Their mission is to become a leader in the brewing industry by bringing together Ethiopians through beer, relying on numerous local investors and seeking great growth with the intention of becoming self-dependent on barley production and trading on the Ethiopian Stock Exchange (ESX). Habesha Breweries S.C. has a developed system of logistics, with its own fleet of 125 vehicles, consisting of 85 company-owned cars and 40 outsourced vehicles. To keep up with its operations, the firm maintains its own centralised maintenance facility at its headquarters in Debre Birhan and decentralised service centers in Addis Abeba, Bahir Dar, Mekelle, and Hawassa. The logistics setup allows for delivery of a variety of brands from the firm's portfolio including top-notch products such as Habesha 'Kostara Taem', Habesha Smooth, Kidame, Feta and the Negus malt brand range. Market Penetration & Consumption Volumes of Habesha Breweries Brand Architecture Vast fluctuations in the penetration and volume of consumption of Habesha's brand architecture across different locations can be attributed to varying tastes in each geographical location, affecting customer preference for certain brands. The swings in market penetration and consumption of our brand architecture can largely be attributed to customer preference in specific geographic locations.

Company Overview:

Founded: 2009 by Ethiopian investors; beer brewing began in 2015.

Mission: Brewing beer to bring together Ethiopians with their national pride and togetherness (Habesha means gratitude/togetherness).

Products: Brewing of beer, including flagship brand "Habesha" that uses locally sourced barley, hops, and deep well water.

Location: Brewery in Debre Birhan, Amhara Region, Ethiopia; Headquarters in Addis Ababa.

Structure: Major Shareholder: Swinkels Family Brewers Holding N.V. (60%).

Local Owners: 8,000+ Ethiopian shareholders (30%) and Linssen Participations B.V (10%).

Operations and Growth:

Technology: High-end brewery using advanced technology for its high-quality products.

Market: Fastest growing and largest brewing company in Ethiopia, distributed across the country.

Sustainability: Creating a local supply chain for barley from smallholders with help from development institutions such as Rabobank and ING Bank.

Culture & Vision:

Culture: Focuses on innovation, inclusivity, and empowering employees.

Vision: To connect all Ethiopians through their beer and become a fully self-sufficient barley producer.

1.3.1 Beer distribution network at Habesha

Figure 1 shows how the products of Habesha are distributed to the outlet. This figure is based on the introductory meetings with stakeholders. The direction of the arrows indicates the flow of full crates and kegs. However, when returning, the trucks will carry a load of reverse logistics, consisting of empty crates and kegs.

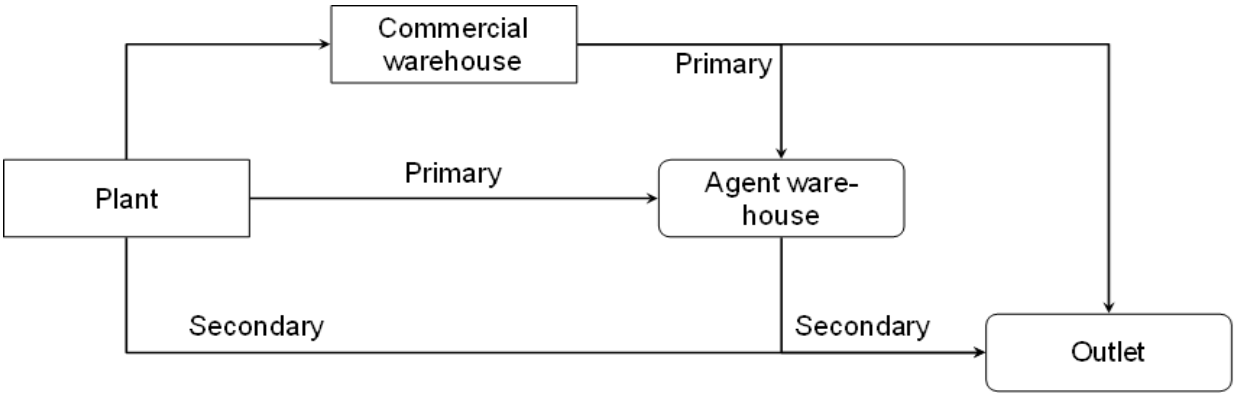


FIGURE 1 MATERIAL FLOW FROM PLANT TO SOURCE

1. **Plant** The plant is where the beer is brewed. Empty crates and kegs are brought here, and full crates and kegs are transported from the brewery.

2. **Commercial warehouse** A commercial warehouse is a storage facility operated by Habesha, used as a buffer. There are four commercial warehouses dedicated to crates and two for kegs. Commercial warehouses use forklifts to load and unload trucks, which allows them to complete the process in approximately three hours.
3. **Agent warehouse** Agent warehouses are storage facilities operated by an agent. All agents store crates, and some also store kegs; however, these two products are managed completely separately. Agent warehouses usually use manual loading, and the target for the loading and unloading time is seven hours.
4. **Outlet** An outlet is a location where the product is sold. Delivery to an outlet is carried out by an agent. Most outlets are locations where beer is consumed directly; however, some act as resellers.
5. **Primary transport** Primary transport refers to all transportation from the plant or commercial warehouses to agents. It can be performed by Habesha (direct delivery) or by trucks from the agent (self-collect). This transportation is always one-to-one, meaning a full truckload is delivered to a single destination. Additionally, all direct deliveries are conducted using a homogeneous fleet of trucks in terms of loading capacity, with each truck carrying either kegs or crates, but never both simultaneously.
6. **Secondary transport** Secondary transport refers to all transportation to outlets. The mode of transportation will be handled through agents, but small trucks are used. As a result, this means that this mode of transport is not under the jurisdiction of the logistics department at Habesha. Majority of secondary transport happens from the agent's warehouse; however, sometimes, the agents pick up the beer directly from the plant or commercial warehouse.
7. **Transfer** This type of transport involves the movement of goods from the plant to the commercial warehouse.

1.4. Statement of problem

Managing the flow of materials, information, and products through transportation, warehousing, and inventory control directly affects profitability and competitiveness. Logistics is the foundation of manufacturing, ensuring that raw materials get to the factory and finished goods to customers efficiently, minimizing costs, preventing delays, and boosting customer satisfaction. From sourcing to final delivery, it optimizes the whole supply chain by bridging the gap between supply and demand.

Transportation is one of the most critical and important ingredients for the economic and social advancement of geographic regions. From the corner grocery stores to large complex factories, efficient and effective transportation is the lifeblood of their ability to operate and compete.

In situations where distances are often longer and environmental obstacles enhance the complexity and volatility of global operations; effective logistics operations can result in more efficient operations that boost the firm's competitiveness and increase customer loyalty. (Robert A. Novack, Brian J. Gibson, Yoshinori Suzuki and John J. Coyle,8th Edition, P26)

Ethiopia faces high transportation and logistics costs, which negatively impact its international compet- itiveness, as demonstrated by low positions in international Logistics Performance Indexes (Kuteyi & Winkler, 2022; Zemedkun, 2023). These elevated costs affect sectors like the garment sector, making it difficult for Ethiopian manufacturers to compete with countries like Vietnam and Bangladesh (Tesfaye & Shalemu, 2024; Zemedkun, 2023). Similarly, high transportation expenses hinder the availability and affordability of essential medicines, as highlighted by Arebu et al. (2024).

Road transport is the primary mode for both freight and passenger movement in Ethiopia, according to Zemedkun (2023). The same author notes that road transport takes the lion’s share, over 95%, of motorized inter-urban transportation. However, this reliance is coupled with significant infrastruc- tural challenges, including poor road quality (Kuteyi & Winkler, 2022), which affects the fuel distribution highlighted by Serkalem (2022) and increases transport costs

across all sectors, including the apparel industry (Tesfaye & Shalemu, 2024), which requires transportation of raw materials and finished goods. According to Zemedkun (2023), the road density in Ethiopia is relatively low as compared to other countries of Africa. Even as Habesha Breweries S.C. enjoys a major market share in the Ethiopian beverages industry with lofty aspirations for expansion, the preliminary studies reveal that performance, particularly concerning the transportation function, is hampered by several critical issues. They are characterized by poor speed and responsiveness, inflexibility, ineffective cost efficiency, issues related to the general quality of transportation services, reliability of deliveries, and inefficient traceability. Poor performance in these areas will not only be likely to lead to increased costs for distribution and low customer satisfaction but also put the competitiveness of the organization at risk in the long run. Although the significance of good transportation services is recognized all over the world, there is no detailed empirical knowledge about what causes such inefficiencies in performance in the case of an Ethiopian beer brewing organization like Habesha Breweries S.C. This paper intends to conduct a thorough investigation into the causes of poor logistics performance with specific attention to transportation in Habesha Breweries S.C.

1.5. Basic Research Questions

1. What is the present status regarding responsiveness and speed within the transportation process at Habesha Breweries S.C.?
2. How reliable is the transportation process at Habesha Breweries S.C. and what are some of the main reasons for this level of reliability or lack of it?
3. What is the general perception regarding the quality of the transportation process within Habesha Breweries S.C. and why?
4. Are there any key external factors affecting the logistics process at Habesha Breweries S.C.?
5. How Transportation Variable Affect Overall Logistics Performance?

1.5. Objectives of the Study

1.5.1 General Objective

The main purpose of this research is to analyze and explore the major determinants influencing logistics' performance by examining the transportation process of Habesha Breweries S.C. to

understand the role played by variables involved in transport process in determining the organization's effectiveness.

1.5.2 Specific Objectives

To achieve the general objective, the following aim will be specifically met:

1. To examine the responsiveness and speed of transport process at Habesha Breweries S.C. and understand the underlying reasons behind inefficiency.

2. To examine the reliability of delivery service offered by the firm and identify major barriers to reliability of delivery.

3. To explore the quality of transport services offered by the firm and determine the major determinants of transport quality.

4. To examine the influence of major external determinants namely; variability in fuel supplies, security issues at night due to theft and restrictions posed by law on the performance of transport process at the firm.

5. To empirically examine the relationship between transportation variables (including responsiveness, flexibility, cost-efficiency, quality, dependability, and tracking) and their collective influence on Habesha Breweries S.C.'s overall logistics performance.

1.6. Definition of Terms

Logistics Performance

Logistics performance is the extent to which a business minimizes overall expenses while meeting its delivery objectives. It is striking a balance between operational costs (keeping the business viable) and service quality (making the client pleased).

Transportation Function

The physical link that links the different nodes (plants, warehouses, and customers) in a sup ply chain is known as the transportation Function.

Responsiveness and Speed

According to Christopher, responsiveness is the capacity of a supply chain to quickly adapt

to consumer needs. And He presents the idea of the "Lead-Time Gap." The speed at which the transport function can close the time gap between a customer's order placement and delivery is known as responsiveness. Because it avoids lost sales, timeliness is more crucial in an agile supply chain than just decreasing costs. (Christopher, M.2016. 5th ed.)

Dependability

Dependability is defined as "Consistency of Service" by Bowersox et al. It is determined by how well the transport function performs over time across numerous shipments. They point out that unreliable transportation drives up the overall cost of the supply chain by making the client and the warehouse prepare for "worst-case scenarios," which results in inefficient use of resources. (Bowersox, D. J., Closs, D. J., Cooper, M. B., Bowersox, J. C. 2019. 5th ed.).

Cost efficiency

Cost effectiveness is viewed at Habesha Breweries S.C. as a function of asset productivity and reverse logistics optimization. Results show that external factors, including the unpredictability of the fuel supply, raise the operating ratio by increasing turnaround times. Furthermore, the effectiveness of the transport function is largely dependent on the successful management of returnable glass assets, where delays in returning empty crates constitute a major hidden cost to the organization."

Efficiency

Martin Christopher, a known specialist in supply chain management, defines efficiency in terms of resource utilisation and cost reduction within the distribution network. Logistics efficiency is a study of how well a company's resources—such as transportation fleets, warehouses, and labour—are used to provide a specific level of customer service at the lowest possible cost. (Christopher, M. Pearson. 2016 5th ed.).

Quality

Quality is defined as achieving the Right Condition within the 7 Rs of logistics (Right product, Right place, Right time, Right condition, Right quantity, Right customer, Right cost). (Coyle, J. J., Langley, C. J., Novack, R. A., Gibson, B. J. 2016. 10th ed.)

Tracing

the process of reconstructing the history of the movement of a shipment.

It allows you to observe the truck's path, the length of time it spent at a checkpoint, and the

location of any delays.

Tracing is also essential for product recalls in the food and beverage business (identifying p recisely which truck carried which batch of beer). (Christopher, M. 2016.5th ed.)

Tracking

systematic capacity to determine a vehicle or shipment's current geographic location across the distribution network.

Byenabling "Intransit Visibility (ITV)," this technology enables logistics planners to keep a n eye on fleet movement, identify unapproved route diversions, and proactively handle delays caused by traffic.

Reverse Logistics

Stock and Lambert define reverse logistics as the role of logistics in product returns, source reduction, recycling, substitution, reuse of materials, and disposal. (Stock, J. R., Lambert, D. M. 2001. 4th ed.)

1.7. Significance of the study

This study is of primary importance to the management of Habesha Breweries S.C. By identifying the specific operational and technological factors that affect logistics performance, the research provides the company with a data-driven roadmap to:

- Identify and eliminate bottlenecks within the transportation function that cause delays.
- Improve delivery responsiveness and speed to meet customer demand more effectively.
- Reduce costs associated with transportation and increase the cost-effectiveness of the distribution system.
- Improve “Tracing and Tracking” ability using the recommended technology changes.
- Other firms operating in the Ethiopian Beverage and FMCG industry sector encounter such infrastructural problems.

1.8. Scope of the Study

1. The scope of the study is limited to logistics performance only around Transportation Function.

2. Data collection shall be mainly conducted at the main production plant situated in Debre Birhan and the central coordinating agency/head office in Addis Ababa.

3. The scope of the study's target population is defined as being employees of Habesha Breweries S.C., who have some involvement in the logistics and transport chain.

4. This study is designed using descriptive and explanatory research methods.

1.9. Limitation of Study

This research is neither trying to conduct comparative analysis among Habesha brewery and others (Heineken or BGI) nor is it intended to conduct a study of its transportation context.

CHAPTER TWO

2.LITERATURE REVIEW

2.1 Introduction

This chapter presents a comprehensive review of the theoretical and empirical literature relevant to the determinants of the performance of the transport function within the brewing industry. Important ideas and research gaps will be highlighted, and this investigation concludes with the conceptual framework.

2.2 Theoretical Literature Review

The study of logistics performance within complex organizational systems has been grounded in well-established theories and will be reviewed in this section. These theoretical perspectives provide an excellent platform through which the interrelationships between resources, operational system, transactions, and limitations within the transport function of Habesha Breweries S.C. can be examined.

Based on the resource-based view (RBV), the transport resources of Habesha Breweries S.C., including trucks, GPS systems, and logistics competencies, have become strategic assets that contribute towards market leadership and not mere functions of the organization. Based on Wade & Hulland (2004), the competitive positioning of any firm in unstable market environments is enhanced by the effective integration of technology (tracking systems) with physical assets.

2.2.1 The Resource-Based View (RBV) Theory

Based on Barney's (1991) Resource Based View (RBV) theory, the ability of an organization to maintain a competitive advantage in the long run relies on resources that are Valuable, Rare, Inimitable, and Non-substitutable (VRIN). According to Mentzer et al. (2001) argue that logistics capabilities—like a specialised fleet or sophisticated distribution networks—act as strategic assets that distinguish a business from its competitors.

2.2.2 Systems Theory

Systems theory, which views an organization as a complicated network of related and dependent parts, was developed by Von Bertalanffy (1968). Christopher (2016) underlines in the body of knowledge on logistics the need of managing the supply chain as a single integrated system instead of as a series of independent actions. He argues that if there is an "optimisation" in a particular activity like transport speed but is not synchronized with other activities, then it makes no sense.

This theory is very important while analysing Habesha Breweries since it stresses the role of loading efficiency in the factory and the ability of the agents to take up the items. Seen as a system, Bowersox et al. (2020) say that logistics' primary goal moves from local cost-cutting to general system excellence and customer service.

2.2.3 Transaction Cost Economics (TCE)

Halldorsson et al. (2007) apply Transaction Cost Economics (TCE) to logistics, explaining that environmental uncertainty, such as fuel volatility and security risks, increases these transaction costs. TCE theory, which was introduced first by Coase (1937) and then enhanced by Williamson (1981), concerns itself with transaction costs in economic exchange and suggests selecting the right governance structure (such as having a fleet owned or outsourcing) to minimize "transaction costs." To reduce "transaction costs," which consist of costs involved in searching, bargaining, and monitoring, TCE suggests that businesses pick appropriate governance structures (such as fleet ownership versus outsourcing). The application of TCE in logistics is provided by Halldorsson et al. (2007), who state that the transaction costs are exacerbated by environmental uncertainty such as fuel cost variability and security threats.

Transaction Cost Economics theory can explain the financial burden of managing the transportation function in the current Ethiopian environment for Habesha Breweries. According to Grover & Malhotra (2003), the bigger is external uncertainty, the more costly is the monitoring of drivers and management of fuel, which reduces efficiency of transport sub-system.

2.2.4 The Theory of Constraints (TOC)

Any system operates within the confines of at least one constraint, states the Theory of Constraints (TOC) developed by Goldratt (1984). Identifying and solving that limitation is the only means by which to improve effectiveness. According to Simchi-Levi et al. (2008), the most effective approach to reducing lead time and increasing responsiveness in logistics operations is the identification of bottlenecks in the logistics network.

In this paper, TOC serves as the analytical tool that enables an assessment of whether the principal "bottleneck" at Habesha Breweries is external (for example, lack of fuel or hindrance) or internal (loading efficiency). In fact, it can be noted that lead times and inventories are greatly lowered using TOC principles both in manufacturing and logistics activities as shown in the empirical evidence provided by Mabin & Balderstone (2003).

2.3 Empirical Literature Review

The findings of previous studies related to the factors that affect logistics and transport performances are highlighted in the empirical literature review. Studies from all over the world, in Ethiopia, and in different parts of the world are reviewed here.

2.3.1 Logistics Responsiveness and Firm Performance

Transport responsiveness and organizational success are positively correlated as shown by many empirical studies. According to research by Gunasekaran et al. (2004), "delivery speed" and "order cycle time" are among the main criteria for logistics success. According to their findings, organizations that can respond promptly to unplanned or urgent orders enjoy considerable competitive advantage. Similarly, Tracey (2004) undertook an empirical study to show how, in the manufacturing industry, transport responsiveness impacts customer satisfaction and overall profitability of businesses.

2.3.2 Transport Reliability and Dependability

Conducting an empirical study in the Nigerian beverage industry, Adebayo (2015) found that "stock-outs" occur due to unreliable supply chain performance resulting in income loss for the company. However, reliable and consistent delivery cycles allow agents to cut down inventory

expenses. In another empirical study, Mentzer et al. (2001) analysed a logistics service quality model and showed that "timeliness," defined as a fleet's capability to reliably meet delivery deadlines, is the key determinant of customer loyalty. Based on the empirical analysis of the logistics services quality model, Mentzer et al. (2001) determined that the primary determinant of consumer loyalty is “timeliness,” or the ability of the fleet to fulfil delivery promises accurately. In the study by Adebayo (2015), which focuses on the Nigerian beverages industry, it was found out that while unreliability leads to stock-outs and loss of revenue for the brewery, reliable delivery cycles help agents save on inventory costs.

2.3.3 Impact of Technology on Logistics Efficiency

It has been observed that the performance of transport is improved with information and communication technology (ICT). The Logistics Performance Index developed by the World Bank (Arvis et al., 2018) indicates that companies and countries investing in "tracking and tracing" technology perform much better than those utilizing manual methods. Prajogo and Olhager (2012) empirically demonstrated that the implementation of IT systems enhances efficiency by 15% due to effective communication between the logistics and production units.

2.3.4 External Factors and Transport Constraints

The external factors tend to be of higher priority compared to internal management issues in developing economies. For instance, Tadesse (2019) revealed that fuel price volatility and inadequate road infrastructure are the leading sources of delay in the logistics industry in the Ethiopian freight industry; Gebremichael (2021) found out that "unanticipated local disturbances" and regional security problems significantly increase lead Time for consumer products, resulting in an adverse influence on the reliability of the transportation This is due to the facts established in the empirical investigation by Tadesse

(2019) about the logistics industry of Ethiopia, according to which unstable prices for fuel and poor road infrastructure are the major causes of delays. Also, Gebremichael (2021) found out that in Ethiopia, "unexpected local disruptions" and security challenges in the region significantly increase the time of delivery of consumer products.

2.3.5 Service Quality and Reverse Logistics in Breweries

Returning bottles and crate is a specific requirement in the beverages sector (Reverse Logistics). In research by Bernon et al. (2016), organizations that manage "closed loop logistics" well

reduce their total packaging costs by 20-30%. Mollenkopf et al. (2011) empirically demonstrated that maintaining positive connections between a brewery and its distribution agents depends on the quality of the transport service, which includes minimising bottle breakage and providing accurate paperwork.

Although the research done above highlights the importance of responsiveness, technology, and reliability, little has been done in this area within the context of unstable western markets. This means, very little research has been done on how the transportation role of Ethiopian brewery companies works under conditions of fuel shortage and insecurity. This research attempts to fill the gap by using Habesha Breweries S.C. as an example.

2.4 Literature Review and Conceptual Framework Justification

This review will clearly demonstrate that the variables widely accepted as logistics capabilities or driving factors (antecedents) of logistics performance results.

2.4.1 Foundational Theoretical Support: Capability-Performance Theory (CPT) and Resource-Based View (RBV)

The theoretical foundation of this thesis rests on the Capability-Performance Theory (CPT) and the Resource-Based View (RBV). The two theories are critical to the theoretical perspective that aids in the demarcation between the internal competency of an organization (capabilities and resources) and its performance.

According to Barney's RBV, a firm's sustainable competitive advantage, as well as its performance, emanate from its valuable, rare, inimitable, and non-substitutable (VRIN) resources and capabilities. Under this theory, logistics capabilities (such as responsiveness and reliability) are the very same as VRIN resources. They are the **drivers**, and their effective management is what leads to superior performance, which is the **outcome**. (Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. Journal of Management, 17(1), 99-120.) when Barney discusses capabilities as resources in bundles that enable an organization to do things better than its competition.

This study makes the connection between strategic logistics capabilities and firm success most directly. The authors make the case that capabilities like "delivery dependability" and "customer service flexibility" are strategic levers, or independent variables, that firms can adjust to get certain outcomes (dependent variables like market share, profit, or overall business success). They don’t define these capabilities as the outcomes themselves but rather as the **antecedent**s to those outcomes.

"Logistics capabilities are distinct from performance. Capabilities capture the strategic and operational abilities of the firm's logistics system which directly impact and serve as antecedents for the firm's overall performance.": Their empirical model demonstrates that "Delivery Dependability" and "Responsiveness" are independent constructs that predict "Firm Performance." (Morash, E. A., Droge, C. L., & Vickery, S. K. (1996). Strategic logistics capabilities for competitive advantage and firm success. Journal of Business Logistics, 17(1), 1–22.)

The authors strengthen the concept of CPT by emphasizing that "logistics capabilities" are critical to **achieving** performance because it is only through efficient logistics operations that an organization can perform better and create a competitive edge. This is because Fawcett et al. see the capabilities (responsiveness, reliability, etc.) not as competitive advantages themselves but as the weapons that the organization uses to achieve them. The cause-and-effect relationship justifies why they are considered independent variables. (Fawcett, S. E., Stanley, L. L., & Smith, S. R. (1997). Developing a logistics capability to improve the performance of global operations. Decision Sciences, 28(4), 939–967.)

Their conceptual framework clearly shows "**logistics capability"** as an independent variable affecting "**operational performance."** On page 945: Responsiveness and reliability are identified as process variables driving efficiency and cost performance.

2.4.2 Independent Variables as Operational Determinants

Each of the independent variables under discussion is well-known in logistics literature as a logistical capability or feature that **influences** the logistics performance construct, which consists of logistics efficiency, effectiveness, and profitability.

Speed

• Why it is an Independent Variable: speed denotes the extent to which the logistics process can respond to demand for the products or services quickly and efficiently. While important, speed itself is not the only indicator of logistics performance, as other factors like costs or asset utilization also play a role. Very speedy processes tend to be very costly or unreliable, making them suboptimal solutions. Therefore, speed is best understood as a characteristic or a driver of the logistics process rather than the process itself.

(Fugate, B. S., Mentzer, J. T., & Stank, T. P. (2010). Logistics performance: efficiency, effectiveness, and differentiation. Journal of Business Logistics, 31(1), 43–62.) The authors draw a distinction between several aspects of logistics performance in their research. Specifically, they list responsiveness (such as speed of delivery and adaptability) as one of the characteristics that fall under "logistics effectiveness."

Effectiveness, according to their conceptual framework, is an operational characteristic, which, in turn, affects (is a determinant for) logistics performance.

They describe responsiveness as one of the key components of "logistics effectiveness," which is suggested to be the driving force behind performance. Page 51: In their conceptual framework, they distinctly separate "responsiveness" as one of the antecedents (or independent variables), which leads to the overall performance of the logistics system.

Christopher, who is regarded as an expert in the field of logistics management, repeatedly stresses the role of responsiveness as one of the capabilities that need to be developed by companies to attain a competitive advantage and improve the overall performance of the logistics system. The expert notes that quick order fulfilment and delivery represent one of the tactical inputs that lead to higher customer satisfaction and subsequently to better logistics performance. "Superior logistics performance will depend largely on the company's ability to respond promptly to changes in customer demand." (Christopher, M. (2016). Logistics & Supply Chain Management. 5th ed. Pearson UK.)

Dependability

Reason for Being an Independent Variable: "Dependability means the dependability of the operation—delivering the right product, in the right amount, at the right time, and in the correct condition." In this case, reliability is linked to the consistency of transportation process. A reliable and dependable transportation system will help reduce inventory costs, improve forecast accuracy, and increase customer satisfaction; all of these are parts of the logistics performance. Yet, the dependability itself, for instance, 99% timely deliveries, is only a component of the whole performance.

Reason: "dependability is an important measure of logistics competence." According to Bowersox et al., dependability relates to consistent delivery cycles and compliance with schedules. Such features have a direct impact on inventory and on customer service; they form the basis for operational metrics which are independent variables to influence the dependent variable of logistics performance.

Dependability is cited as a core operational competency under the topic "Logistics Competence." The authors highlight how service dependability can be seen as an independent operational attribute that greatly affects logistics performance. (Bowersox, D. J., Closs, D. J., & Stank, T. P. (1999). 21st Century Logistics: Making Supply Chain Integration a Reality. Council of Logistics Management, Oak Brook, IL.)

Mentzer and Konrad are key in the literature on measuring logistics performance, where "dependability" and other attributes are classified as an element of "effectiveness" that is counter-balanced by "efficiency"

to determine overall performance. Here, being dependable is a trait of the logistics operation itself, which affects the result of the logistics process's performance. Dependability is defined as an element of "logistics effectiveness." (Mentzer, J. T., Konrad, B. P. (1991). An efficiency/effectiveness approach to logistics performance analysis. Journal of Business Logistics, 12(1).)

logistics service quality

Explanation: The authors define logistics service quality (LSQ) as a multi-dimensional construct (including such dimensions as personnel quality, order condition, timeliness, etc.) and state it to be an independent variable affecting customer satisfaction and, thus, organizational performance.

"Logistics Service Quality (LSQ) is a process-oriented construct. LSQ is an antecedent that influences the effectiveness and strategic performance of the physical distribution system." On page 92: The structural model proposed by the authors clearly identifies LSQ dimensions as independent variables. (Mentzer, J. T., Flint, D. J., & Hult, G. T. M. (2001). Logistics Service Quality as a Segment-Customized Process. Journal of Marketing, 65(4).)

Explanation: Although not focused on logistics, SERVQUAL serves as the fundamental model for service quality. It defines service quality as the perceived excellence of a service company, which **results in** customer satisfaction and additional favorable outcomes. This overarching framework endorses the notion that quality is a perceived characteristic (IV) that influences overall performance (DV). (Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. Journal of Retailing, 64(1).)

Technology Integration

Why it is an Independent Variable: Technology integration, which involves technology applications such as GPS tracking, ERP, and automated billing, is the use of technology resources in a productive manner within the transport department. This is one of the capabilities of the RBV, and when well-integrated into the system, it will make the system more efficient and provide good information for decision making. Technology is a resource and an independent variable because it **enhances performance** in many aspects.

Gunasekaran et al. point out that the use of modern information technology plays a crucial role in developing a responsive supply chain and enhancing performance in logistics. (Gunasekaran, A., Lai, K. H., & Edwin Cheng, T. C. (2008). Responsive supply chain: a competitive strategy in a networked economy. Omega, 36(4).)

External Factors

Reason Why It Is an Independent Variable: Environmental factors (such as fuel cost fluctuations, road construction, regional safety concerns, government policies) are controllable factors that exist externally to the organizational context of Habesha Breweries S.C. In accordance with Systems Theory (Katz & Kahn, 1978), organizations are considered open systems, interacting with their environment on a constant basis. The above-mentioned factors represent clear examples of independent variables, influencing directly and negatively the performance and effectiveness of transportation within the organization.

This basic text provides chapters for the "Macro-environment of Logistics," which explains how different external environmental factors (such as economic, political, social, technological, and infrastructure-related) act as independent variables that have a huge effect on the logistics environment and constraints.

The authors explain how the effects of these environmental factors affect logistics planning and performance. Page 712: While discussing systems theory, they state that the performance of any logistics system (Dependent Variable) depends greatly on these external environmental factors (Independent Variables). (Stock, J. R., & Lambert, D. M. (2001). Strategic Logistics Management (4th ed.). McGraw-Hill/Irwin, Boston, MA.)

This source highlights the idea of dependence on external resources, and discusses how external dependencies, such as access to fuel and roads, constrain organizational actions. (Pfeffer, J., & Salancik, G. R. (1978). External Control of Organizations: A Resource Dependence Perspective. Harper & Row, New York.)

2.5 Conceptual Framework Summary

In doing so, the research makes an explicit distinction between Logistics Process Capabilities (as the independent variables) and the Systemic Logistics Performance (as the dependent variable). The modelling strategy is strongly rooted in Capability-Performance Theory (CPT) and Resource Based View (RBV) principles that require operational capabilities to be modelled as antecedents/inputs that lead to the consequent/outcome of performance.

To ensure no concept overlap, the following segregation between the two types of variables is made:

1.Internal Logistics Capabilities (Independent Variables 1-4): This is what constitutes the operational capabilities under complete control of management at Habesha Breweries S.C. Speed, reliability, quality and technological level cannot be measured directly as performance criteria; rather, they serve as the input for the process. The fleet may operate very quickly and reliably yet fail to provide good performance due to extremely high cost of operation.

2.Exogenous Environment (Independent Variable 5): Based on the framework of Systems Theory, the transport function is considered an open system. Exogenous factors such as fuel accessibility, road network, and regional safety are considered independent variables constraining and influencing the performance outcomes of the system.

3. Logistics Performance (Dependent Variable): To make sure that there will be no structural overlap between the independent variables, the Logistics Performance is considered strictly as a systemic result. It does not measure execution speed and/or the reliability of executing a particular task; instead, it measures general systemic results, such as efficiency of cost, effective usage of fleet capacity, achievement of targets/goals, and overall distribution service performance. Thus, the model measures the influence of the various functional capabilities (IVs 1-4) and environmental limitations (IV 5) in determining 79.8% of the variance in performance outcomes (DV).

2.5.1 Conclusion of Conceptual Validation

Given the vast amount of academic literature that underpins the theories of Resource-Based View, Capability-Performance and System Theory, the conceptual framework employed in this thesis study is theoretically sound and academically acceptable. The independent variables, namely (Speed, Dependability, Service Quality, Technology Utilization and Externalities), have been correctly classified into either operational competencies, strategic factors or externalities that influence the dependent variable, Logistics Performance, defined as the overall performance of the transport system of Habesha Breweries S.C. It is important to note that all these classifications have significant impact on the dependent variable being studied.

The idea that service quality and responsiveness are separate factors affecting logistics performance is backed up by recent studies. In their mixed-methods research, **"Determinant Factors of Logistics Firm Performance Mediated by Optilog Adoption," Melianie et al. (2023)** showed that service standards independently predict how well a logistics company does. Likewise, Mageto, Prinsloo, and Luke (2020) found in their study, **"Determinants of Logistics Outsourcing Performance Among Small and Medium Enterprises,"** that service quality and speed are distinct, independent elements driving

performance differences. These studies show that both factors directly impact logistics results and aren't just part of a bigger performance measure, but important drivers on their own.

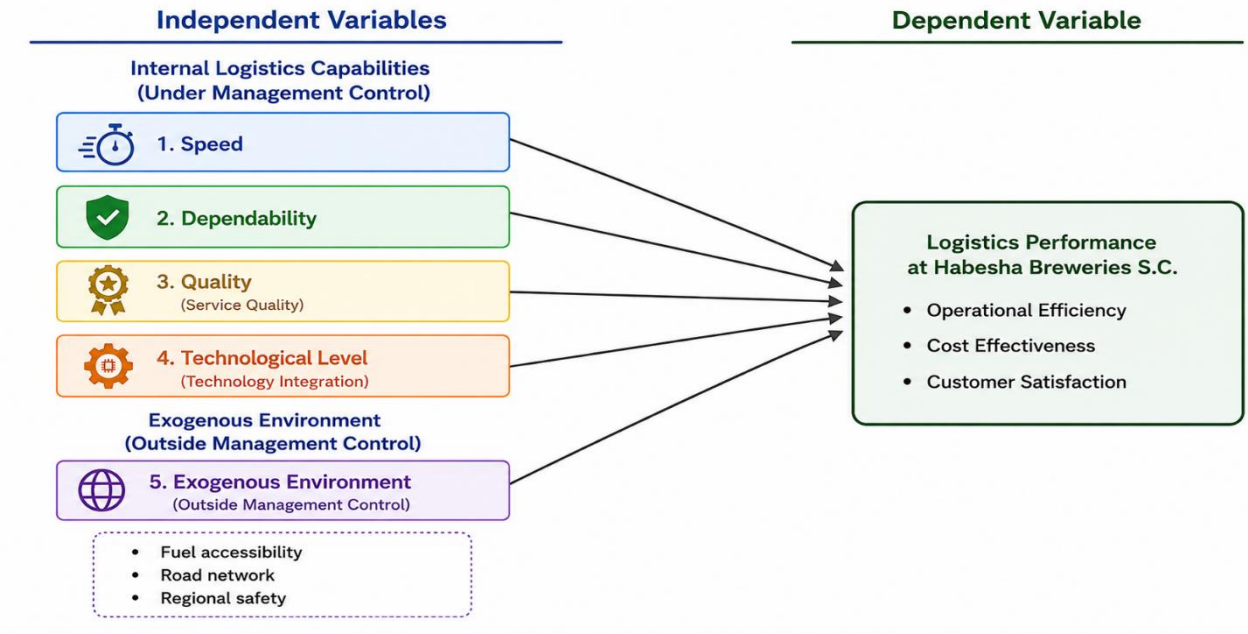


FIGURE 2.1 CONCEPTUAL FRAMEWORK

2.5.2 Description of Variables

1. Independent Variables (Determinants):

Speed: Measures how quickly orders can be made and the time taken to deliver them, as well as the flexibility of the fleet in meeting emergencies.

Dependability: Measures the predictability of the duration of the supply chain process, meeting deadlines, and the maintenance of the fleet.

Service Quality: Considers how well products are delivered (less damage), accuracy of paperwork, and professionalism.

External Factors: Reflects environmental constraints that are unique to Ethiopia, including fuel availability and security in the region.

Technology Integration: Measures the use of GPS technology and information systems.

2.6 Main Hypothesis

H0 (Null Hypothesis): There is no statistically significant relationship between the determinants of the transport function and logistics performance at Habesha Breweries S.C.

H1 (Alternative Hypothesis): There is a statistically significant relationship between the determinants of the transport function and logistics performance at Habesha Breweries S.C.

2.6.1 Sub-Hypotheses

H1.1 (speed):
High levels of speed in transport contribute positively and significantly to the logistics performance of Habesha Breweries S.C.

H1.2 (dependability):
Dependability of delivery services significantly and positively affects the logistics performance of the brewery.

H1.3 (service quality):
Transport service quality and dispatch integrity significantly improve the logistic performance of Habesha Breweries S.C.

H1.4 (external determinants – fuel/Security):
Fuel supply volatility and security risk (theft) during night hours negatively affect the logistic performance of the transport function.

H1.5 (Technology/tracking and tracing):
Tracking and tracing technology contributes positively to logistics performance of the transport function.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Research Design

The proposed design for conducting this study is a combination of descriptive and explanatory designs.

Descriptive Design: This kind of research design is chosen to give a complete description of the present condition of transport activities within Habesha Breweries S.C. in terms of their performance.

Explanatory Design: An explanatory or causal design is chosen for carrying out this study to explain the causality between determinants of transportation (independent variables) and logistics performance(dependent-variable).

3.2. Research Approach

This research will employ the use of Mixed-Methods Research Design, whereby methodological triangulation will be applied. This entails incorporating both qualitative and quantitative data collection and analysis for a more comprehensive understanding of the problem under investigation.

Quantitative Component: This study will employ the use of quantitative research design to aid hypothesis testing through inferential statistics. This will enable the measurement of the impact and correlation between transport variables and performance.

Qualitative Component: Qualitative research design will also be employed in this study using semi-structured interviews of some of the logistics personnel. This will aid in gaining a thorough comprehension of the non-numeric issues that affect the logistics company such as cargo pilferage and fuel volatility.

Regression analysis was used in the paper to capture a cause-and-effect relationship model, which means that a well-organized logistics system will positively contribute to transport function. The factors affecting the logistics system were organized and their regression on

logistics performance and transport function was also calculated. Descriptive statistics were used to see the company's logistics practices.

- The type of data collected includes both primary and secondary types of data.

3.2.1. Population and Sampling

Target Population

The population consists of employees of Habesha Breweries S.C. directly involved in the logistics and transport value chain. This includes:

I. Logistics Transport Managers/Coordinators
II. Fleet Supervisors and Dispatchers
III. Warehouse/Loading Supervisors
IV. Drivers

Sample Size: **110**

3.2.2. Sampling Frame:

The official HR employee list of Logistics and Supply chain department at the Debre Birhan plant and Addis Ababa head office.

3.2.3 Data Sources and Collection Methods

Primary Data: Structured Questionnaires.

Semi-Structured Interviews: Conducted with 5-7 key logistics leaders at Habesha to understand the "hidden mechanics" of power and external risks (fuel/theft).

Secondary Data: Review of Habesha Breweries internal reports, dispatch logs, fuel consumption records, security incident reports, and past performance reviews.

3.2.4. Reliability and Validity

The internal consistency of the study instrument was the focus of reliability analysis, according to Broman and Bell (2007). The internal consistency and reliability of logistics functions, factors influencing logistics functions, transportation functions, dimensions of transportation functions, and challenges of transportation activities were evaluated using Cronbach's Alpha since multiple

items were used in all constructs. The acceptable range is between 0.70 and 0.90 or higher depending on the type of research. Cronbach's Alpha of 0.70 is acceptable for exploratory research and 0.8 and 0.9 are acceptable for basic research and applied scenario respectively (Adeniran Adetayo Olaniyi,2019).

The reliability of each construction is summarized in the table that follows.

TABLE 1 TEST FOR RELIABILITY

Variable	No of Item	Cronbach's Alpha
Speed	5	0.839
Dependability	6	0.833
Service Quality	6	0.854
Technology	4	0.85
External Factor (Reversed)	5	0.868

Source: SPSS Version

3.3. Ethical Considerations

To ensure the integrity of the study and the safety of all participants, the researcher followed conventional ethical guidelines throughout. The ethical norms outlined below were properly followed.

1. Informed Consent

Before administering the questionnaire, the researcher properly stated the study's goal, scope, and objectives to all participants. Respondents were informed that the data was being collected for academic purposes as part of a master's degree. Participation was entirely voluntary, and respondents had the option to withdraw at any time without consequence.

2. Anonymity and Confidentiality

To safeguard the privacy of Habesha Breweries S.C. employees, the questionnaire did not ask for their names or personal identification numbers. All collected data was kept strictly secret. The researcher made certain that individual comments could not be traced back to any specific employee, shielding them from any potential career ramifications based on their feedback.

3. Objectivity and Integrity

Throughout data collection and analysis, the researcher maintained a high level of objectivity. All findings were presented honestly, with no data manipulation to fit a certain premise. To avoid plagiarism, the works of other authors cited in this study were properly acknowledged by referencing.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1. Introduction

This chapter discusses the results and analysis of data from employees at Habesha Breweries S. C. It aims to assess what affects logistics performance in transportation. The analysis includes the demographic profile of respondents, descriptive analysis of study variables, and inferential statistics using SPSS Version 26 to interpret results.

4.2. Demographic Characteristics of Respondents

There were 110 responders in all for the study. The demographic details of the respondents are shown in Table 2 according to gender, age group, level of education, Position, and work experience.

TABLE 2 RESPONDENT PROFILE

Variable	**Category**	**Frequency**	**Percentage (%)**
Gender	Male	100	90.9
	Female	10	9.1
Age Group	Under 25	18	16.4
	25–30	26	23.6
	31–35	24	21.8
	36–40	26	23.6
	Above 40	16	14.5
Educational Level	Certificate/Diploma	35	31.8
	Bachelor Degree	52	47.3
	Master Degree	23	20.9
Position	Operational Staff	37	33.6
	Supervisor/Section Head	26	23.6
	Middle Management	19	17.3
	Top Management	28	25.5
Work Experience	Less than 2 years	32	29.1
	2–5 years	31	28.2
	6–10 years	26	23.6
	Above 10 years	21	19.1
Total		**110**	**100%**

Source: Own Survey, 2026

As seen in Table 4.1, 90.9% of the participants were males and 9.1% were females. Regarding age distribution, 23.6% of respondents were between 25 and 30, and 21.8% were between 31 and 35. Most respondents (47.3%) possessed a bachelor's degree; 31.8% had certificates or diplomas; 20.9% had master's degrees. Regarding employment position, operational staff accounted for the most replies (33.6%), followed by senior management at 25.5%. Regarding work experience, 28.2% of respondents had two to five years of experience, while 29.1% had less than two years.

4.3 Descriptive Statistics

Descriptive statistics gathered respondents' thoughts on the elements affecting logistical performance at Habesha Breweries S.C. With a mean score of 3.56 and a standard deviation of 1.071, technology integration came out to be the most important element affecting operational success and logistic effectiveness according to respondents. A relatively high mean score (Mean = 3.54, SD = 1.011) indicated that respondents regarded the transportation options as generally reliable and dependable.

As shown by the average score of 3.53 with a standard deviation of 1.011, the company's transportation services are generally appreciated in terms of freight safety, professionalism, and delivery standards. Responsive ness and speed also showed good results with a mean score of 3.44 and a standard deviation of 1.045, suggesting moderate to high responsiveness within the transport activities.

Conversely, the mean external factor score was low at 1.46 with a standard deviation of 0.700. According to this study, fuel shortages, road infrastructure problems, traffic congestion, and security-related issues have a major unfavourable influence on the transportation performance and logistical activities of the firm.

Table 3 descriptive statistics

Variables	Very Poor f (%)	Poor f(%)	Fair f (%)	Good f (%)	Very Good f(%)	Mean
Speed	5 (4.5%)	16 (14.5%)	30 (27.3%)	44 (40.0%)	15 (13.6%)	3.44
Dependability	2 (1.8%)	16 (14.5%)	33 (30.0%)	39 (35.5%)	20 (18.2%)	3.55
Service Quality	4 (3.6%)	12 (10.9%)	34 (30.9%)	42 (38.2%)	18 (16.4%)	3.53
External Factor	71 (64.5%)	28 (25.5%)	10 (9.1%)	1 (0.9%)	0 (0.0%)	1.46
Technology	3 (2.7%)	16 (14.5%)	31 (28.2%)	36 (32.7%)	24 (21.8%)	3.56

Source: Own Survey, 2026

4.4 Correlation Analysis

Pearson correlation analysis was used to look at the link between independent variables and logistical efficiency.

Table 4 .3 Pearson Correlation Analysis

Variables	speed	Dependability	Service quality	External factor	Technology
speed	1	.645**	.605**	-.580**	.647**
Dependability	.645**	1	.645**	-.601**	.642**
Service quality	.605**	.645**	1	-.504**	.545**
External factor	-.580**	-.601**	-.504**	1	-.523**
Technology	.647**	.642**	.545**	-.523**	1

**. Correlation is significant at the 0.01 level (2 tailed).

Source: Own Survey (SPSS), 2026

According to the correlation analysis, all research factors have notable connections. Dependability and reliability (r = 0.645), service quality (r = 0.605), and technology (r = 0.647) all have a high and positive correlation with responsiveness and speed, indicating that advancements in other areas of logistical performance are tied to increases in responsiveness.

Reliability and dependability also show strong positive connections with service quality (r = 0.645) and technology (r = 0.642), showing that these qualities move in sync. Furthermore, between service quality and technology there is a mild to high positive correlation (r = 0.545).

But all internal logistics performance characteristics, including speed (r = -0.580), dependability and reliability (r = -0.601), service quality (r = -0.504), and technology (r = -0.523), consistently show negative correlations with external forces. This implies that rising outside hurdles usually cause logistics operations' performance to deteriorate. In general, the data show that internal logistics problems are closely related and strengthen one another even as outside influences have a negative impact on every aspect of logistics performance.

4.5. Inferential Statistics

4.5.1 Linearity Assumption

Measurement of linearity was accomplished using scatter plots and regression residual graphs. The graphic results revealed roughly linear relationships between the dependent and independent variables. The linearity requirement was thereby fulfilled.

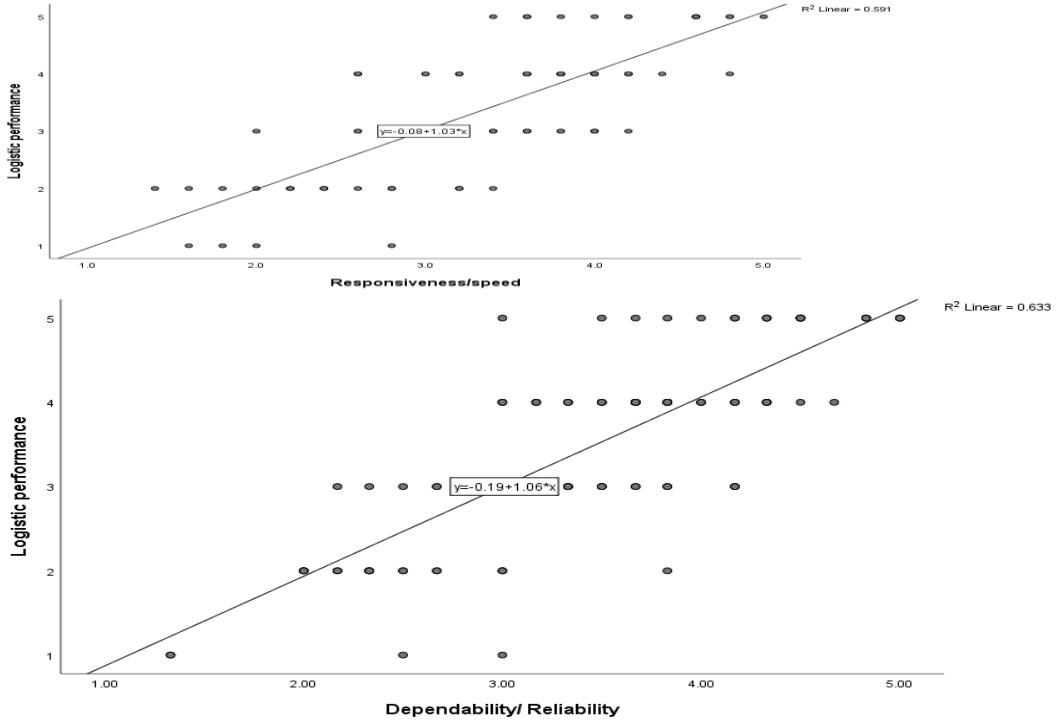


FIGURE 3 LINEARITY ASSUMPTION

**. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS Version

4.5.2 Multicollinearity Test

Multicollinearity between the independent variables was evaluated using tolerance values and the Variance Inflation Factor (VIF).

Table 5 multicollinearity test

Variables	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
(Constant)	0.418	0.361	—	1.16	0.249	—	—
Speed	0.204	0.07	0.196	2.931	0.004	0.435	2.3
Dependability	0.302	0.075	0.28	4.038	0	0.404	2.478
Service Quality	0.206	0.066	0.191	3.097	0.003	0.512	1.952
External Factors	-0.244	0.092	-0.157	-2.668	0.009	0.563	1.776
Technology	0.259	0.064	0.255	4.024	0	0.484	2.066

Source: Own Computation, May 2026

Multiple linear regression analysis was used to study how speed, reliability, service quality, external factors, and technology affected logistical performance. The results show that all independent variables have a significant influence on logistic performance at the 5% level of significance (p < 0.05), hence illustrating the statistical fit and significance of the model in explaining variations in logistics performance.

Dependability and reliability (β = 0.280, p < 0.001) seem to be the greatest positive predictor of logistics performance. This implies that more than other factors, improvements in logistics services' reliability, accuracy, and consistency significantly improve general logistics performance. Furthermore, technology has a major and strong positive impact (β = 0.255, p < 0.001), implying that using efficient technical systems improves logistical operations' service delivery, tracking, and coordination.

Likewise, logistical performance is favourably influenced by speed (β = 0.196, p = 0.004) as well as by service quality (β = 0.191, p = 0.003). Better service delivery and faster customer response times thereby positively affect the efficiency of logistics activities. However, even though their impact is a bit lower compared to the effects of dependability and technology, these factors are

equally crucial to logistic performance. On the other hand, external factors affect logistic performance (β = -0.157, p = 0.009). Thus, difficult external environments affect logistic operations negatively.

According to the multicollinearity diagnostics, all tolerance values are above 0.10, all VIF values range from 1.776 to 2.478, both of which are far below the 10 thresholds. This shows that the independent variables have negligible multicollinearity and the regression results are reliable and steady.

4.5.3 Multiple Linear Regression Analysis

The impact of the independent factors on logistics performance was investigated using multiple linear regression analysis.

4.6. Model Summary

Table 6 Model Summary

R	R Square	Adjusted R Square	Std. Error
.893	.798	.788	.502

Source: Own Computation, May 2026

According to the model overview, the independent variables—responsiveness and speed; dependability and reliability; service quality; external conditions; and technology—and logistics performance are much associated. The value of R = 0.893 suggests a great positive correlation between the observed and projected logistical performance levels, therefore implying a substantial general link between the predictors and the dependent variable.

According to the coefficient of determination (R2 = 0.798), the five independent variables in the model explain nearly 79.8% of the variance in logistics performance. This indicates that the model has a great explanatory power. The Adjusted R2 = 0.788, which shows that the model is not overfitted and still explains a major part of the variance in logistic performance, further verifies the model's strength after controlling for the number of predictors. With a standard error of 0.502, which indicates a somewhat little level of prediction error, the model's estimates are correct.

4.6.1 ANOVA Results

Table 7 Anova result

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	103.294	5	20.659	82.099	.000
Residual	26.170	104	.252		
Total	129.464	109			

Source: Source: Own Computation, May 2026

The statistical significance of the regression model in predicting logistic performance is shown by the ANOVA results. According to the data, the model's total variation is 129.464; its Sum of Squares for Regression is 103.294; its Residual Sum of Squares is 26.170. With a computed F-value of 82.099, which is extremely significant at p < 0.001, the overall statistical significance of the regression model is shown.

This shows that the independent variables combined affect logistics performance considerably and that there is little probability this link evolved by coincidence. Thus, the model is thought to provide a decent fit for describing and predicting logistics performance depending on the selected predictors.

4.7 Regression Coefficients

Table 8 Regression Coefficients

Variable	B	Beta	t	Sig.
Constant	.418		1.160	.249
speed	.204	.196	2.931	.004
Dependability	.302	.280	4.038	.000
Service quality	.206	.191	3.097	.003
External factor	-.244	-.157	-2.668	.009
Technology	.259	.255	4.024	.000

Source: Own Computation, May 2026

Regression coefficients table displays the influence of every independent variable on logistics performance. The results reveal that all variables—except the constant—have a statistically significant effect on logistics performance at the 5% significance level (p < 0.05).

Dependability and reliability (B = 0.302, β = 0.280, p < 0.001) are the most important predictors of logistics performance. This means that a one-unit increase in dependability and reliability results in a 0.302 rise in logistics performance all other variables kept equal. It demonstrates that reliability and consistency are the two most important factors in increasing overall performance in logistics operations.

Given that B = 0.259, β = 0.255, and p < 0.001, technology, which is the second-best predictor, has a substantial positive effect on the performance of logistics. This means that advancements in technology like tracking, automation, and communication significantly increase logistics performance.

Response and speed (B = 0.204, β = 0.196, p = 0.004) and service quality (B = 0.206, β = 0.191, p = 0.003) also considerably improve logistics performance. This means that quick response and good delivery of services play a very significant role in improving logistics performance although their effect is somewhat less than that of dependability and technology. There are external factors that affect logistics performance negatively.

The negative effect of external factors is very significant as is shown by B = 0.244, β = -0.157, and p = 0.009. This means that adverse external factors such as poor infrastructure, legislation, and market stability affect logistics performance negatively.

With all independent variables zero, the constant term (B = 0.418), which is not statistically significant (p = 0.249), shows that the baseline level of logistics performance is not far different from zero.

The results as a whole show that internal elements—including dependability, technology, responsiveness, and service quality—positively affect logistics performance whereas outside forces obstruct it.

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.1. INTRODUCTION

This final chapter summarizes the research findings, conclusions, and recommendations of a study on logistics performance at Habesha Breweries S. C. It focuses on five key factors: responsiveness, dependability, service quality, technology integration, and external factors. The chapter is divided into four sections: a summary of findings from Chapter Four, conclusions related to the research questions, practical recommendations for management to improve logistics, and suggestions for future research in Ethiopian logistics.

5.2 SUMMARY OF THE FINDING

The study's high average overall score suggests that logistics performance in the study region is often at a respectable level. Highly rated by respondents, technology, dependability and reliability, responsiveness and speed, and service quality suggest that these aspects of logistics activities are running well. Among these, dependability and technology improved general logistic efficiency rather more, hence highlighting their importance.

As shown by the correlations among the study variables, internal logistics elements are strongly and favourably associated with one another. This implies that developments in one field usually help those in other fields. This shows in logistics operations how efficiency, quality of service, and technological usage are mutually dependent. External influences, on the other hand, seem to obstruct effective logistics activities as shown by their always adverse connections with all interior performance dimensions.

The results further show that technology, speed and responsiveness, dependability and reliability, and service quality all considerably increase logistics performance. Among these, reliability and dependability are most impactful; technology is second. External influences, conversely, have a significant negative effect, showing that unfavourable outside conditions reduce general logistical performance.

In summary, these results indicate that internal operational efficiency and technical assistance remain the major contributing factors for logistics performance despite any external environmental limitations.

5.3 CONCLUSIONS

The research showed that speed, dependability, and service have great impacts on the logistics process. There are correlations between such elements as the above-mentioned and the logistics results. It means that the improvement of such aspects as responsiveness and service will lead to the general improvement of performance. According to the results obtained from the research, the performance of logistics was evaluated positively because it performed well in its operations and services.

At that, according to the strong interconnections between internal elements of logistics performance, improvement in one of them will positively influence the performance in another. Dependability, reliability, and technology were stated to be the greatest influences on the performance. Thus, reliable services and appropriate technologies were considered necessary. Negative effects of external factors were also discovered by the research.

5.4 RECOMMENDATION

There is a recommendation for improving logistics performance based on the findings of the study. Companies need to concentrate on improving consistency in service delivery since reliability is a fundamental element of performance. Service reliability can be improved through proper monitoring of the delivery process, improvement of scheduling and coordination of logistics units.

The role of technology cannot be underestimated. Companies are advised to adopt the latest technologies, which include modern logistics communication systems, automated inventory management, and tracking systems. Improvements in the technological infrastructure will facilitate decision-making and coordination.

Response time and speed are other variables that positively influence logistics performance. Logistical firms need to find ways to reduce their response time to customer demands through

increased employee productivity, improved logistics process, and availability of transportation resources. Training employees to make decisions promptly would help increase responsiveness.

Improving quality of service delivery will help improve performance. Firms should work on improving quality of service and evaluating it regularly. In addition, government and other stakeholders should ensure effective infrastructure development to improve logistics performance.

5.5 SUGGESTION FOR FURTHER STUDY

Further research can be done on logistics performance based on this study, considering issues such as cost effectiveness, customer satisfaction, supply chain integration, organizational culture, and more factors which may influence logistics performance. The knowledge of these factors can give a deeper understanding of logistics performance. It is advisable for researchers to employ mixed methods in their study by using quantitative data as well as conducting focus group interviews to elaborate on statistical data. Further research can also be done by comparing various sectors, industries, or locations to make their findings generalize better. Longitudinal research may further be considered to track the performance of logistics over time.

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ANNEX I: QUESTIONARIES

Dear Respondent,

I, Natnael Tesema, researching on **"Determinants of Logistics Performance: An Empirical Analysis of the Transport Function at Habesha Breweries S.C."** and this research will be conducted as partial fulfilment of the Master of Art (MA) graduate Student of Addis Ababa University, College of Business and Economics, in Logistics and Supply Chain Management.

The purpose of this questionnaire is to know empirically how the different Determinates of logistics such as Responsiveness, Technology, Dependability, Service quality and External factor affect the operation of transportation function in Habesha Breweries S.C. and this questionnaire will be significant to the organization to improve the logistics and transportation operations by knowing which determinate affect more and where the bottleneck is exist.

And your participation is important and this needs your 10-15min to finalize all question.

Your involvement in this research is significant. Your knowledge with experience is a base for my Academical analysis. And I guarantee you all personal information Strictly Secreted, the collection of information and data will be generated, and the final thesis will not any answer, the data and information will be only for Academic study.

Thank you for your cooperation and commitment to Habesha Breweries S.C.

Demographic Information

Tick () the best that describes you

1. Gender

   Female ☐ Male ☐

2. Age group

Under 25 years ☐ 25–30 years ☐ 31–35 years ☐ 36–40 years ☐ Above 40 years ☐

3. Education Level

$\leq 12th\ grade$☐ Certificate / Diploma ☐ Bachelor's degree ☐ Master's degree

Other (specify) _____

4. Current Role in the organization?

Senior Management ☐ Middle Management ☐ Head of Department ☐

Operational staff ☐

5. Department you work in:

V. Logistics/Distribution ☐ Fleet ☐ Warehouse/Loading Supervisors ☐

Dispatchers ☐ Drivers ☐

Other _____

6. Experience:

<2 years ☐ 2-5 Year ☐ 6-10 Year ☐

> 10 Year ☐

Factors		Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
S.No	**1. Speed**					
1.1	When a consumer places an urgent or unforeseen order, the transport function responds promptly.					
1.2	There is less time between placing an order and dispatching a vehicle.					
1.3	Our agents' "Time-Utility" requirements are satisfied by our transit speed.					
1.4	The transport function demonstrates the flexibility to adjust delivery schedules or routes on short notice to meet changing agent needs.					
1.5	The loading process at the Debre Birhan plant is efficient enough to support fast dispatches.					
2. Dependability						
2.1	The transportation department often fulfils delivery deadlines.					
2.2	Agents can organise their inventories because the delivery cycle time is steady and predictable.					
2.3	Vehicles frequently reach their					

	destinations on time.					
2.4	There is a consistent and reliable flow in the return of empty bottles and crates to the plant.					
2.5	Deliveries consistently contain the exact quantity and type of products ordered, with no shortages or errors (On-Time In-Full)					
2.6	The fleet is well-maintained, reducing the risk of transit breakdowns that cause delays.					
3. Logistics Service Quality						
3.1	Products are delivered in good condition with few glass bottle breakages.					
3.2	Shipments are accompanied by 100% accurate documentation.					
3.3	When making deliveries, drivers and logistics personnel follow safety procedures and act professionally.					
3.4	Customer (agent) complaints regarding delivery errors are addressed and resolved in a timely manner.					
3.5	The logistics team provides proactive and real-time updates to agents regarding any expected delays or changes in delivery					

	status.					
3.6	The "Reverse Logistics" (return of empty crates and bottles) is efficiently handled by the transport function.					
4. External Factors (Fuel & Security)						
4.1	Our transportation arrangements are severely disrupted by frequent fluctuations and shortages of fuel.					
4.2	Current road conditions and infrastructure challenges negatively affect the speed of our logistics.					
4.3	Government regulations and regional checkpoints create unforeseen delays in the transit cycle.					
4.4	The total cost of our logistics operations is significantly increased by external factors such as fuel price hikes and security-related detours					
4.5	Our transport function's dependability is impacted by unanticipated security roadblocks or local disturbances.					
5. Technology (Tracking & Tracing)						

5.1	The fleet's present location can be efficiently tracked using real-time GPS tracking technologies.					
5.2	Information technology integration has enhanced communication between the corporate office and the plant.					
5.3	Technology-driven data is actively used by management to optimize transport routes and reduce unnecessary mileage					
5.4	Automated logistics reports (telematics) provide accurate data for analysing driver performance and fuel consumption.					
6. LOGISTICS PERFORMANCE						
	A. Operational Efficiency					
6.1	The transport function maximizes vehicle capacity (load factor) and minimizes empty trips.					
6.2	Our distribution processes are streamlined to ensure the highest possible output with available resources.					
	B. Cost Effectiveness					
6.3	The company effectively manages and minimizes logistics costs (fuel, maintenance, and labour) per kilometre.					

6.4	There is a significant reduction in financial losses caused by product damage or delivery errors.					
C. Agent/Customer Satisfaction						
6.5	Our agents express high levels of satisfaction with the overall delivery service provided by the brewery.					
6.6	The transport function has successfully built long-term trust and loyalty with our distribution partners.					