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**College of Business and Economics**  
**School Of Management**  
**Department Of Logistics and Supply Chain Management**



**The Effect of Logistics Service Quality on Customer Satisfaction: The Case of  
Mekelle Dry Port**

**A Thesis Submitted to Department of Logistics And Supply Chain  
Management in Partial Fulfillment of the Requirement for the Degree of  
Masters of Science in Logistics and Supply Chain Management**

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**SEPTEMBER, 2025**

**Mekelle, Ethiopia**

## **Declaration**

I hereby declare that this thesis entitled “The Effect of Logistic Service Quality on Customer Satisfaction: The Case of Mekelle Dry Port” is my original work and has not been submitted to any other academic institution or published elsewhere. All sources of information and literature used in this research have been appropriately cited, and all data obtained during the research were collected ethically and in accordance with relevant research guidelines. Furthermore, I acknowledge and accept full responsibility for any errors, inaccuracies, or omissions that may be found in this research.

Name: Ybrah Gebretensay    September, 2025

**Approval Sheet**  
**Mekelle University**

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**Advisors' Thesis Submission Approval Sheet**

This is to certify that the thesis entitled “The Effect of Logistic Service Quality on Customer Satisfaction in The case of Mekelle Dry Port.” submitted in partial fulfillment of the requirements for the degree of Master of Arts in Logistics and Supply Chain Management, School of Graduate Studies, Department of Logistics and Supply Management and has been carried out Ybrah Gebretensay, under my/our supervision. Therefore, I/we recommend that the student has fulfilled the requirements and hence hereby can submit the thesis to the department for defense.

**Name of Advisor: Teshome Desta (Asst. Prof.) September 2025**

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## **Acronyms**

|          |                                        |
|----------|----------------------------------------|
| ANOVA    | Analysis of Variance                   |
| LSQ      | Logistic Service Quality               |
| SERVPERF | Service performance                    |
| SPSS     | Statistical Package for Social Science |
| VIF      | Variance Inflation Factor              |
| RS       | Responsiveness                         |
| TMS      | Timeliness                             |
| OR       | Order Accuracy                         |
| FL       | Flexibility                            |
| CS       | Customer Satisfaction                  |
| BC       | Broadcast                              |
| SERVQUAL | Service Quality                        |

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## **Abstract**

*Logistics service quality is a critical area of research in supply chain management, particularly regarding its impact on customer satisfaction. Dry ports, such as Mekelle Dry Port in Ethiopia, play a vital role in enhancing logistics efficiency by facilitating the movement of goods between inland areas and seaports. This study investigates the effect of logistics service quality on customer satisfaction at Mekelle Dry Port. A mixed-methods approach (quantitative dominant) was employed, combining descriptive and explanatory research designs. Primary data were collected through structured questionnaires from 83 customers. Quantitative analysis was conducted using SPSS version 23, applying descriptive statistics and Pearson correlation. The regression model revealed that logistics service quality explains 78.4% of the variation in customer satisfaction (Adjusted  $R^2 = 0.784$ ), supported by ANOVA results ( $F = 24.018$ ,  $p < 0.001$ ). Key logistics service quality dimensions—responsiveness, flexibility, order accuracy, timeliness, and assurance—were found to significantly influence customer satisfaction. The study recommends that Mekelle Dry Port prioritize improving responsiveness, which had the strongest impact. This can be achieved by establishing a dedicated customer service team trained in effective communication and timely complaint resolution. Implementing a real-time customer inquiry tracking system can also help ensure prompt and efficient handling of customer requests.*

**Keywords:** *Logistics Service Quality, Assurance, Responsiveness, Timeliness, Flexibility, Order Accuracy, Customer Satisfaction, Mekelle Dry*

# CHAPTER ONE

## INTRODUCTION

### 1.1. Background of the Study

Logistics service quality (LSQ) refers to the ability of logistics service providers to deliver timely, accurate, and efficient services that meet or exceed customer expectations. Key dimensions of LSQ include timeliness, responsiveness, flexibility, order accuracy, assurance, and the overall customer experience (Wang, 2020). In today's competitive global marketplace, LSQ plays a vital role in achieving customer satisfaction and operational excellence, making it a cornerstone of effective supply chain management (Huo, Li, & Guo, 2020).

Numerous studies have emphasized the importance of LSQ in shaping customer satisfaction, particularly in the shipping and delivery sectors (Kotler, 2023; Smith et al., 2023). Effective logistics operations—characterized by reliable delivery, responsive communication, and professional service—are essential for building customer trust and loyalty (Anderson & Lee, 2022). According to Parasuraman (1988), LSQ encompasses elements such as reliability, responsiveness, assurance, and empathy. Providers that excel in these areas are more likely to retain customers and foster long-term relationships.

When discussing good logistics service, it refers to aspects such as timely delivery, helpful problem resolution, professional competence, and attentiveness to customer needs (Jones & Brown, 2022). Companies that consistently deliver on these dimensions tend to retain customers and encourage repeat business (Wilson, 2021).

Customer satisfaction is a key performance indicator that reflects how well an organization's services align with customer expectations (Sharma & Singh, 2020). In logistics, satisfaction is

closely tied to consistent service delivery, reduced delays, accurate tracking, and cost-effective solutions (Huo et al., 2020). Studies by Lambert (2004) and Bowersox (2004) show that timely and accurate deliveries significantly enhance customer satisfaction, which in turn promotes loyalty and positive word-of-mouth (Zeithaml, 2000; Kotler, 2003).

Dry ports—strategically located inland terminals—play a crucial role in connecting supply chains to transportation networks. They facilitate customs clearance, container handling, and multimodal transport integration (Rodrigue, 2022; Notteboom, 2018). In Ethiopia, dry ports are especially important due to the country's landlocked status. Mekelle Dry Port serves the northern region, including Tigray, and was established to reduce transportation costs and improve trade efficiency.

However, Mekelle Dry Port faces operational challenges compared to other major dry ports such as Modjo, Kombolcha, Dire Dawa, and Semera. Modjo, for instance, is the largest and most technologically advanced, handling over 90% of Ethiopia's containerized cargo and benefiting from rail connectivity and digital customs systems (Beyene, Nadeem, & Jaleta, 2024). Kombolcha and Dire Dawa also outperform Mekelle in terms of infrastructure and service reliability. Mekelle Dry Port has been affected by regional instability, limited infrastructure, and a lack of automation. Its temporary closure during the conflict in Tigray disrupted operations and eroded customer trust. Although the port resumed service in May 2023, it requires substantial investment to match the performance of other dry ports. Improving logistics service quality is essential for restoring customer confidence and enhancing competitiveness.

This study aims to explore the effect of logistics service quality on customer satisfaction at Mekelle Dry Port. By examining key service dimensions, the research seeks to provide

actionable insights for improving service delivery and strengthening the port's role in Ethiopia's logistics network.

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

Empirical research consistently highlights a strong relationship between logistics service quality and customer satisfaction. The SERVQUAL model (Parasuraman et al., 1988) identifies responsiveness, reliability, and assurance as critical dimensions. Studies by Mentzer et al. (2001) and Stank et al. (2003) further emphasize the importance of timely delivery and effective complaint resolution in shaping customer perceptions. Inefficiencies in these areas can erode trust and reduce satisfaction (Bienstock et al., 1997).

At Mekelle Dry Port, key Logistic service quality dimensions—timeliness, responsiveness, order accuracy, flexibility, and assurance—have a direct impact on customer satisfaction. Timeliness ensures goods are delivered within expected timeframes, reducing delays and enhancing reliability (Uvet, 2020). Responsiveness, identified as the most influential factor in this study, reflects the port's ability to promptly address customer inquiries and complaints (Ngaliman et al., 2019). Order accuracy minimizes errors and fosters customer loyalty (Lin et al., 2023), while flexibility enables the port to adapt to changing needs in dynamic logistics environments (Paramitha et al., 2023). Assurance, demonstrated through staff competence and professionalism, builds customer confidence—especially critical in post-conflict recovery contexts like Tigray (Bogale & Gizaw, 2023).

Despite the importance of these dimensions, Mekelle Dry Port faces persistent challenges. According to the Fana BC report (May 4, 2023) and the researcher's own observations, the port struggles with untimely deliveries, inadequate material handling, inefficient complaint

resolution, and the absence of an integrated information system. These issues disrupt operations and lead to unmet customer expectations.

Moreover, the broader post-war context must be considered. Mekelle Dry Port was non-operational for two years due to conflict in Northern Ethiopia and only resumed service in May 2023. Many economic and social institutions are still recovering, which may affect logistics performance and customer perceptions.

While extensive literature exists on logistics service quality, there is a lack of empirical studies focused on Mekelle Dry Port. This gap limits understanding of localized challenges and hinders the development of tailored interventions. Additionally, previous research has often overlooked timeliness and order accuracy as distinct dimensions, despite their critical role in operational success (Gebremedhin, 2020; Zhang, 2021).

To address these gaps, this study evaluates the effect of logistics service quality on customer satisfaction at Mekelle Dry Port. The findings aim to inform strategic improvements and contribute to the broader discourse on logistics performance in Ethiopia.

### **1.3. Research Questions**

- 1) What is the effect of timeliness on customer satisfaction at Mekelle dry port?
- 2) What is the effect of responsiveness on customer satisfaction at Mekelle dry port?
- 3) What is the effect of order Accuracy on customer satisfaction at Mekelle dry port?
- 4) What is the effect of flexibility on customer satisfaction at Mekelle dry port?
- 5) What is the effect of assurance on customer satisfaction at Mekelle dry port?



## **1.4 .Objective of the study**

### **1.4.1 General objective**

The main objective of this study is to investigate the effect of logistics service quality on customer satisfaction in the case of Mekelle dry port.

### **1.4.2. Specific Objectives**

The study has the following specific Objectives

1. To assess the effect of timeliness on customer satisfaction at Mekelle dry port.
2. To examine the effect of responsiveness on customer satisfaction at Mekelle dry port.
3. To determine the effects of order Accuracy on customer satisfaction at Mekelle dry port.
4. To investigate the effect of flexibility on customer satisfaction at Mekelle dry port.
5. To determine the effect of assurance on customer satisfaction at Mekelle dry port.

## **1.5 .Significance of the study**

This study is significant for multiple stakeholders, including logistics service providers, policymakers, and researchers. For logistics operators at Mekelle Dry Port, the findings identify key service quality dimensions—such as timeliness, order accuracy, responsiveness, flexibility, and assurance—that directly influence customer satisfaction. By implementing the study’s recommendations, the port can enhance operational efficiency, improve customer experiences, and foster long-term client relationships.

Customers will benefit from more reliable and responsive services, including timely deliveries, accurate order handling, and effective communication. These improvements can lead to increased trust, satisfaction, and loyalty.

Academically, the study contributes to the existing body of knowledge by exploring under-researched dimensions like timeliness and order accuracy in the context of Ethiopian dry ports. It fills a critical empirical gap and offers a localized understanding of logistics service quality. Future researchers can use this work as a foundation for comparative studies or to explore service quality in other logistics hubs across Ethiopia and similar developing economies.

### **1.6. Scope of the study**

This study focuses on examining the effect of logistics service quality (LSQ) on customer satisfaction at Mekelle Dry Port. It specifically investigates five key dimensions: timeliness, order accuracy, flexibility, assurance, and responsiveness. Other service quality factors—such as reliability and empathy—were intentionally excluded due to conceptual overlap and limited relevance in logistics operations, which prioritize performance and efficiency over personalized attention.

Geographically, the study is confined to Mekelle Dry Port, addressing its unique operational challenges and post-conflict recovery context. Methodologically, it employs a cross-sectional design using a mixed-methods approach, with a dominant emphasis on quantitative analysis. Data were collected through structured questionnaires and analyzed using descriptive statistics and explanatory techniques to explore the relationships between LSQ dimensions and customer satisfaction.

### **1.7. Limitation of Study**

This study is limited to examining five logistics service quality dimensions—timeliness, order accuracy, responsiveness, flexibility, and assurance—at Mekelle Dry Port. It does not include a comparative analysis with other dry ports in Ethiopia, such as Modjo, Kombolcha, or Dire Dawa.

Additionally, the study does not investigate customer loyalty or long-term behavioral outcomes, focusing instead on the current status of service quality and customer satisfaction. These limitations suggest that future research could expand the scope by incorporating comparative evaluations across multiple dry ports and exploring the link between service quality and customer retention.

### **1.8 .Organization of the study**

“This research is organized into five chapters. Chapter one presents the background, problem statement, research questions, objectives, significance, scope, and organization. Chapter Two reviews relevant theoretical and empirical literature. Chapter Three outlines the research methodology. Chapter Four presents data analysis and discussion. Chapter Five concludes with key findings, recommendations, limitations, and suggestions for future research.”

## **CHAPTER TWO**

### **LITERATURE REVIEW**

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

##### **2.1.1. The Concepts of Logistic Service Quality**

Logistic Service quality has been defined as a breach between the customer's prospect of a service and the customer's perception of the Logistic service providers (Parasuraman, Berry, & Zeithaml, 1985). Gregorios (2007) defines it as "the result of an evaluation process where the user compares his expectations with the service, he perceived he has consumed". Definitions of quality incorporated: (a) satisfying the customer or exceeding expectations; (b) product of service features that please declared needs; (c) conformance to obviously specific necessities; and (d) robustness for use, whereby the product meets the customers' needs and is free of deficiency (Toyin, David, & Stadnik, 2008). Because service is intangible, it cannot be mass produced. It cannot be inventoried or stored after manufacture. Because services and consumers of services are inextricably linked, they cannot be produced until the consumer is ready to consume them. Because of the variable nature of service, it is difficult to provide consistent quality (Clow and Kurtz, 2003). In the most basic sense, services are deeds, processes, and performances (Zeithaml and Bitner, 2004). It is clear that services are produced not only by service businesses, but also by many manufacturers of manufactured goods. A service is a process that leads to an outcome during partly simultaneous production and consumption processes (Grooms, 2001). Many scholars such as Grooms (2000); Kotler and Kelvin (2006); Lovelock and Wirtz (2007) agree on four attributes that characterize services: inseparability, Heterogeneity, intangibility and perish ability. They further maintain that services involve a form of rental, and that service customers obtain benefits by renting the right to use a physical object,

to hire the labor and expertise of personnel, or to pay for access to facilities and networks. Quality means different things to different people and harder to define, judge or quantify the quality of a service than of a product. In as much as there is no consensus on a definition for quality, there are some key points that are common to almost all the definitions of quality, such as perceptions, expectations and the actual outcome experienced by the customer (Statista, 2017). Service quality as perceived by the customer is the degree and direction of discrepancy between customer service perceptions and expectations (Parasuraman *et al.*, 1985). According to Gronroos (1984), service quality is a perceived judgment that results from an evaluation process in which customers compare their expectations with the service they perceive to have received. As a result, quality is defined as the extent to which a customer or user believes a product or service exceeds their needs and expectations. Quality, according to Parasuraman (1988), is the degree of disparity between customers' normative, expectations for the service and their perception of the service's performance.

According to Saravanan and Rao, (2007) service quality remains critical in the service industries, as businesses strive to maintain a competitive advantage in the marketplace and achieving customer satisfaction.

### **2.1.2. Service Quality Dimensions in Logistics**

The beginnings of the logistic term back to the ancient Greek language, its source is the word (logos) and its meaning is ratio or arithmetic (rajan et.al, 2005). Then in the late nineteenth century, the term was used again in France by the army to express the transfer of materials, equipment and armies from one place to another. The term was recently used in economics and business (Al-ghamdi, Chen &qi, 2017, 2016). The definition of the service quality concept is the

most used among authors and according to them it is the degree to which the actual performance of the service matches the customer's expectations for that service.

Logistics service quality defined by (Su&Sampo, 2012) as a measure of the organization's ability to provide the product to customers at the specified time and place in the required quantity and quality. While the American Logistics Workers' Board of Directors defined logistics service quality as those works related to planning, implementing and controlling the efficient and effective flow of raw materials, final goods and related information from the production place to the consumption place in order to achieve the requirements of customer satisfaction (lambert et al, 2011). (Roslan et al, 2015) state that most definitions that are focused on the logistics service quality see that achieving quality in the field of logistics services is possible if the customers' requirements and expectations are matched with what they actually got from provided logistics service. Logistics service quality (LSQ) is a crucial factor that directly impacts customer satisfaction in the logistics and supply chain industries. In a highly competitive environment, providing high-quality logistics services are essential to gaining and retaining customers. Research by Parasuraman, Berry, & Zeithaml (1985), first identified ten overlapping dimensions of service quality which consumers use to assess the quality of a service. The dimensions were: - responsiveness, reliability, competence, courtesy, communication, access, credibility, understanding, security and tangibles. In their 1988 work, the ten dimensions reduced to five: reliability, tangibles, responsiveness, remained the same, but the other seven components merged into two aggregate dimensions called empathy and assurance. Service quality is an elusive and abstract construct that is difficult to define and measure (Parasuraman & Zeithaml, 1988). As a result of the difficulty in defining quality, the Logistic service quality measurement has also turned to be a debating issue. In terms of methodologies and measurement, some authors

recommended that the service quality concept results from the comparison of performance perceptions with expectations (Cronin & Taylor, 1992). While others argue that it is derived from perceptions of performance alone (Parasuraman & Zeithaml, 1988) and that the expectations are irrelevant and even provide misleading information for a model intended to evaluate perceived service quality. Thus, the inclusion or not of the expectations as a determinant of the service has led to two distinct paradigms: the disconfirmation paradigm and the perception paradigm.

There have been a variety of Logistics service quality models. SERVQUAL was one of the widely used models, which was developed by Parasuraman, Berry, & Zeithaml (1985). The model proposed that service quality is measured by five dimensions: assurance, reliability, empathy, tangibles and responsiveness. Each dimension is measured with four to five items. SERVQUAL consists of 22 pairs of items: one member of each pair assessing the customer's expectations, while the other assesses perceptions of service quality. Service quality is determined by calculating the difference between expectations and perceptions for each item (Jain & Gupta, 2004). This aspect of the administration of SERVQUAL has been criticized on the grounds that there is a lack of evidence supporting the expectation-performance gap as a predictive measure of service quality (Cronin & Taylor, 1992). Other researchers suggested that the calculation of difference scores could result in poor reliability, especially if the expectations scale was truncated by ceiling effects (Jain & Gupta, 2004).

#### **2.1.2.1. Timeliness**

Refers to the prompt delivery of services and goods as promised. It reflects the port's ability to meet scheduled timelines and minimize delays (Zeithaml et al., 1990; Wang, 2020). Timing in

logistics isn't just about getting things from point A to B - it's become the backbone of customer trust and business success. Ali & Siddiqui (2020) found that on-time delivery directly affects how customers see a company's reliability. Think about it like a promise - when companies consistently deliver on time, customers start trusting them more. The whole process, from when someone clicks "order" to when they get their stuff, is what Hult et al. (2000) call a "competitive weapon" in today's market. When things go wrong with timing in dry ports, it's like throwing a wrench in the whole machine. Mentzer et al. (2001) did some really interesting research showing how late deliveries and customer unhappiness are linked like peanut butter and jelly. When one happens, the other usually follows. But it's not all doom and gloom - take the Duisburg Dry Port in Germany as an example. Rodrigues & Notteboom (2009) studied how they got their timing right by matching up their trains and trucks really well, kind of like a well-choreographed dance.

Time management in logistics has evolved way beyond just meeting deadlines. Mentzer et al. (1999) talk about how time utility (getting things there when needed) is just as important as place utility (getting things where they need to be). Modern dry ports face some tough challenges here. Oum et al. (2017) found that getting stuck in customs or dealing with transport delays can really hurt a port's ability to compete. It's like being stuck in traffic when you're already late for an important meeting - it affects everything that comes after. Recent studies by Wang et al. (2018) show that companies using smart technology to track and manage delivery times tend to do better. They're using things like GPS tracking, real-time updates, and predictive analytics to stay ahead of problems. Think of it like having a weather forecast for your deliveries - you can see trouble coming and plan around it. Thai (2013) adds that ports that invest in good timing systems often see better customer loyalty and fewer complaints. The most successful dry ports are the



ones that treat timing like a science. They're not just focusing on speed - they're looking at the whole picture. Gebremedhin et al. (2018) studied ports that consistently hit their delivery targets and found they usually have three things in common: Really good systems for managing transportation, streamlined operations that cut out unnecessary steps, Clear communication with customers about where their stuff is and when it'll arrive. Looking ahead, Yeung et al. (2011) predict that timing will become even more crucial as supply chains get more complex. It's not enough anymore to just be "pretty quick" - ports need to be consistently reliable with their timing. But here's something interesting - Kotler & Pfoertsch (2016) found that it's not always about being the fastest. Sometimes being consistent and reliable is more important than being super quick. They studied cases where ports that focused on steady, reliable delivery times actually did better than ones that tried to be the fastest but were less consistent.

The research shows that getting timing right isn't just about having good intentions - it takes real investment and smart planning. Araz et al. (2017) looked at successful ports and found them typically: Use advanced scheduling software, Train their workers really well, have backup plans for when things go wrong, Keep customers in the loop about timing, regularly check and improve their delivery processes.

#### **2.1.2.2. Responsiveness**

The willingness and ability of service providers to help customers and respond to their needs quickly and effectively (Parasuraman et al., 1988). The way businesses respond to customer needs has become increasingly critical in modern logistics. Oum et al. (2017) found that a port's ability to quickly handle customer requests and problems directly affects its market position. It's not just about being fast - it's about being helpful and professional in every interaction. Think of

it like being a good friend who's always there when needed, but with the added professionalism of a business relationship.

Research by Thai (2013) dives deep into what makes responsiveness work in logistics. They found that ports that answer customer questions quickly and solve problems efficiently tend to keep their customers longer. It's interesting - they discovered that customers often care more about how quickly their problems get solved than about the initial service speed. For example, when something goes wrong with a shipment, customers value clear, quick communication more than fancy tracking systems or automated responses. Looking at successful dry ports, Wang et al. (2018) identified several key factors that make them more responsive: Having staff available across different time zones, Using multiple communication channels (phone, email, chat), Training staff to make decisions quickly, Keeping detailed records of customer interactions, Using technology to speed up response times, But here's where it gets really interesting Mentzer et al. (2001) found that responsiveness isn't just about speed. They discovered that the quality of the response matters just as much as how quickly it comes. For instance, a thoughtful, complete answer that takes an hour is often better received than an immediate but unhelpful response. They also found that ports that train their staff to understand the whole supply chain, not just their specific job, tend to give better answers to customer questions. Ali & Siddiqui (2020) looked at how technology affects responsiveness.

They found that while automation and AI can help with basic inquiries, human interaction still matters hugely for complex problems. The most successful ports combine both - using technology for routine stuff while keeping well-trained humans available for trickier issues. It's like having a GPS for navigation but keeping an experienced captain at the helm. Modern customers expect more than ever when it comes to responsiveness. Kotler & Pfoertsch (2016)

studied customer expectations and found they've changed dramatically in recent years. People now expect: Answers within hours, not days, Updates without having to ask, multiple ways to get in touch, Personal attention to their specific needs, Clear explanations when problems occur, the impact of good responsiveness goes beyond just making customers happy.

Gebremedhin et al. (2018) found it actually affects a port's bottom line. Ports with high responsiveness ratings tend to: Get more repeat business, Have better reputations, attract new customers through word-of-mouth, Face fewer customer complaints, Handle problems more efficiently. Training plays a huge role in responsiveness. Araz et al. (2017) studied how ports train their staff and found the best ones focus on: Understanding customer needs, Problem-solving skills, Communication techniques, Technical knowledge, Emergency response procedures, looking at the technology side.

Yeung et al. (2011) found that successful ports use various tools to stay responsive: Customer relationship management (CRM) systems, Real-time tracking updates, Automated notification systems, Mobile apps for quick access, Integrated communication platforms, But there's a balance to strike. Tafere et al. (2019) warn against over-relying on technology. They found that while tech tools are important, the human element remains crucial. The most successful ports maintain personal relationships with key clients while using technology to handle routine matters. The future of responsiveness looks interesting. Recent studies by Rodrigues & Notteboom (2009) suggest that ports will need to become even more proactive, anticipating problems before they happen rather than just reacting quickly when they do. This might mean using predictive analytics, maintaining closer relationships with customers, and developing more sophisticated response systems.

### **2.1.2.3. Assurance**

The competence, courtesy, and credibility of staff, which builds customer trust and confidence in the service (Zeithaml et al., 1990). In the high-stakes world of logistics, assurance isn't just a nice-to-have - it's a mission-critical imperative. As Tafere et al. (2019) so eloquently uncovered in their research, assurance is a key dimension of service quality, with a profound impact on customer satisfaction. This multifaceted concept encompasses the knowledge, skills, and overall trust that logistics providers instill in their clients. At the heart of assurance lies competence - the ability of frontline and operational staff to execute services with the utmost expertise. As Parasuraman et al. (1988) outlined in their seminal SERVQUAL model, this means contact personnel possessing the necessary know-how, while the organization boasts cutting-edge research capabilities to stay ahead of the curve. It's the baseline for any logistics operation aiming to deliver world-class experiences. But assurance goes beyond just technical proficiency. Courtesy - that is, interacting with customers in a polite, considerate, and friendly manner - is equally crucial. After all, logistics is a people-centric business, and the human touch can make all the difference in forging unbreakable client bonds. As Zeithaml et al. (1990) emphasized, this courteous, empathetic approach is a hallmark of service excellence.

Parasuraman et al. (1988) point to both the company's reputation and the personal attributes of frontline staff as key drivers of this vital component. Logistics providers who consistently demonstrate this holistic credibility earn an unshakable place in the hearts and minds of their clients. And let's not forget the critical role of security - the freedom from danger, risk, or doubt that customers demand. Whether it's physical, financial, or confidential in nature, ensuring airtight safeguards is table stakes for any logistics operation worth its salt. As Tafere et al. (2019) uncovered, this multifaceted security factor is a core pillar of assurance. Logistics leaders must

invest in robust training programs to equip their teams with the knowledge and skills to perform at the highest level. They must also cultivate a positive, empowered work culture that inspires employees to go the extra mile for customers.

#### **2.1.2.4. Order Accuracy**

Getting orders right is a cornerstone of both customer satisfaction and operational efficiency. As Wang et al. (2018) emphasize, order inaccuracies not only frustrate customers but also lead to financial losses, operational delays, and diminished trust—consequences that can severely impact a firm’s reputation and profitability. Ensuring order accuracy is therefore not just a procedural concern but a strategic imperative. Kotler and Pfoertsch (2016) further argue that consistent and error-free order fulfillment is essential for building long-term customer relationships and sustaining competitive advantage in logistics-intensive industries.

Drive home the definition of order accuracy - ensuring the delivered goods match the customer's order down to the last detail. Sounds straightforward, but the complexity multiplies when juggling a high volume of orders across diverse products and clients. Yeung et al. (2011) shed fascinating light on the outsized impact of order accuracy.

Their research revealed it's likely the single biggest factor in customer satisfaction for logistics services. Think about it - fixing mistakes means doubling the work, hemorrhaging resources. But their study found that airtight tracking systems and standardized workflows are game-changers, helping teams get it right the first time, every time. Building on this, Ali & Siddiqui's (2020) work showcases the power of automation in catching errors before they even reach the customer. Integrating these smart systems into order fulfillment processes is a logistics masterstroke, saving massive headaches down the line. With the right tech and protocols in place, order

perfection becomes the new normal. No more wasted time, effort, and resources playing catch-up. Team morale stays sky-high, productivity soars, and the bottom line flourishes. It's a win-win-win. The key is making the upfront investment to set up those robust systems and streamlined workflows. It's the foundation upon which logistics excellence is built.

#### **2.1.2.5. Flexibility**

The port's ability to adapt to changing customer requirements, shipment volumes, and operational conditions (Lai et al., 2004). In today's volatile, ever-evolving business landscape, the ability to nimbly adapt has emerged as a true superpower for logistics providers. As the research of Ali & Siddiqui (2020) and Gebremedhin et al. (2018) has revealed, flexibility is a key driver of service quality and customer satisfaction – particularly in the realm of dry ports. At the heart of this flexibility lies the capacity to seamlessly adjust to shifting customer requirements, be it fluctuating volumes, altered shipping schedules, or evolving documentation needs.

In an industry beset by supply chain volatility, the logistics operators who can deftly navigate these constant changes are the ones who cement their status as indispensable partners. Thai's (2013) research sheds further light on the transformative impact of this flexibility. By reducing lead times and enhancing perceptions of reliability, it elevates the customer experience to new heights. This agility also allows providers to expertly handle diverse cargo types – from perishables to electronics – and address seasonal demand swings, aligning their services with the unique needs of each client. But achieving this level of flexibility doesn't happen by accident. It requires a deliberate, multi-pronged approach that touches every facet of the logistics operation. This real-time, data-driven oversight is the foundation upon which flexibility is built. Through comprehensive training programs, logistics leaders must instill in their employees the ability to

nimbly pivot, seamlessly adjusting to evolving customer requirements. This agile, solutions-oriented workforce is the beating heart of a truly flexible organization. And let's not forget the importance of watertight quality control processes. (Solistica, 2022) By ensuring flawless order execution, regardless of shifting parameters, logistics providers can inspire unwavering trust and confidence in their clients. Coupled with proactive, transparent communication about order status and any potential issues, this attention to detail solidifies the provider's status as a reliable, flexible partner. Ultimately, (Mecalux.com, 2018) flexibility is the key to navigating today's turbulent business waters and emerging as an industry leader. Those providers who embrace this dynamic, adaptable mindset will be the ones who pull away from the pack, cementing unbreakable bonds with their customers. It's a strategic superpower that separates the industry titans from the also-rans, and the time to act is now. By investing in the right systems, empowering their teams, and prioritizing quality and communication, providers can transform flexibility from a nice-to-have into a competitive differentiator.

### **2.1.3. Concepts of Logistics Customer Satisfaction**

Gurib & Khan (2016) emphasize that customer satisfaction is a function of the logistics service quality, which includes timely deliveries, accurate orders, and customer support. The study further notes that satisfied customers are more likely to become loyal, repeat customers and offer positive referrals. Customers appreciate logistics providers who are dependable and responsive to their needs. A study by Yang et al. (2020) reveals that reliability and quick response times are significant drivers of satisfaction in the logistics sector.

According to Hansemark and Albinsson (2004), satisfaction is an overall customer attitude toward a service provider, or an emotional reaction to the difference between what customers expect and what they receive in terms of the fulfillment of a need, goal, or desire. In addition,

researchers distinguish between attitude and satisfaction. Thus, attitude refers to perceived service quality, whereas satisfaction refers to a specific transaction.

Satisfaction is the fulfillment response of the consumer. It is a determination that a product or service feature, or the product or service itself, provided (or continues to provide) a pleasurable level of consumption-related fulfillment, including levels of under- or over-fulfillment (Oliver 2010). Customer satisfaction is defined by Zeithaml and Bitner (2000) as a customer's assessment of a product or service in terms of whether it met their needs and expectations.

Customer satisfaction is a measure of how well a company's products and services meet or exceed customer expectations. Customer satisfaction is also defined as the number of customers, or percentage of total customers, whose reported experience with a company, its products, or services (ratings) exceeds predetermined satisfaction goals.

As the primary foundation for satisfaction models, the disconfirmation theory emerges. This theory defines satisfaction as the difference between perceived performance and cognitive standards such as expectation and desires. Customer expectations are the customer's pre-trial beliefs about a product. Consumers' expectations are viewed as predictions about what is likely to happen during an upcoming transaction or exchange (Zeithaml and Berry, 1988). Perceived performance is defined as the customer's perception of how well a product meets their needs, wants, and desires. The consumer's assessment of an entity's overall excellence or superiority is referred to as perceived quality (Zeithaml, 1988). Disconfirmation is defined as consumer subjective judgments based on a comparison of expectations and perceptions of performance received. In the expectancy-disconfirmation framework, Oliver (2010) described the process by which satisfaction judgments are reached. Buyers form expectations of a specific product or service before purchasing it, and expectations influence perceived quality level.



### **2.1.4. Disconfirmation Theory**

The disconfirmation theory emerges as the primary foundation for satisfaction models in marketing literature (Churchill and Surprenant, 1982; Oliver, 1980) as well as recent information system studies (McKinney et al., 2002). Customers' expectations are their sparrtrial beliefs about a product (McKinney, Yoon and Zahedi, 2002). Consumers' expectations are viewed as predictions about what is likely to happen during an upcoming transaction or exchange (Zeithaml and Berry, 1988). Perceived performance is defined as the customer's perception of how well a product meets their needs, wants, and desires (Cadotte et al., 1987).

According to the disconfirmation theory, satisfaction is primarily defined by the gap between perceived performance, expectations, and desires, which is a promising approach to explaining satisfaction. According to this theory, the intensity (or size) and direction (positive or negative) of the gap (disconfirmation) between expectations and perceived performance influence satisfaction (Khalifa and Liu, 2003).

There are three types of expectation disconfirmation:

- 1) Positive disconfirmation: This happens when perceived performance exceeds expectations.
- 2) Confirmation: when perceived performance matches expectations.
- 3) Negative disconfirmation: occurs when perceived performance falls short of expectations (Kotler, 2000).

Customers are more likely to be satisfied if the service performance meets (confirms) or exceeds (positive disconfirms) their expectations (Khalifa and Liu, 2003). Customers, on the other hand, are more likely to be dissatisfied if service performance falls short of expectations (negative disconfirmation). Khalifa and Liu (2003) discussed how taking expectation disconfirmation as

the sole determinant of satisfaction does not account for the fact that confirming high expectations leads to much more satisfaction than confirming low expectations. To address this shortcoming, perceived performance is added as an additional determinant of satisfaction. In other words, the only way to ensure satisfaction is to manipulate expectations and performance empirically.

### **2.1.5. Customer Expectations**

It is the expectations the customer expects from the organization and its range of products or services, i.e. what customers feel the organization should offer them. These expectations are, in most instances, what is important here is to focus on the customer perceptions, rather than on the reality of the performance (Brink & Berndt, 2005). According to Williams (2000), customers are driven by needs, and increasingly expect to receive excellent service. Consumers demand faster and better service and are loyal to organizations that consistently provide the highest levels of service. That is what people in organizations do: they serve others and they succeed through the service (Timm, 2008).

Expectations play an important role in the satisfaction formation. The extent to which a product or service fulfills a customer's need and desire may play an important role in forming feelings of satisfaction because of the impact of confirmation or disconfirmation that have on satisfaction. Consumers expect to be delivered quality products and services; therefore, companies try to offer quality products and services (Khalifa and Liu, 2003). The term expectations have different uses, in the satisfaction literature, it is viewed as a prediction made by a consumer about what is likely to happen during an exchange or transaction. According to Oliver (2003) "... expectations are consumer-defined probabilities of the occurrence of positive and negative events if the consumer engages in some behavior".

In contrast, it is defined as desires and wants in the service quality literature, as what a service provider should offer rather than would offer. Customers form their expectations based on previous experiences, advice from friends, and information and promises from marketers and competitors (Kotler, 2000). As a result, perceived service quality is defined as the gap between consumers' perceptions and expectations of the service being provided. Organizations must perform services correctly the first time in order to keep expectations from rising (Parasuraman et al. 1988). As a result, when the service is not delivered as promised, customer expectations will likely rise. Expectations serve as reference points for customers evaluating performance (Cronin & Taylor, 1992). As a result, retailers can improve customer satisfaction by lowering customer expectations.

#### **2.1.6. Customer Perception**

Perception is an opinion about something viewed and assessed and it varies from customers to customers, as every customer has different beliefs towards certain services and products that play an important role in determining customer satisfaction (Olive, 2010). Service quality is a critical component of customers' perception because it is an antecedent to customer satisfaction. The customer's five senses and opine that it gives meaning to the world that surrounds the customer. Perceptions are also described as the end result of a number of observations by the customer. Customers perceive services in terms of quality of services provided and the satisfaction level. It is also considered to be a dynamic phenomenon that changes with the receipt of various types of delivered service (Hamer, et al 2006).

Customer perception of service quality influences consumer behavior (Bitner, 1990) and intention (Dutta & Dutta, 2009). Thus, perception is one of the factors affecting customer satisfaction (Zeithaml & Bitner, 2003; Dutta & Dutta 2009). Customer perceptions are

influenced by many external and internal factors such as culture, social, psychological and economic factors, making the way in which customer perceives products and services to be highly subjective (Reisinger & Wryszak, 1994). Therefore measuring customer perception of service is important as the customer's evaluation of service and future behavior depends on the customer perception of service. In a situation where there is a gap between perception of service and expectation, where perception falls completely short of expectation after comparison or where service meets or exceeds customer expectation, it can result in either a dissatisfied or a satisfied customer after the service encounter.

Customer satisfaction is determined by the customers' perceptions and expectations of the quality of the products and services. In many cases, customer perception is subjective, but it provides some useful insights for organizations to develop their marketing strategies (Khalifa and Liu, 2003). Providing high level of quality service has become the selling point to attract customer's attention and is the most important driver that leads to satisfaction. Therefore, customer perception and customer satisfaction are very closely linked together, because if the perceived service is close to customer's expectations it leads to satisfaction. Satisfied customers provide recommendations; maintain loyalty towards the company and customers in turn are more likely to pay price premiums (Reichheld, 1996).

## **2.2. The Relationship between logistics Service Qualities and Customer Satisfaction**

Research consistently shows that high-quality logistics services are strongly correlated with customer satisfaction. Mentzer et al. (2001) argue that logistics service quality directly influences customer satisfaction, which in turn affects customer loyalty and repeat business. Gurib & Khan (2016) found that timely delivery, order accuracy, and customer support are key drivers of

satisfaction in logistics services, highlighting that customers tend to choose logistics providers that they perceive as delivering high-quality services.

Pleased customers tend to be devoted to the company and more likely to return. Satisfaction is most commonly described in terms of the disconfirmation approach, which describes it as the difference between a customer's pre-purchase expectations and post-purchase perceptions of the concrete service performed (Chang, 2009). The general thought is that satisfaction mediates the relationship among perceived service quality and firm performance (Babiaks, Bienstock, & Van Scotter, 2004). However, some researches propose that satisfaction is a precursor to service quality (Millán& Esteban, 2004).

Substantial confusion continues to exist concerning the relationship between customer satisfaction and service quality. Millán and Esteban (2004), maintains that service quality and satisfaction have frequently been used interchangeably. Differences between customer satisfaction and service quality include: a) satisfaction is a post- experience decision customer experience while quality is not; b) in the satisfaction literature "expectations reflect anticipated performance" made by customers about levels of performance during their contact (Burns, 2003).

According to (Babiaks, Bienstock, & Van Scotter, 2004) there is no obvious definition of satisfaction, although most definitions would include "affective, evaluative or emotional response." The distinction between perceived service quality and satisfaction is important because higher officials need to know whether their purpose is to present the maximum level of perceived service quality or to have satisfied customers. Positive disconfirmation is obvious when performance is greater than expectations. Customer satisfaction results in the

disconfirmation of prior expectation that is if the service provider meets or exceeds expectations then the customer is more likely to be pleased (Laroche, Ueltschy, Shuzo, & Cleveland, 2004).

According to Millán and Esteban (2004), satisfaction is perceived as the end result of all actions taken during the purchase and consumption process. All evaluated definitions include: a) the existence of an objective that the consumer wishes to achieve; 2) the attainment (satisfaction) of this objective can only be judged by using a standard of comparison as a reference; and c) the satisfaction evaluation process involves the intervention of at least two stimuli: a result and a reference or standard of comparison (Kandampully & –Hui-Hu, 2007). Satisfaction is related to the size and direction of "non-confirmatory: experience defined by the difference between the individual's initial expectations and the actual outcome resulted." While expectations are the needs or desires of the consumer, based on what the consumer senses should be delivered prior to receiving it.

A great deal of the attention given to service quality is motivated by the foundation that it will increase customer satisfaction and ultimately lead to better financial performance (Babikas, Bienstock, & Van Scotter, 2004). The quality of products and services has also been associated to external indicators of customer satisfaction like warranty, complaints, litigation and market share (Kandampully & –Hui-Hu, 2007). Pleased customers often lead to loyal customers who continuously repurchase the service or product. The industry challenges that not all companies are equally affected by customer satisfaction. Though, all organizations are relied upon repeated purchases that lead to higher profitability. Empirical evidence suggests that customer satisfaction arbitrates the relationship between service quality and firm performance (Babikas, Bienstock, & Van Scotter, 2004).

### **2.3. Empirical Reviews**

Studies comparing Ethiopia to neighboring nations like Kenya and Uganda revealed Ethiopia lagged in logistics service quality due to outdated systems and lack of training for logistics personnel. This has implications for trade competitiveness and customer satisfaction (World Bank, 2018).

Arega (2015) investigated the logistics system in Ethiopia and identified inefficiencies such as delays in cargo handling and a lack of coordinated planning in dry ports. These factors significantly affected customer satisfaction. The study emphasized improving logistics management systems and infrastructure to enhance performance. Moreover, research on the Ethiopian Shipping and Logistics Services Enterprise (ESLSE) highlighted the introduction of a multimodal transport system to reduce costs and transit times. However, findings revealed persistent issues like limited automation in tracking systems, inefficient customs operations, and inadequate warehouse planning, which hinder logistics service quality (Reporter, 2020).

Wang et al. (2018) explored the impact of ICT on logistics service quality across developing economies, including Ethiopia. The findings indicated that ICT adoption improves tracking, communication, and overall service delivery. However, Ethiopia's logistics sector shows limited use of ICT, leading to challenges in timeliness and order accuracy

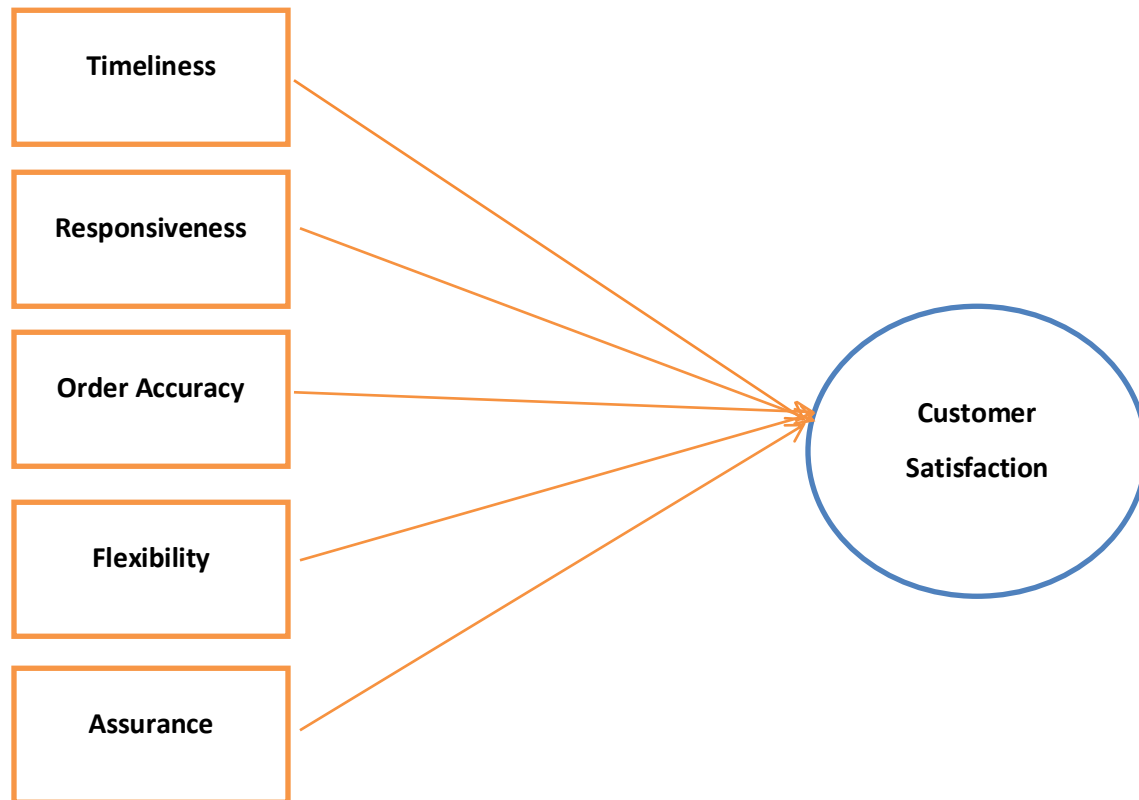
A study by Ali and Siddiqui (2020) compared logistics performance across African nations and found that inadequate infrastructure, particularly in transport and storage, significantly impacts logistics efficiency. Ethiopia's reliance on road transport and underdeveloped rail networks were identified as key bottlenecks

Research focusing on African dry ports, including Mekelle Dry Port in Ethiopia, highlighted inefficiencies such as poor material handling, limited capacity, and delays in customs clearance.

These challenges reduced the effectiveness of dry ports in facilitating trade for landlocked countries like Ethiopia (UNCTAD, 2020).

## 2.4. Conceptual Framework

A conceptual model used to evaluate how well logistics services meet customer expectations and contribute to customer satisfaction. Logistics service quality refers to the extent to which logistics services meet or exceed the LSQ framework proposed by (Mentzer J.T., FlintD.J., J.L, 1999) includes five Logistic service quality dimensions: timeliness, responsive, order accuracy, flexibility, and assurance.



**Figure 1 conceptual frame work**

Source: developed by the researcher 2025



The study employed five logistics service quality dimensions: Timeliness, Responsiveness, Order Accuracy, Flexibility, and Assurance to examine their effect on customer satisfaction. These dimensions were not directly taken from SERVQUAL but represent a mix of SERVQUAL-based constructs (Responsiveness and Assurance) and logistics-specific constructs (Timeliness, Order Accuracy, Flexibility) that have been emphasized in recent logistics and supply chain literature. To ensure suitability to the research context, a pilot survey was conducted prior to the main data collection. The pilot results confirmed acceptable reliability and validity of the measurement items, providing confidence that the adapted framework is appropriate for this study.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1. Introduction**

This chapter describes the methodologies that were used in this study: the choice of particular research approach, research designs, data type and source of data, research approach, data gathering technique and instruments, sampling and sampling techniques and Data analysis techniques along with an appropriate justification associated with each approach at Mekelle dry port.

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

The researcher used descriptive and explanatory research design for this study. This study tries to comprehend how the dependent and independent variables, which are Customer Satisfaction and logistics service quality, relate to one another. The study's explanatory design reflects its attempt to determine the relationship between these two variables. The Timeliness, Responsiveness, Assurance, Order Accuracy, and Flexibility of each logistics service quality characteristic as well as their effect on customer satisfaction will be evaluated using an explanatory design. The primary goal of the design was to establish the causal connection between the independent and dependent variables.

#### **3.3. Research Approach**

The study used methodologically framed as mixed-methods, the execution leaned heavily toward the quantitative domain with limited integration of qualitative data such as open-ended responses and interviews. The qualitative data—primarily derived from open-ended responses—were collected but not deeply integrated into the analysis or discussion. This imbalance suggests that

the study functioned more as a quantitative-dominant design, with qualitative data serving a supplementary role rather than contributing to thematic interpretation or triangulation According to Mark et al. (2009:101).Quantitative is numerical in nature, it was obtained by assigning numerical values to responses whereas qualitative is contextual, that was obtain from open ended questioners.

### **3.4. Target Population**

According to Hair et al. (2010), the target population refers to a clearly defined group of people or objects from which relevant data can be collected through observation or inquiry to develop the required data structures and information. In this study, the target population comprises current active customers of the Mekelle Dry Port. Based on records obtained from the Mekelle Dry Port administration, a total of 89 customers visited the port in the past year. The key customers are freight forward, logistic experts, and wholesaler's .This study focuses on customer satisfaction, which is best measured from the customer's perspective. Measure service as perceived by the receiver (customer). Given the relatively small size of the population, the researcher adopted a census sampling technique, which involves including the entire population in the study. This approach ensures comprehensive data collection, increases the accuracy of the results, and eliminates sampling error. As Hair et al. (2010) suggest, census sampling is appropriate when the population size is manageable, as it allows for more precise and representative findings.

### **3.5. Data Source and Collection Methods**

The researcher would use primary data for the entire analysis of this study. The information will be gathered through questionnaire from the census of respondents of dry port customers. The data that was collected from the respondents through questionnaires will be used as primary data.

According to (Biggam, 2008) primary data is the information that the researcher finds out by him/herself regarding a specific topic. The main advantage with this type of data is that it will be collected with the research's purpose in mind. It implies that the information resulting from it is more consistent with the research questions and objectives. There would be a total of 3 key informant interviews each interview would use 30-45 minute regarding about the concepts. These interviews targeted logistics managers, freight forwarders, and customs agents—stakeholders who regularly interact with Mekelle Dry Port and possess deep operational insights. This study focuses on customer satisfaction, which is best measured from the customer's perspective

### **3.6. Method of Data Analysis**

The findings of this study will be analyzed and interpreted using both descriptive and inferential statistics. Descriptive statistics will be employed to summarize respondents' demographic characteristics and to calculate mean scores for each logistics service quality (LSQ) dimension. Inferential statistics will be used to examine the relationships between variables, specifically through Pearson product-moment correlation and multiple linear regression analysis, using SPSS Version 23.

The independent variables in this study include Flexibility, Timeliness, Order Accuracy, Assurance, and Responsiveness, while the dependent variable is Customer Satisfaction. To assess the strength and direction of relationships among these variables, the study will apply Pearson correlation analysis. To further establish the predictive power of the LSQ dimensions on customer satisfaction, multiple linear regressions will be used.

Multiple linear regressions is appropriate for this study because it estimates the relationship between two or more independent variables and a single dependent variable. Prior to conducting

the regression analysis, the researcher will test key statistical assumptions, including linearity, normality, multicollinearity, homoscedasticity, and independence of errors, to ensure the validity of the model.

To ensure the validity of the multiple linear regression model used in this study, several key statistical assumptions were tested:

**1. Multicollinearity:** This assumption states that independent variables should not be highly correlated with one another, as this can distort the estimation of regression coefficients. To assess multicollinearity, the researcher examined the Variance Inflation Factor (VIF) and Tolerance values. VIF values below 10 and Tolerance values above 0.1 were considered acceptable indicators of low multicollinearity.

**2. Normality of Residuals:** The residuals (errors) of the regression model should be approximately normally distributed. This assumption was tested using a histogram with a superimposed normal curve, as well as Normal Q-Q Plot and P-P Plot of standardized residuals. These visual tools help determine whether the residuals deviate significantly from a normal distribution.

**3. Linearity:** The relationship between each independent variable and the dependent variable should be linear. This was assessed by examining scatterplots of standardized residuals versus predicted values. A random scatter of points suggests that the linearity assumption is met.

**4. Homoscedasticity:** This assumption requires that the variance of residuals remains constant across all levels of the independent variables. It was evaluated using residual plots, where a consistent spread of residuals indicates homoscedasticity.

**5. Independence of Errors:** The residuals should be independent of one another. This was tested using the Durbin-Watson statistic, where values close to 2 indicate that the assumption of independence is satisfied.

### **3.7. Validity and Reliability**

Validity and reliability are interconnected concepts. This can be demonstrated by the fact that a measurement cannot be valid unless it is reliable (Sullivan & Feldman, 2015). Validity defined as the extent to which data collection methods accurately measure what they intended to measure (Sounders, 2003). Measuring and evaluating the questionnaire consider some specifications for measurement tools such as validity of questionnaire. Content validity was used for measuring the validity of questionnaire. For this purpose the content of questionnaire was prepared by adopting theories and model relevant to the study, research questions and the validity of the questionnaires was tested through pilot test. Reliability was assessed using Cronbach's alpha test, it is the most commonly used test to determine the internal consistency of an instrument. Based on Roberto and Alison the Cronbach's alpha result is number between 0 and 1. An acceptable reliability score is one that is 0.7 and higher.

### **3.8. Ethical Consideration**

Research ethics will concern the responsibility of researchers to remain honest and respectful toward all individuals and will be governed by a set of ethical guidelines that will assist them in making appropriate decisions and taking proper actions. Accordingly, respondents will first be

informed about the purpose of the study, and informed consent will be obtained from them as well as from the responsible officials of the organization covered by the study before engaging in discussions on the subject under investigation. Therefore, based on these ethical principles, efforts will be made to ensure confidentiality, which will be maintained throughout the research process.

## **CHAPTER FOUR**

### **DATA ANALYSIS, RESULTS AND DISCUSSION**

This chapter covers the findings and the analysis that followed. Sections one through three provide the response rate, reliability analysis, and respondent demographics. The final three sections include correlation analysis, multiple regressions, hypothesis testing, and discussion. To evaluate and interpret the results, both descriptive and inferential statistics are applied. Descriptive statistics are used to interpret the frequency and percentage of the findings, while inferential statistics are used to predict the relationship between the independent variable of logistics service quality and customer satisfaction. In order to ascertain the link between the variables of interest, multiple linear regression and Pearson correlation analysis were employed. Specifically, multiple linear regression analysis is used to determine the relationship between independent and dependent variables.

#### **4.1. Response Rate**

A 93.25% response rate was attained when 83 of the 89 copies of the questionnaires that were given were completed and returned, per the data gathered. This figure is in line with Mugenda & Mugenda's (2003) argument that, given a hypothesis, a response rate of half is suitable for an inquiry, reporting 60% is remarkable, and a response rate of 70% and above is outstanding.

#### **4.2. Reliability Test of Research Instrument**

The Cronbach's alpha used to assess the internal consistency of variables in the research instrument. Thus, for this study, Cronbach's alpha score were used to measure and determine reliability of the questionnaires'. Alpha test results ranged from 0.719 to 0.854 are considered to



have good reliability, which is above 0.7; this implied that all instruments of the study were reliable for measurement. Thus, According to Zikmund, et al., (2010) showing it all rages form moderately correlated to highly correlate. And all depicted that the data collected is reliable to run for further analysis for the current study.

**Table 1 Reliability Test**

| <b>Variables</b>      | <b>No of Items</b> | <b>Cronbach's Alpha</b> |
|-----------------------|--------------------|-------------------------|
| Assurance             | 4                  | 0.854                   |
| Responsiveness        | 5                  | 0.738                   |
| Timeliness            | 5                  | 0.719                   |
| order accuracy        | 4                  | 0.761                   |
| flexibility           | 4                  | 0.735                   |
| customer satisfaction | 5                  | 0.759                   |
| <b>Total</b>          | <b>27</b>          | <b>0.761</b>            |

Source: Own survey result, 2025

### **4.3. Demographic Data of the Respondents**

The presentation of respondent characteristics is crucial in any given study since it provides insight into the type of respondents that have participated, particularly in terms of their age, gender, and level of education, all of which together represent their comprehension levels.

**Table 2 Demographic Data of the Respondents**

|                                  |                   | Count | Column N % |
|----------------------------------|-------------------|-------|------------|
| Gender                           | Male              | 55    | 66.3%      |
|                                  | Female            | 28    | 33.7%      |
|                                  | Total             | 83    | 100.0%     |
| Age                              | >=30 Years        | 16    | 19.3%      |
|                                  | 31-40 Years       | 62    | 74.7%      |
|                                  | 41-50 Years       | 1     | 1.2%       |
|                                  | Above 50 Years    | 4     | 4.8%       |
|                                  | Total             | 83    | 100.0%     |
| Level of education qualification | Diploma           | 4     | 4.8%       |
|                                  | Bachelor's degree | 68    | 81.9%      |
|                                  | Master's Degree   | 11    | 13.3%      |
|                                  | PHD               | 0     | 0.0%       |
|                                  | Total             | 83    | 100.0%     |

**Source;** Own Survey, (2025)

Gender, age, and educational background are the demographic characteristics of the respondents summarized in the table. The majority of respondents, 66.3%, were male, while the remaining 33.7% were female. Most respondents (74.7%) were between the ages of 31 and 40, followed by 19.3% who were 30 years or below. In addition, 4.8% were above 50 years old and only 1.2% fell within the age range of 41 to 50 years.

With regard to educational qualifications, a significant majority of the respondents (81.9%) held a Bachelor's degree, followed by 13.3% who had attained a Master's degree. Only 4.8% had a Diploma, and none of the respondents had a PhD qualification.

To ensure the inclusion of diverse perspectives, the researcher considered the respondents' gender distribution to be essential. The findings suggest that involving both male and female participants helped minimize potential response bias and provided a more balanced view of customer experiences.

Furthermore, the educational background of respondents was taken into account based on the assumption that education may influence customers' expectations and evaluations of logistics service quality. The age distribution was also explored with the intention of capturing the perceptions of different generational groups, as age can shape preferences and service satisfaction levels. While work experience was not specifically captured in the presented data, it is generally considered an important demographic factor that could enrich respondents' perspectives and enhance the reliability of their evaluations.

#### **4.4. Analysis of Descriptive Statistics**

The study's mean and standard deviation are shown in the descriptive analysis. The responses of the participants are displayed in this section as a table with descriptive statistics. The responses' mean and standard deviation are shown in the tables. The central tendency of a variable's values can be inferred from the mean value. The purpose of the standard deviation is to provide insight into how much a variable's values deviate from its mean.

The researcher calculated the range as  $(5 - 1 = 4)$  and divided the result by five, as this is the greatest value of the scale ( $4 \div 5 = 0.80$ ), to find the lowest and maximum length of the 5-point Likert scale. If the mean values' range, as evaluated by the Likert scale, is as follows: 1 to 1.80 indicates strongly disagree; 1.81 to 2.60 indicates disagree; 2.61 to 3.40 indicates neutral; 3.41 to 4.20 indicates agree; and 4.21 to 5.00 indicates highly agree.

The mean shows how much the sample population generally agrees or disagrees with the various claims made about the data. The greater the mean, the greater the degree of agreement among the participants with the statement. However, the variability of an observed response from a single sample is indicated by the standard deviation.

**4.4.1. Responsiveness**  
**Table 3 Responsiveness**

| Responsiveness                                                   | Mni | Max<br>i | Mean | Std. D | Response level |
|------------------------------------------------------------------|-----|----------|------|--------|----------------|
| The staffs at the dry port respond to my inquiries promptly.     | 3   | 4        | 3.65 | .847   | Agree          |
| Receive timely updates about the status of my shipment.          | 2   | 5        | 2.80 | .668   | neutral        |
| My concerns are addressed without unnecessary delays.            | 2   | 4        | 3.10 | .597   | neutral        |
| The employees are always willing to help when needed.            | 3   | 5        | 3.12 | .802   | neutral        |
| I can easily contact the dry port for support when issues arise. | 3   | 4        | 2.30 | .711   | disagree       |
| over all                                                         | 2.6 | 4.4      | 2.99 | 0.725  | neutral        |

Source: Own Survey, (2025)

Responsiveness at Mekelle Dry Port received an overall neutral rating (mean = 2.99), reflecting inconsistent customer experiences. While staff are generally prompt in replying to inquiries (mean = 3.65), customers expressed dissatisfaction with shipment updates (mean = 2.80) and ease of contact for support (mean = 2.30). These scores suggest that while initial interactions may be timely, follow-up communication and accessibility remain problematic. This inconsistency can weaken customer trust, especially in logistics where timely and reliable

communication is essential. To improve, the port should invest in dedicated customer service channels, such as hotlines or digital platforms, and train staff to handle inquiries and complaints more effectively. As Sivakumar and Sethi (2019) emphasize, responsiveness is not just about speed—it’s about ensuring customers feel heard, supported, and valued throughout the service .

#### 4.4.2. Timeliness

**Table 4 Timeliness**

| Timeliness                                                        | Mni | Maxi | Mean  | Std. D | Response level |
|-------------------------------------------------------------------|-----|------|-------|--------|----------------|
| My shipments are delivered within the promised time.              | 2   | 3    | 2.19  | .397   | disagree       |
| The dry port operations are performed without unnecessary delays. | 2   | 3    | 2.77  | .423   | neutral        |
| The documentation process is completed quickly.                   | 2   | 4    | 2.95  | .623   | neutral        |
| I can rely on the dry port to meet delivery schedules.            | 2   | 5    | 3.000 | .715   | neutral        |
| Time commitments made by the dry port are consistently honored.   | 2   | 5    | 3.132 | .852   | neutral        |
| Overall                                                           | 2   | 4    | 2.808 | 0.602  | neutral        |

Source: own survey 2025

Timeliness received an overall neutral score (mean = 2.81), suggesting that customers are uncertain about the dry port’s ability to deliver services on time. The lowest-rated item—shipment delivery within promised time (mean = 2.19)—indicates clear dissatisfaction with punctuality. While documentation and scheduling show slightly better ratings (means between 2.95 and 3.13), they still fall short of strong agreement, reflecting inconsistent performance across operational areas. This mixed feedback points to a reliability gap. Customers may

occasionally experience timely service, but not consistently enough to build trust. In logistics, time is critical—delays can disrupt supply chains and customer relationships. To improve, Mekelle Dry Port should focus on streamlining operations, enhancing coordination, and setting realistic delivery expectations. As Aydın et al. (2021) emphasize, dependable timeliness is a cornerstone of customer satisfaction in logistics. Right now, the port is doing “just enough”—but not yet earning full confidence.

#### 4.4.3. Order accuracy

**Table 5 Order Accuracy**

| Order Accuracy                                              | Mni | Maxi | Mean | Std. D | Response level |
|-------------------------------------------------------------|-----|------|------|--------|----------------|
| My orders are processed without errors.                     | 2   | 4    | 2.94 | .612   | neutral        |
| I always receive the exact quantity of goods ordered.       | 2   | 3    | 2.90 | .532   | neutral        |
| The condition of my goods upon delivery meets expectations. | 2   | 3    | 2.54 | .611   | disagree       |
| The paperwork associated with shipments is accurate.        | 2   | 4    | 2.64 | .758   | neutral        |
| overall                                                     | 2   | 3.5  | 2.75 | 0.628  | neutral        |

Source: own survey 2025

Order accuracy received an overall neutral score (mean = 2.75), suggesting that customers are moderately satisfied but still experience frequent issues. While most respondents feel their orders are processed without major errors (mean = 2.94) and quantities are generally correct (mean = 2.90), concerns remain. The condition of goods upon delivery scored lowest (mean = 2.54, disagree), indicating that packaging, handling, or transport may be compromising product

integrity. These results point to inconsistencies in quality control and shipment verification. Customers expect precision—not just in quantities and paperwork, but also in the condition of their goods. The neutral ratings across most items suggest that while the port meets basic expectations, it struggles to deliver consistently reliable service. To improve, Mekelle Dry Port should strengthen its inspection procedures, invest in better handling equipment, and ensure staff are trained in shipment accuracy protocols. In logistics, even small errors can erode trust—accuracy must be a non-negotiable standard.

#### 4.4.4. Assurance

**Table 6 Assurance**

| Assurance                                                                  | Mni | Maxi | Mean | Std. D | Response level |
|----------------------------------------------------------------------------|-----|------|------|--------|----------------|
| The employees are knowledgeable about logistics procedures.                | 2   | 3    | 2.24 | .430   | disagree       |
| I feel confident in the ability of the dry port to handle my goods safely. | 2   | 3    | 2.31 | .469   | disagree       |
| The staffs are courteous and professional in their interactions.           | 2   | 3    | 2.28 | .450   | disagree       |
| I trust the dry port to manage my shipments securely.                      | 2   | 3    | 2.29 | .456   | disagree       |
| overall                                                                    | 2   | 3    | 2.28 | 0,451  | disagree       |

Source: own survey 2025

Assurance received the lowest overall score among all service quality dimensions (mean = 2.28, disagree), signaling a serious trust gap between customers and Mekelle Dry Port. Respondents consistently expressed doubt about staff knowledge, professionalism, and the port’s ability to handle shipments securely. None of the items scored above “disagree,” which suggests that

customers do not feel confident in the competence or reliability of the service providers. This lack of assurance is especially concerning in a post-conflict recovery context, where rebuilding trust is essential. Customers need to feel that their goods are in safe hands and that staff are both skilled and respectful. The findings point to an urgent need for staff training, better communication, and visible improvements in service professionalism. As Klaus et al. (2020) emphasize, assurance is a key driver of customer loyalty—without it, even timely or accurate services may fail to retain customers. Mekelle Dry Port must prioritize rebuilding confidence to strengthen its reputation and long-term customer relationships. To address this gap, the port should prioritize staff training, customer service protocols, and transparent communication practices to enhance customer confidence and improve overall service quality.

#### 4.4.5. Flexibility

**Table 7 Flexibility**

| Flexibility                                                        | Mni  | Maxi | Mean  | Std. D | Response level |
|--------------------------------------------------------------------|------|------|-------|--------|----------------|
| The dry port can adapt to changes in delivery schedules.           | 1    | 4    | 2.76  | .655   | neutral        |
| I can request modifications to my shipment without difficulty.     | 2    | 4    | 2.87  | .435   | neutral        |
| The dry port can accommodate urgent shipments when needed.         | 1    | 4    | 2.20  | .579   | disagree       |
| Their services are flexible enough to handle special requirements. | 1    | 4    | 2.71  | .725   | neutral        |
| overall                                                            | 1.25 | 3.20 | 2.635 | 0.308  | neutral        |

Source: own survey 2025



Flexibility received an overall neutral score (mean = 2.64), indicating that customers are uncertain about the dry port's ability to adapt to changing needs. While respondents moderately agree that delivery schedules can be adjusted (mean = 2.76) and shipment modifications are possible (mean = 2.87), they express dissatisfaction with how urgent shipments are handled (mean = 2.20, disagree). This suggests that while routine adjustments may be manageable, the port struggles with time-sensitive or special logistics requests.

The relatively low minimum score (1.25) and limited maximum (3.20) reflect a narrow perception range, implying that few customers view the service as truly flexible. In logistics, flexibility is crucial for responding to dynamic market demands and customer-specific requirements. The findings suggest that Mekelle Dry Port may benefit from revisiting its operational procedures, empowering staff to make on-the-spot decisions, and investing in systems that support customized service delivery. As Olhager and Persson (2020) note, flexibility is not just a convenience—it's a competitive Advantage.

#### 4.4.6. Customer satisfaction

**Table 8 Customer satisfaction**

| Customer Satisfaction                                                      | Mni | Maxi | Mean  | Std. D | Response level |
|----------------------------------------------------------------------------|-----|------|-------|--------|----------------|
| I am satisfied with the overall services provided by Mekelle Dry Port.     | 1   | 5    | 2.99  | .904   | neutral        |
| The services I receive meet my expectations.                               | 2   | 5    | 2.72  | .941   | neutral        |
| I feel that using this dry port is a good decision for my logistics needs. | 2   | 5    | 2.75  | .809   | neutral        |
| I would recommend Mekelle Dry Port to other businesses.                    | 1   | 4    | 2.75  | .622   | neutral        |
| I intend to continue using this dry port for my future shipments.          | 2   | 5    | 2.41  | .585   | disagree       |
| overall                                                                    | 1.6 | 4.8  | 2.724 | 0.501  | neutral        |

Source: own survey 2025

Customer satisfaction at Mekelle Dry Port received an overall neutral score (mean = 2.72), indicating that while some customers are moderately satisfied, many remain unconvinced about the port's performance. The highest-rated item—overall service satisfaction (mean = 2.99)—still falls short of agreement, and the lowest score (mean = 2.41) reflects reluctance to continue using the port in the future. This suggests that while customers may tolerate current services, they are not fully confident in the port's ability to meet long-term logistics needs.

The neutral ratings across most items point to a service experience that is inconsistent and underwhelming. Customers are not strongly dissatisfied, but they're not enthusiastic either. This middle-ground perception can be risky, as it reflects a lack of emotional connection or loyalty.

To improve, Mekelle Dry Port must focus on delivering more reliable, responsive, and personalized services. As Gounaris and Venetis (2020) highlight, customer satisfaction in logistics depends not only on operational efficiency but also on how well the service aligns with customer expectations and builds trust over time.

## **4.5. Inferential Statistics**

### **4.5.1. Correlation Analysis**

This Pearson's correlation coefficient test statistic quantifies the statistical linkage, or relationship, between two variables. In order to measure the relationship between variables of interest, the covariance method is thought to be the most effective way. Information about the strength of the association, or correlation, is provided in addition to the link's direction. Various independent variables can impact the customer satisfaction of dry port, including logistics service quality dimensions. The degree of association between these variables and the dependent variable in this study was ascertained using a Pearson correlation test.

The researcher employed the same test. Mac Eachron (1982) created the following measure of association, known as the degree of correlation: Perfect correlation occurs when there is a value that falls between  $\pm 0.80$  and  $\pm 1$ . This indicates that as one variable increases, the other variable tends to follow suit, either positively or negatively; high degree correlations occur when the coefficient value falls between  $\pm 0.60$  and  $\pm 0.80$ , indicating a strong correlation; moderate degree correlations occur when the value falls between  $\pm 0.40$  and  $\pm 0.60$ , indicating a medium correlation; low degree correlations occur when the value falls between  $\pm 0.20$  and  $\pm 0.40$ .

**Table 9 Correlations**  
**Correlations**

|     |                     | CS     | RS     | TMS   | OA     | FL     | AS     |
|-----|---------------------|--------|--------|-------|--------|--------|--------|
| CS  | Pearson Correlation | 1      | .443** | .103  | .279   | .420** | .248*  |
|     | Sig. (2-tailed)     |        | .000   | .000  | .000   | .000   | .000   |
|     | N                   | 83     | 83     | 83    | 83     | 83     | 83     |
| RS  | Pearson Correlation | .443** | 1      | .247* | .375** | .254*  | .180   |
|     | Sig. (2-tailed)     | .000   |        | .000  | .000   | .000   | .000   |
|     | N                   | 83     | 83     | 83    | 83     | 83     | 83     |
| TMS | Pearson Correlation | .103   | .247*  | 1     | .055   | .138   | .103   |
|     | Sig. (2-tailed)     | .000   | .000   |       | .000   | .000   | .000   |
|     | N                   | 83     | 83     | 83    | 83     | 83     | 83     |
| OA  | Pearson Correlation | .279   | .375** | .055  | 1      | .285** | .049   |
|     | Sig. (2-tailed)     | .000   | .000   | .000  |        | .000   | .000   |
|     | N                   | 83     | 83     | 83    | 83     | 83     | 83     |
| FL  | Pearson Correlation | .420** | .254*  | .138  | .285** | 1      | .370** |
|     | Sig. (2-tailed)     | .000   | .000   | .000  | .000   |        | .000   |
|     | N                   | 83     | 83     | 83    | 83     | 83     | 83     |
| AS  | Pearson Correlation | .248*  | .180   | .103  | .049   | .370** | 1      |
|     | Sig. (2-tailed)     | .000   | .000   | .000  | .000   | .000   |        |
|     | N                   | 83     | 83     | 83    | 83     | 83     | 83     |

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

\*. Correlation is significant at the 0.05 level (2-tailed).

**Source:** Own Survey, (2025)

From the above correlation matrix, the researcher found the following results under each construct, supported by their related empirical evidence:

### **Customer Satisfaction and Responsiveness (RS)**

The relationship between Customer Satisfaction (CS) and Responsiveness (RS) reveals an interesting connection. The correlation of 0.443 (with a significance level of  $p < 0.01$ ) suggests a moderate positive relationship between these two factors. In simple terms, as responsiveness improves, customers seem to be more satisfied with the services provided. This fits well with findings from recent studies, where quick and efficient responses to customer inquiries and concerns were linked to higher satisfaction levels (Smith, 2019). It shows that customers value being heard and helped in a timely manner, which can be a real game-changer in the service industry.

### **Customer Satisfaction and Timeliness (TMS)**

When we look at timeliness and its effect on customer satisfaction, the results seem to tell a different story. The correlation here is quite low at 0.103 with a p-value of 0.354, meaning there's no strong or significant relationship. The value might suggest that, in this context, simply being on time isn't enough to win customers' satisfaction. The finding is consistent with earlier research which suggest that, although punctual is important, customers are often more strongly influenced by factors such as service quality and overall customer care (Jones and Taylor back in 2021).

## **Customer Satisfaction and Order Accuracy (OA)**

Looking at order accuracy, we see a modest but noticeable link to customer satisfaction. The correlation here is 0.279 (significant at  $p = 0.01$ ), meaning order accuracy plays a role in how satisfied customers feel, but it's not the only factor. In other words, customers appreciate when their orders are correct, but this alone doesn't guarantee high satisfaction. It does, however, support the idea that getting things right is an important step towards building customer trust and satisfaction, a sentiment backed by recent research (Kumar et al., 2019).

## **Customer Satisfaction and Flexibility (FL)**

Flexibility shows a stronger connection with customer satisfaction, with a correlation of 0.420 (significant at  $p < 0.01$ ). This suggests that customers are more likely to be satisfied when they experience adaptability from the service provider, whether that's in delivery times, customization options, or how services are tailored to fit their needs. People seem to value the ability to accommodate special requests or make adjustments when necessary, which resonates with findings from Lee & Lee (2020), who highlighted how service flexibility can greatly improve a customer's overall experience.

## **Customer Satisfaction and Assurance (AS)**

Lastly, the relationship between assurance and customer satisfaction is a bit more subtle, with a correlation of 0.248 (significant at  $p = 0.01$ ). While the positive link is there, it's not as strong as the others. Customers appreciate a sense of security and confidence in the services they use, but it appears to have a lesser impact on their overall satisfaction compared to things like responsiveness and flexibility. This aligns with studies showing that while trust and assurance

are important, they might not be as immediately impactful as other factors in shaping customer satisfaction (Wang et al., 2020).

## **4.6. Multiple linear regressions**

### **4.6.1. Basic Assumptions**

Depending on how many variables are involved, one can either do a basic linear regression with one dependent and one independent variable or multiple regressions with one dependent and two or more independent variables to see the linear relationship). The present investigation employed linear multiple regressions to investigate the logistics service quality dimensions on the dependent variable which is customer satisfaction, in order to create the regression line formula, the following are the denoted dependent and independent variables: X1 = Responsiveness; X2 = Timeliness; X3 = Assurance; X4 = Order Accuracy; X5 = Flexibility. Y = Customer Satisfaction. The investigator tested the fundamental presumptions that must hold true for multiple regressions to be performed on SPSS; otherwise, the study would not have been conceivable.

#### **Assumption 1: Independent of residuals**

For a linear regression analysis, the data should have little to no autocorrelation. When the residuals are not independent from one another, autocorrelation happens. Stated otherwise, in situations where  $y(x+1)$  does not follow  $y(x)$ , In the case of employees' motivation variables, for example, this usually happens when the factors that determine customer satisfaction are not unrelated. When the value is 2.0, the sample is considered to be autocorrelation-free. Positive autocorrelation is represented by values between zero and 2.0, and negative autocorrelation is represented by values between 2.0 and 4.0 (Chatterjee & Hadi, 2012; Fox, 1997; Weisberg, 2005). If this assumption is not met, the estimate of the regression coefficient is still unbiased but

inefficient, and the standard errors and significance are biased. As stated by Matt N, Carlos A, and Deson K (2013), from Chatterjee & Hadi (2012). A test for autocorrelation in the residuals of a statistical regression study is the Durbin-Watson (DW) statistic. There is never a time when the Durbin-Watson statistic is not between 0 and 4. When the value is 2.0, the sample is considered to be autocorrelation-free. Autocorrelation is positive for values between 0 and less than 2, and negative for values between 2 and 4. Durbin-Watson test results for this investigation are displayed in the table below.

**Table 10 Durbin-Watson test result Model Summary**

**Model Summary<sup>b</sup>**

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|-------|-------------------|----------|-------------------|----------------------------|---------------|
| 1     | .781 <sup>a</sup> | .609     | .784              | .32350                     | 2.091         |

a. Predictors: (Constant), AS, OA, TMS, RS, FL

b. Dependent Variable: CS

**Source:** Own Survey, (2025)

Durbin-Watson statistics have a range of 0–4. It is generally accepted that residuals are independent (i.e., not correlated) if the Durbin-Watson statistic is approximately 2. A range of 1.50 to 2.50 is an appropriate range, Oguntunde P.E., Babatunde O.S., Ogunmola A.O., and Balogun O.S. (2014). . The Durbin–Watson statistic for the regression model was 2.09, which is very close to the ideal value of 2. This indicates that the residuals are not serially correlated, and therefore, autocorrelation is not a concern in this model.



## **Assumption 2: Multicollinearity**

A perfect or exact link between the regression explanatory variables is referred to as multicollinearity. The assumption behind multiple linear regression analysis is that the explanatory variables do not always have a precise, exact connection. When this premise is broken in regression analysis, multicollinearity is an issue.

The data in multiple linear regressions are assumed to have minimal to no multicollinearity. When the independent variables are not independent of one another, multicollinearity arises.

The absence of correlation between the standard mean error of the dependent variable and the independent variables is a crucial second independence assumption (Bobbitt, 2021).

Compare multicollinearity to two main standards:

2) Tolerance: The influence of one independent variable on every other independent variable is ascertained using a first linear regression analysis, which is then utilized to compute the tolerance. The tolerance for these first-step regression studies is  $T = 1 - R^2$ . Multi collinearity in the data is certainly present when  $T < 0.01$  and may be present when  $T < 0.1$ .

3) Variance Inflation Factor (VIF): The formula for the linear regression's variance inflation factor is  $VIF = 1/T$ . In a similar vein, multi collinearity is suggested to exist when  $VIF > 10$ . A factor analysis performed before to the regression analysis and factor rotation to guarantee the factors' independence in the linear regression analysis are two further ways to address the issue of multicollinearity in multiple linear regression.

**Table 11 Tolerance and Variance Inflation Factor**

| Model        | Collinearity Statistics |       |
|--------------|-------------------------|-------|
|              | Tolerance               | VIF   |
| 1 (Constant) |                         |       |
| RS           | .732                    | 1.365 |
| TMS          | .919                    | 1.088 |
| OA           | .817                    | 1.224 |
| FL           | .722                    | 1.385 |
| AS           | .773                    | 1.294 |

**Source:** Own Survey, (2025)

### **Assumption 3: Linearity Test and Test of Normality**

The other idea is the linearity assumption. To perform multiple linear regressions, the independent and dependent variables must have a linear relationship. It is also critical to search for outliers since multiple linear regressions are vulnerable to their impacts. To be valid for most parametric tests, the data must be relatively regularly distributed. Between the mean and the middle peak, the normal distribution is symmetrical. Exact regular distribution of data is not necessary for test reliability.

- **Mean of residuals:** 1.14E-14 (approximately zero), satisfying the assumption of zero mean.
- **Variance of residuals:** 0.969 (approximately 1), indicating stable dispersion.
- **Histogram:** The residuals formed a roughly bell-shaped curve with a central peak and symmetrical spread, suggesting approximate normality.

- **P-P Plot and Q-Q Plot:** Most residuals aligned closely with the diagonal line, confirming that the error terms are normally distributed.

These results indicate that the normality assumption was not violated, and the residuals are suitable for regression analysis.

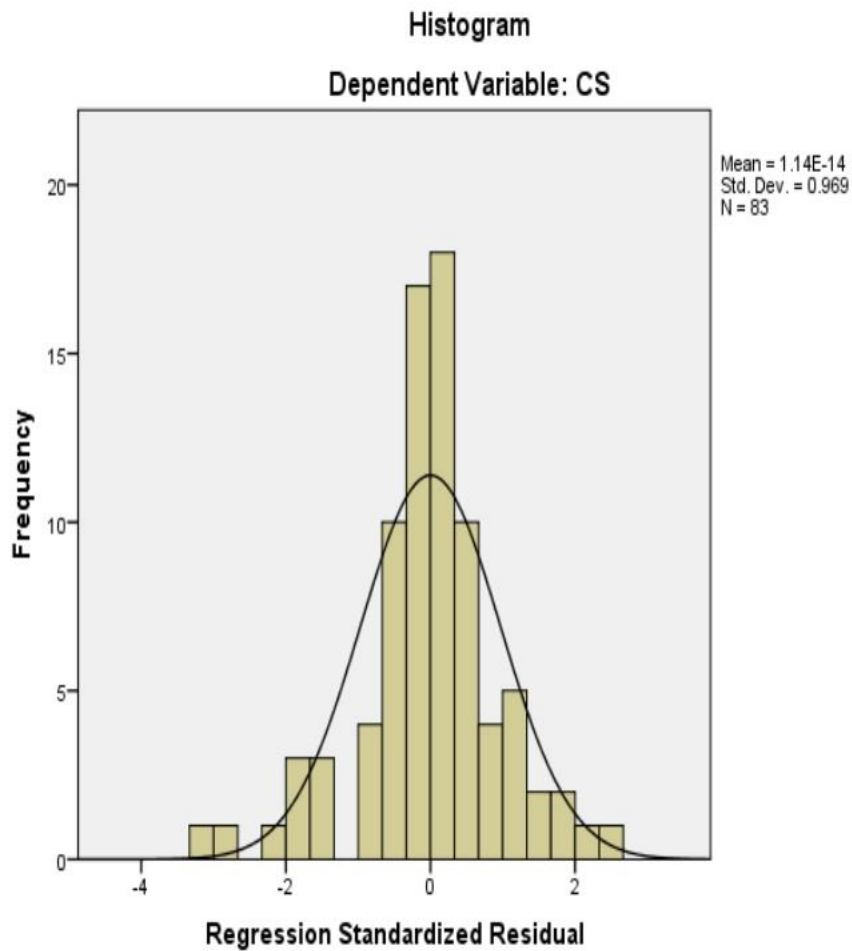
Linearity was tested by plotting each independent variable against the dependent variable (Customer Satisfaction) and examining the scatterplots of standardized residuals.

- The scatterplots showed a consistent linear pattern, without curvature or clustering.
- The P-P Plot of residuals also showed alignment along the diagonal, reinforcing the presence of a linear relationship.

Therefore, the data satisfy the linearity assumption, confirming that the relationships between LSQ dimensions (Responsiveness, Timeliness, Order Accuracy, Assurance, and Flexibility) and Customer Satisfaction are appropriately modeled using linear regression.

#### **4.6.2. Normality Test**

The normality test according to (Field, 2009) the assumption of normality is important in Research while using regression and helpful to generalize the result of the analysis beyond the Census 83. Normality test assumes that the residual has zero mean and constant variance. Thus, The result on Figure 2 indicates the mean of the residual was between -1 and +1 that means  $1.14E - 14$  as well as its variance is 0.969 approximately 1 which implies that the distribution of the error term is normally distributed.



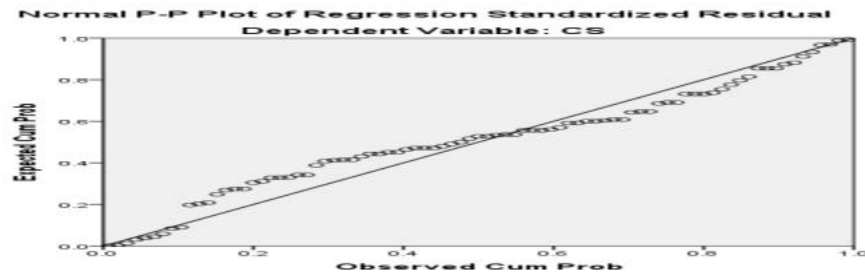
**Figure 2 Normality test**

### 4.6.3. Linearity Test

For linearity, the result indicates that there is a linear relationship between the Logistic service quality Dimension and each of the independent variables (Responsiveness, Timeliness, Order Accuracy, Assurance, and Flexibility).

In general, the study discussed five major assumptions that must be fulfilled for one to analyze

Data using multiple linear regression models. So, since all the five assumptions were not violated, the researcher examined the data collected by the questionnaires using correlation and multiple linear regression models for this study.



**Figure 3 Linearity test**

Source: Own Survey, (2025)

A perfectly smooth normal curve, like the one above, would be exceedingly unlikely to be formed by a histogram of sample data, according to this study's normality histogram. If the data have a middle peak, are generally symmetrical, and are roughly regularly distributed, then the assumption of normality is satisfied.

The p-plot indicates that there is no discernible fluctuation in the residuals' range. When viewed from left to right in the figure, almost all of the residuals seem to reside on the linear straight line. It is instructive that this suggests a linear relationship between the independent and dependent variables.

#### **4.6.4. Regression Analysis Results**

Following the fulfillment of all multiple regression assumptions, the researcher selected the data and proceeded with additional processing. The process of dividing the overall variation into significant components that assess various causes of variation is known as analysis of variance

(ANOVA). Stated differently, we divided the entire sum of squares into two categories: "sum of squares between groups (sample)" and "sum of squares within group (sample)." A parametric statistical method for comparing datasets is called analysis of variance (ANOVA). Its use is comparable to that of methods like the t-test and z-test since it compares means and the relative variance between them.

The three most crucial components of the regression output the model summary, the ANOVA test, and the beta coefficient were the researcher's primary points of emphasis in this section.

**Table 12 Model summary of the regression result**

**Model summary**

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|-------|-------------------|----------|-------------------|----------------------------|---------------|
| 1     | .781 <sup>a</sup> | .609     | .784              | .32350                     | 2.091         |

a. Predictors: (Constant), AS, OA, TMS, RS, FL

b. Dependent Variable: CS

**Source:** Own Survey, (2025)

The regression model considered customer satisfaction as the dependent variable and five key independent variables: Assurance (AS), Order Accuracy (OA), Timeliness (TMS), Responsiveness (RS), and Flexibility (FL). A multiple regression analysis was conducted to evaluate how well these independent variables predict customer satisfaction.

As shown in the Model Summary table, the linear combination of these five predictors is significantly related to customer satisfaction (Adjusted  $R^2 = 0.784$ ,  $P < 0.001$ ). This means that 78.4% of the variance in customer satisfaction can be explained by the linear combination of

these five variables. Therefore, the model suggests that the independent variables, when taken together, are quite effective in predicting customer satisfaction.

**Table 13 ANOVA**

**ANOVA<sup>a</sup>**

| Model |            | Sum of Squares | Df | Mean Square | F      | Sig.              |
|-------|------------|----------------|----|-------------|--------|-------------------|
| 1     | Regression | 12.568         | 5  | 2.514       | 24.018 | .000 <sup>b</sup> |
|       | Residual   | 8.058          | 77 | .105        |        |                   |
|       | Total      | 20.627         | 82 |             |        |                   |

a. Dependent Variable: CS

b. Predictors: (Constant), AS, OA, TMS, RS, FL

**Source:** Own Survey, (2025)

To evaluate the overall significance of the regression model, an Analysis of Variance (ANOVA) test was conducted. The model examined the influence of five independent variables—Assurance (AS), Order Accuracy (OA), Timeliness(TMS), Responsiveness (RS), and Flexibility (FL)—on the dependent variable, Customer Satisfaction (CS).

The ANOVA result revealed that the regression model was statistically significant, with an F-value of 24.018 and a significance level of ( $p = 0.000$ ). Since the p-value is less than 0.01, it indicates that the model as a whole is highly significant. This means that the combination of these five predictors has a statistically significant effect on Customer Satisfaction.

Additionally, the breakdown of the sum of squares shows that the Regression Sum of Squares (12.568) is much higher than the Residual Sum of Squares (8.058), suggesting that a substantial

portion of the variation in Customer Satisfaction is explained by the independent variables included in the model.

In summary, the ANOVA test confirms that the regression model provides a good fit to the data, and the independent variables jointly explain a significant amount of the variability in Customer Satisfaction.

**Table 14 Beta Coefficients**

| Coefficients <sup>a</sup> |            |                             |            |                           |       |      |
|---------------------------|------------|-----------------------------|------------|---------------------------|-------|------|
| Model                     |            | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. |
|                           |            | B                           | Std. Error | Beta                      |       |      |
| 1                         | (Constant) | 1.926                       | .689       |                           | 2.796 | .007 |
|                           | RS         | .851                        | .094       | .752                      | 9.037 | .000 |
|                           | TMS        | .285                        | .111       | .191                      | 2.575 | .012 |
|                           | OA         | .460                        | .119       | .305                      | 3.867 | .000 |
|                           | FL         | .856                        | .136       | .527                      | 6.282 | .000 |
|                           | AS         | .116                        | .120       | .078                      | .961  | .339 |
| a. Dependent Variable: CS |            |                             |            |                           |       |      |



As shown in the table above, all statistically significant independent variable coefficients are positive, implying that as the value of these independent variables increases, the mean of the dependent variable (Customer Satisfaction) also increases.

**For a detailed analysis:** This supports the theoretical premise that service quality is a key determinant of customer perceptions in logistics operations.

#### □ **Key Predictors of Customer Satisfaction**

- Responsiveness ( $\beta = 0.752, p < 0.001$ ) emerged as the strongest predictor, highlighting the critical role of timely and effective communication in shaping customer satisfaction. This finding aligns with Shah (2014) and Klaus et al. (2020), who emphasized responsiveness as a cornerstone of customer loyalty in logistics services.
- Flexibility ( $\beta = 0.527, p < 0.001$ ) was the second most influential factor, suggesting that the ability to adapt to customer needs and operational changes significantly enhances satisfaction. This is consistent with Olhager and Persson (2020), who argued that flexibility is essential for service differentiation in dynamic supply chains.
- Order Accuracy ( $\beta = 0.305, p < 0.001$ ) also showed a significant positive effect, reinforcing the importance of precise and error-free delivery in logistics performance. Frequent discrepancies can erode trust, while accurate fulfillment strengthens reliability.
- Timeliness ( $\beta = 0.191, p = 0.012$ ), though less influential than other variables, still had a statistically significant impact. This suggests that while punctuality matters it may be overshadowed by responsiveness and flexibility in customer evaluations.
- Assurance ( $\beta = 0.078, p = 0.339$ ) was the only dimension with an insignificant effect, indicating that customers at Mekelle Dry Port may not perceive staff competence and

courtesy as a major factor influencing their satisfaction. This could reflect either low expectations or limited interaction with service personnel, and warrants further investigation. The findings suggest that service responsiveness and flexibility should be prioritized in operational improvements at Mekelle Dry Port. Enhancing communication channels, empowering staff to make adaptive decisions, and streamlining order handling processes could significantly boost customer satisfaction. While timeliness and accuracy remain important, assurance-related interventions such as staff training and customer engagement may require more targeted strategies to yield measurable impact.

#### **4.7. Analysis of Open Ended Question**

In addition to close ended questions intended to examine the effect of Logistic service quality on customer satisfaction, the researcher asked customers to answer those questions.

- ❖ The first open ended question asked to the respondents is to list the biggest challenges to achieving high logistics service quality and how do these challenges affect customer satisfaction at Mekelle dry ports? Majority of the respondents answer the biggest challenge at Mekelle dry port is operational status because had been out of operation due to conflict in Northern Ethiopia mainly Tigray region this is the priority and critical point suggest by the customers. The second one biggest challenge answers by the customers is inadequate physical infrastructure such as insufficient road connectivity, congestion with port areas, and lack of modern handling equipment (like gantry cranes and efficient forklifts) at Mekelle dry port as major impediments. According to Alemayehu (2021), highlights excessive documents, lack of coordination between agencies (customs and

manual processing systems at Ethiopian dry ports, Especially in Mekelle Dry port, create significant bottlenecks.

- ❖ The second one is in your experience, what specific improvements in logistics services have had the most positive impact on customer satisfaction at Mekelle dry ports? Majority of respondents answers Providing to the customers with seamless digital interfaces for documentation submission, booking, tracking, and payment, coupled with real-time cargo visibility (via IoT, RFID, or GPS), significantly boosts satisfaction, minimize the time car go

Spends at the Mekelle dry port (Dwell time) is paramount. Implementing streamlined customs clearance processes, improved rail/road interchange coordination, and advanced yard management systems drastically cuts delays. Abate (2023) documented that pilot NSW implementation along the Ethio-Djibouti corridor (including feeder dry ports like Mekelle) reduced average clearance times by ~40%, correlating strongly with improved shipper satisfaction regarding predictability and administrative burden reduction.

- ❖ The third open ended question is do you think regional instability impacts the logistics service quality and customer satisfaction? The respondents answer there are different factors impacts the logistics service quality and customer satisfaction regarding instability at Mekelle Dry port, most of customers suggest that instability causes fuel price spikes, currency devaluation, insurance premium hikes, and scarcity surcharges, increasing logistics costs often passed on to customers. Damage to ports, roads, rail, airports, and communication networks directly halts or severely delays shipments. (Pettit, 2010) Geopolitical instability is to disruptions that degrade logistics performance dimensions like delivery timely and flexibility) on customer satisfaction.

## **CHAPTER FIVE**

### **Summary, Conclusions and Recommendation**

#### **5.1. Summary**

This study set out to explore how logistics service quality influences customer satisfaction at Mekelle Dry Port. The main goal was to understand the relationship between five key service quality dimensions—responsiveness, flexibility, order accuracy, timeliness, and assurance—and to identify which of these has the strongest impact on customer satisfaction.

To guide the investigation, the SERVQUAL model was applied using a self-administered questionnaire consisting of 27 performance-related statements. Out of 89 distributed questionnaires, 83 were completed and returned. The data were analyzed using SPSS version 23, employing both descriptive and inferential statistical methods.

Demographic results showed that most respondents were male (63.3%), and a large majority (81.9%) were between the ages of 31 and 40. When looking at customer perceptions, responsiveness received the highest mean score (2.99), suggesting a relatively favorable view, while assurance scored the lowest (2.28), indicating dissatisfaction with trust and professionalism. Flexibility (2.63), timeliness (2.80), and order accuracy (2.75) were rated neutrally, reflecting mixed experiences.

Correlation analysis revealed that responsiveness, flexibility, and order accuracy had moderate and statistically significant positive relationships with customer satisfaction. Assurance showed a weaker but still significant correlation, while timeliness had a weak and non-significant relationship. These results suggest that while all dimensions contribute to some extent, customers are more influenced by how quickly and effectively the port responds to their needs, how adaptable the services are, and how accurately their orders are fulfilled.

Regression analysis confirmed these findings, showing that responsiveness had the strongest impact on customer satisfaction, followed by flexibility and order accuracy. Timeliness and assurance, although positively associated, had weaker and statistically insignificant effects.

Overall, the study highlights that logistics service quality at Mekelle Dry Port is multi-faceted, and customer satisfaction is shaped more by direct service interactions and operational adaptability than by punctuality or perceived reliability alone. To improve customer satisfaction,

the port should prioritize enhancing responsiveness, offering more flexible services, and ensuring accurate order fulfillment. At the same time, efforts should be made to gradually improve perceptions of timeliness and assurance through better communication, staff development, and consistent service delivery.

## **5.2. Conclusions**

This study examined the impact of logistics service quality on customer satisfaction at Mekelle Dry Port, revealing that Logistic service quality is a multi-dimensional construct with varying levels of influence. Among the five dimensions assessed, responsiveness, flexibility, and order accuracy emerged as the most significant predictors of customer satisfaction. These findings underscore the importance of prompt communication, adaptable service delivery, and reliable order fulfillment in shaping positive customer experiences.

Beyond the immediate operational insights, the study carries broader implications for logistics policy and post-conflict recovery in Ethiopia, particularly in the Tigray region. Mekelle Dry Port plays a strategic role in reconnecting inland trade routes with international markets, especially in the aftermath of conflict when infrastructure, trust, and institutional capacity are being rebuilt. Enhancing service quality at the port is not only a matter of customer satisfaction—it is a cornerstone for economic revitalization, regional stability, and trade competitiveness.

The findings suggest that policymakers and port authorities should prioritize investments in customer service systems, staff training, and digital infrastructure to improve responsiveness and flexibility. These improvements can help restore confidence among businesses and logistics users, encouraging greater utilization of the port and supporting broader economic recovery efforts. Furthermore, the study highlights the need for targeted interventions that address the weaker dimensions—timeliness and assurance. Strengthening these areas through performance monitoring, accountability mechanisms and professional development can contribute to a more resilient and customer-focused logistics environment.

In the context of Ethiopia's national logistics strategy and Tigray's reconstruction agenda, this research contributes valuable evidence to guide resource allocation, capacity building, and service innovation. By aligning logistics service improvements with customer expectations, Mekelle Dry Port can serve as a model for inclusive and sustainable recovery in post-conflict settings.

### 5.3. Recommendations

Based on the integrated findings of the study, the following recommendations are proposed to enhance customer satisfaction through improved logistics service quality at Mekelle Dry Port:

#### Short-term strategies

- ❖ Enhance responsiveness by training frontline staff in customer handling, complaint resolution, and proactive communication.
- ❖ Improve order accuracy through better inventory tracking systems, barcode scanning, and double-check protocols.
- ❖ Introduce flexible service options such as customizable delivery schedules or alternative routing for urgent shipments.

#### Long-Term Strategies

- ❖ Invest in infrastructure upgrades to improve timeliness, such as road connectivity, digital scheduling systems, and cargo handling equipment.
- ❖ Strengthen assurance by implementing quality certifications, customer feedback loops, and transparency in service commitments.
- ❖ Develop a regional logistics recovery framework that aligns Mekelle Dry Port's operations with national post-war reconstruction goals, trade corridors, and industrial park linkages.

Here's what I suggest to make customers happier with the logistics service at Mekelle Dry Port:

- ❖ **Better Customer Service:** Set up a customer help desk with well-trained staff who knows how to handle problems quickly; use a system to track customer questions as they come in.
- ❖ **Making Services More Flexible:** Let customers pick delivery times that work for them; train staff to handle different customer needs and use better scheduling tools.

- ❖ **Getting Orders Right:** Use computer systems and barcode scanners to track inventory; check work regularly and make sure staffs are doing their jobs.
- ❖ **Better Timing:** Make loading and delivery faster and more efficient; use GPS and computer schedules to keep track of everything.
- ❖ **New Technology:** Get new computer systems to keep track of customer information; use smart dashboard systems to see how things are going.
- ❖ **Staff Training:** Train staff in technical skills and how to work with customers; regular practice sessions to keep improving.

These changes will help Mekelle Dry Port give better service and make customers happier.

**Finally**, the port authority should conduct regular customer satisfaction surveys to monitor Logistic service quality over time and make evidence-based improvements; by establishing a feedback loop, management can remain responsive to customer expectations and maintain a commitment to continuous improvement in service delivery.

#### 5.4. Limitation of the study

This research only looked at how five dimensions of Logistics service quality affect customer satisfaction at Mekelle land dry port; we couldn't include other important factors due to time and resource limits. The study focused only on current customers at one location, which means we might have missed broader trends. Our sample Census was limited to Mekelle dry port users; the results not apply to other ports. We also didn't look at how Logistic service quality differs between peak and off-peak seasons, which could affect customer experiences. The survey didn't track changes in satisfaction over time, giving us just a snapshot instead of long-term patterns. Another limit was not considering how different types of customers (small vs. large businesses) might have varying needs and satisfaction levels.

#### 5.5. Future Research Suggestions

Future studies could explore how customer satisfaction translates into long-term loyalty within dry port operations. Comparative research across different dry ports—both within Ethiopia and internationally—could uncover what makes each facility unique in serving its customers

effectively. Seasonal variations in service demand and operational efficiency also deserve attention, as they may influence customer perceptions and satisfaction levels.

Longitudinal studies that track customer feedback over several years could reveal meaningful trends and shifts in expectations. Researchers may also benefit from focusing on specific customer segments—such as importers, exporters, or freight forwarders—to better understand their distinct needs and service priorities.

The impact of technological upgrades, such as digital tracking systems or automated documentation, on service quality is another promising area. Additionally, examining how different management styles—centralized vs. decentralized, public vs. private—affect customer satisfaction could offer valuable insights into organizational effectiveness.

Staff training programs and their role in enhancing service delivery should be investigated, particularly in relation to assurance and responsiveness. Environmental factors, such as sustainability practices and green logistics, could also be integrated into service quality assessments to reflect evolving customer values. Port location and accessibility may influence customer satisfaction, especially in regions with limited infrastructure. Finally, future research could examine how ports handle customer complaints and the extent to which effective grievance resolution contributes to long-term customer relationships and loyalty.



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## Appendix and questionnaires

**Mekelle University**

**Collage of business and economics**

**School Of Management**

**Department of Logistics and Supply Chain Management**

Dear Respondents.

This questionnaire is developed for an academic effort planned for the collection of data to conduct a thesis on the title “*The Effects of Logistics Service Quality on Customer Satisfaction: In The Case of Mekelle Dry Port*”, in order to fulfill the University’s requirement for Master’s Degree. The information obtained from this questionnaire will be kept confidential and will not be used for any other purposes. Hence, I am kindly asking respondents to give your candid information.

**NB:**

- It is not necessary to write your name
- Try to address all the question given below
- For the closed ended questions use (✓) mark for your choice in the given box

***Thank you for your cooperation!***

### **PART 1: DEMOGRAPHIC INFORMATION**

1. Gender

Male ☐ Female ☐

2. Age in Year-----

3. Educational Qualification:

Grade 10 completed ☐ Grade 12 completed ☐ Certificate ☐

College diploma ☐ First Degree ☐ Second Degree and above ☐

## PART 2: QUESTIONS DIRECTLY RELATED WITH THE STUDY

Here under the statements about the independent variables and your intention to the quality of service and your satisfaction level

**1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree,**

|                |                                                                   |   |   |   |   |   |
|----------------|-------------------------------------------------------------------|---|---|---|---|---|
|                |                                                                   | 1 | 2 | 3 | 4 | 5 |
| Responsiveness |                                                                   |   |   |   |   |   |
| 1              | The staffs at the dry port respond to my inquiries promptly.      |   |   |   |   |   |
| 2              | Receive timely updates about the status of my shipment.           |   |   |   |   |   |
| 3              | My concerns are addressed without unnecessary delays.             |   |   |   |   |   |
| 4              | The employees are always willing to help when needed.             |   |   |   |   |   |
| 5              | I can easily contact the dry port for support when issues arise.  |   |   |   |   |   |
| Timeliness     |                                                                   |   |   |   |   |   |
| 1              | My shipments are delivered within the promised time.              |   |   |   |   |   |
| 2              | The dry port operations are performed without unnecessary delays. |   |   |   |   |   |
| 3              | The documentation process is completed quickly.                   |   |   |   |   |   |
| 4              | I can rely on the dry port to meet delivery schedules.            |   |   |   |   |   |
| 5              | Time commitments made by the dry port are consistently honored.   |   |   |   |   |   |
| Order Accuracy |                                                                   |   |   |   |   |   |



|                              |                                                                            |  |  |  |  |  |
|------------------------------|----------------------------------------------------------------------------|--|--|--|--|--|
| 1                            | My orders are processed without errors.                                    |  |  |  |  |  |
| 2                            | I always receive the exact quantity of goods ordered.                      |  |  |  |  |  |
| 3                            | The condition of my goods upon delivery meets expectations.                |  |  |  |  |  |
| 4                            | The paperwork associated with shipments is accurate.                       |  |  |  |  |  |
| <b>Flexibility</b>           |                                                                            |  |  |  |  |  |
| 1                            | The dry port can adapt to changes in delivery schedules.                   |  |  |  |  |  |
| 2                            | I can request modifications to my shipment without difficulty.             |  |  |  |  |  |
| 3                            | The dry port can accommodate urgent shipments when needed.                 |  |  |  |  |  |
| 4                            | Their services are flexible enough to handle special requirements.         |  |  |  |  |  |
| <b>Assurance</b>             |                                                                            |  |  |  |  |  |
| 1                            | The employees are knowledgeable about logistics procedures.                |  |  |  |  |  |
| 2                            | I feel confident in the ability of the dry port to handle my goods safely. |  |  |  |  |  |
| 3                            | The staffs are courteous and professional in their interactions.           |  |  |  |  |  |
| 4                            | I trust the dry port to manage my shipments securely.                      |  |  |  |  |  |
| <b>Customer satisfaction</b> |                                                                            |  |  |  |  |  |
| 1                            | I am satisfied with the overall services provided by Mekelle Dry Port.     |  |  |  |  |  |
| 2                            | The services I receive meet my expectations.                               |  |  |  |  |  |

|   |                                                                            |  |  |  |  |  |
|---|----------------------------------------------------------------------------|--|--|--|--|--|
| 3 | I feel that using this dry port is a good decision for my logistics needs. |  |  |  |  |  |
| 4 | I would recommend Mekelle Dry Port to other businesses.                    |  |  |  |  |  |
| 5 | I intend to continue using this dry port for my future shipments.          |  |  |  |  |  |

1. What do you consider the biggest challenges to achieving high logistics service quality at Mekelle dry ports, and how do these challenges affect customer satisfaction?

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2. In your experience, what specific improvements in logistics services have had the most positive impact on customer satisfaction at Mekelle dry ports?

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3. What do you think regional instability impacts the logistics service quality and customer satisfaction?

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