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THE EFFECT OF CUSTOMS CLEARANCE PROCEDURES ON TRADE FACILITATION PERFORMANCE: A CASE STUDY OF THE ADAMA CUSTOMS COMMISSION BRANCH

ABERA, SAMUEL

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BAHIR DAR UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

**DEPARTMENT OF LOGISTICS AND SUPPLY CHAIN
MANAGEMENT**

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BY

SAMUEL ABERA

**A THESIS SUBMITTED TO THE DEPARTMENT OF LOGISTICS AND
SUPPLY CHAIN MANAGEMENT, COLLEGE OF BUSINESS AND
ECONOMICS, BAHIR DAR UNIVERSITY IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS
(MA) IN LOGISTICS AND SUPPLY CHAIN MANAGEMENT**

ADVISOR

TAFERE WORKU (PhD)

MAY 2026

BAHIR DAR, ETHIOPIA

BAHIR DAR UNIVERSITY

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DECLARATION

This is to certify that the thesis entitled “The Effect of Customs Clearance Procedures on Trade Facilitation Performance in The Case of Adama Customs Commission Branch.” is submitted to the department of Logistics and Supply Chain Management, Bahir Dar university, in partial fulfillment of the requirements for the degree of master of arts in Logistics and Supply Chain Management, is a record of original work carried out by me, and has never been submitted to this or any other institution to get any other degree or certificates. the assistance and help I received during this investigation have been duly acknowledged.

Samuel Abera _____

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I hereby certify that I have supervised, read, and evaluated this thesis entitled “The Effect of Customs Clearance Procedures on Trade Facilitation Performance: A Case Study of the Adama Customs Commission Branch” by Samuel Abera, prepared under my guidance. I recommend the thesis be submitted for oral defense.

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LOGISTICS AND SUPPLY CHAIN MANAGEMENT

APPROVAL OF THESIS FOR DEFENSE RESULT

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Board of Examiners

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External Examiner name	Signature	Date
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Chairperson’s name	Signature	Date

DEDICATION

This thesis is dedicated to Kesis Adisu Gezehagn, whose love, sacrifice, and unwavering support made this achievement possible.

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Samuel Abera

ABSTRACT

Customs clearance inefficiencies impose significant costs on cross-border trade, particularly in landlocked economies such as Ethiopia where procedural bottlenecks persistently constrain trade competitiveness. This study examined the effects of customs clearance procedures on trade facilitation Performance at the Adama Customs Commission Branch, focusing on transit procedures, document declaration procedures, warehouse procedures, and digital system utilization. A quantitative approach with both explanatory and descriptive research designs was employed. Primary data were collected through structured questionnaires administered to 177 respondents from a target population of 318 employees. The population was stratified into five functional departments, and simple random sampling was applied within each stratum. Descriptive statistics summarized demographic characteristics and captured respondent perceptions through mean and standard deviation scores. Multiple linear regression was conducted as the main inferential technique after verifying the required diagnostic assumptions. The findings revealed that all four predictor variables have a statistically significant positive effect on trade facilitation Performance, jointly explaining a substantial proportion of its variance. Digital system utilization emerged as the strongest predictor, followed by document declaration procedures, transit procedures, and warehouse procedures. Accordingly, all hypotheses were supported. The study concludes that trade facilitation performance is not determined by isolated procedural improvements but rather by coordinated enhancement across all key procedural dimensions. The study recommends that the Ethiopian Customs Commission strengthen digital transformation, streamline declaration procedures, improve transit management, and modernize warehouse operations to reduce clearance delays and enhance trade competitiveness.

Keywords: *Customs Clearance Procedures, Trade Facilitation Performance, Digital System Utilization, Adama Customs Commission Branch, Ethiopia.*

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LIST OF ABBREVIATIONS/ACRONYMS

ECOWAS	Economic Community of West African States
EDI	Electronic Data Interchange
eSW	Electronic Single Window
ETB	Ethiopian Birr
GDP	Gross Domestic Product
IoT	Internet of Things
OECD	Organization for Economic Co-operation and Development
SMEs	Small and Medium Enterprises
SPSS	Statistical Package for the Social Sciences
UNCTAD	United Nations Conference on Trade and Development
WCO	World Customs Organization
WTO	World Trade Organization

CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

Trade facilitation performance refers to the degree to which a country's customs system achieves speed, predictability, cost-effectiveness, and regulatory compliance in processing cross-border trade flows (Peterson, 2020). Improving trade facilitation performance has become one of the most pressing priorities in contemporary international trade policy, as governments and regional bodies increasingly recognize that cumbersome customs procedures impose far greater costs on traders than tariff barriers alone (Wani, 2026). The World Trade Organization's Trade Facilitation Agreement (TFA), which entered into force in 2017, represents the most consequential multilateral response to this challenge, formally committing member states to streamlining the customs clearance procedures that govern the movement of goods across borders (Peterson, 2020). As a result of more efficient border processes driven by TFA implementation, trade costs are estimated to have declined by up to 5% over the last decade, and the (Wani, 2026) projects that further ambitious reforms could deliver up to 12 additional percentage points in trade cost reductions. These figures reflect how deeply customs clearance procedures shape broader economic outcomes and why their reform remains a central policy priority worldwide.

Understanding what drives trade facilitation performance requires close attention to the specific procedural dimensions through which customs authorities exercise their functions. Four procedures are consistently identified in the literature as the principal determinants of how well a customs system performs: transit procedures, document declaration procedures, warehouse operations, and digital customs systems (Peterson, 2020). Transit procedures govern the movement of goods across or through a country's territory, encompassing inspections, inter-agency coordination, border crossing requirements, and transit guarantee mechanisms (Платун & Селешук, 2023). When transit procedures are slow or poorly coordinated, cargo dwell times rise, logistics costs increase, and the predictability of cargo release deteriorates, all of which directly erode trade facilitation performance (Rbehat & Marafi, 2024). Document declaration procedures cover the submission, verification, and processing of trade documents such as bills of lading, certificates of origin, invoices, and customs declarations (Kipkoech, 2020).

Warehouse operations encompass the physical receipt, storage, inspection, and release of goods within customs-controlled facilities, including bonded warehouses and inland container depots (Mohammed, 2022). Poor warehouse management directly increases cargo dwell time and storage costs, both of which are widely recognized as core indicators of weak trade facilitation performance (Batarlienė & Jarašūnienė, 2024). Digital customs systems refer to the electronic platforms, automated data interchange technologies, risk-based selectivity tools, and single-window systems through which customs authorities reduce manual intervention and accelerate clearance cycles (UN, 2025). The 2023 UN Global Survey on Digital and Sustainable Trade Facilitation found that the global average trade digitalization rate stood at only 59%, revealing the significant gap that remains between digital customs system adoption and its full potential contribution to trade facilitation performance (UN, 2025).

The relationship between customs clearance procedures and trade facilitation performance has attracted considerable scholarly attention in recent years. Evidence from diverse economies consistently shows that the adoption of risk-based inspection systems, electronic single-window platforms, and automated data interchange has fundamentally transformed customs operations in ways that manual systems never could (Rodrigue, 2020). Research on trade corridors across multiple regions confirms that procedural inefficiencies in transit, documentation, and warehousing, rather than physical infrastructure deficits, are the dominant source of clearance delays and elevated logistics costs (Rbehat & Marafi, 2024). Wani (2026) further notes that improvements in the overall trade facilitation environment between 2022 and 2024 averaged between 3% and 7% across all world regions, with domestic border agency cooperation and digital system adoption emerging as the leading drivers of progress.

Across Africa, this challenge has proven especially difficult to address. The African Continental Free Trade Area (AfCFTA, 2025), whose guided trade initiative was launched in 2022, has placed customs clearance procedure reform at the center of its agenda precisely because administrative bottlenecks in transit, documentation, warehousing, and digital systems remain the primary obstacle to intra-regional trade growth (AfCFTA, 2025). A five-year review of the AfCFTA noted that customs clearance times along key corridors dropped measurably following procedural reforms, confirming the direct link between customs clearance procedure improvement and trade facilitation performance (AfCFTA, 2025). Studies on sub-Saharan African trade corridors

consistently show that documentation and transit procedure inefficiencies account for the majority of border crossing delays, with digital system weaknesses and inadequate warehouse management further constraining performance (Sintayehu, 2023).

Ethiopia's experience reflects many of these broader African challenges, compounded by additional complications arising from its landlocked geography and heavy dependence on the Djibouti transit corridor (Mohammed, 2022). Transit procedure inefficiencies along Ethiopia's principal trade routes amplify logistics costs and reduce cargo predictability in ways that landlocked countries feel more acutely than their coastal counterparts (Tadesse et al., 2022). Documentation errors and manual declaration processes at Ethiopian customs branches frequently produce repeated submissions and prolonged clearance cycles that constrain trade facilitation performance (Hoffmann et al., 2021). Warehouse operations at major Ethiopian customs stations struggle with limited storage capacity and high demurrage charges, imposing significant financial burdens on traders (Sintayehu, 2023). Ethiopia has pursued digital customs reform through the Ethiopian Customs Commission (ECC) under the Digital Ethiopia 2030 strategy, but infrastructure gaps and insufficient staff capacity have constrained the contribution of digital systems to trade facilitation performance (ECC, 2024).

It is within this national context that the Adama Customs Commission Branch takes on particular importance. Situated approximately 99 kilometers southeast of Addis Ababa along the corridor connecting the capital to Dire Dawa and the Port of Djibouti, the Branch manages a substantial volume of import and export cargo on one of Ethiopia's most heavily trafficked trade routes (Mohammed, 2022). Its operations span all four-customs clearance procedure dimensions this study examines, making it a strategically relevant setting in which to investigate how these procedures shape trade facilitation performance in practice. Despite its significance, the specific effects of customs clearance procedures on trade facilitation performance at this Branch remain insufficiently examined in existing literature (Tadesse et al., 2022). This study therefore investigates how transit procedures, document declaration procedures, warehouse operations, and digital customs systems affect trade facilitation performance at the Adama Customs Commission Branch, generating updated, branch-specific evidence to inform operational improvements and policy decisions.

1.2. Statement of the Problem

Efficient customs clearance systems are essential for international trade because they reduce transaction costs, improve supply chain performance, and strengthen a country's competitiveness in global markets (Fathima & Ahmed, 2024). Customs administrations no longer function solely as revenue-collecting institutions; rather, they play a strategic role in facilitating trade, promoting economic growth, and supporting integration into regional and global value chains. Efficient customs systems enhance transparency, predictability, and the timely movement of goods across borders. This issue is particularly critical for landlocked countries such as Ethiopia, where international trade heavily depends on efficient transit corridors, effective border management, and coordinated customs operations. Despite ongoing customs modernization initiatives, Ethiopia continues to experience substantial procedural and administrative inefficiencies that negatively affect trade performance and logistics Performance(Tadesse et al., 2022).

The challenge of customs performance becomes an important policy concern because international trade is increasingly time sensitive. Delays in customs clearance interrupt supply chains, increase operational costs, and reduce the competitiveness of firms participating in international markets. National performance indicators reveal persistent challenges within Ethiopia's customs system. Although reforms have been introduced to improve customs administration, import clearance processes remain lengthy and costly. According to the World Bank (2023), while the average import clearance time is approximately 13.8 days, the overall process, including documentation, inland transportation, and cargo release, can extend to nearly 27 days. Such delays increase demurrage charges, storage expenses, inventory holding costs, and uncertainty in delivery schedules, ultimately reducing the competitiveness of businesses engaged in international trade (Tadesse et al., 2022). These inefficiencies are particularly costly for a landlocked country because every additional delay along the logistics chain amplifies trade costs and weakens supply chain reliability.

Several operational factors within customs clearance systems contribute to these inefficiencies. Among these, transit procedures play a crucial role because Ethiopia relies heavily on international transit corridors for imports and exports. Inefficient transit procedures characterized by multiple inspections, excessive checkpoints, weak inter-agency coordination, and procedural redundancies can significantly prolong cargo movement, increase logistics uncertainty, and raise transportation

costs (Nitsche, 2021). Similarly, document declaration procedures influence customs performance because traders are required to submit, verify, and obtain approval for multiple trade documents. Excessive documentation requirements, repetitive submissions, and errors in document processing frequently create avoidable delays and increase administrative burdens, particularly in developing economies where customs processes remain fragmented (Hiraide et al., 2022)

Warehouse procedures also affect the overall performance of customs operations because goods often remain in customs-controlled facilities before final clearance and release. Poor warehouse coordination, cargo congestion, inadequate inventory management, and lengthy inspection processes can increase storage periods and operational costs, thereby reducing the reliability and predictability of trade operations (Sorescu & Bollig, 2022). In recent years, digital system utilization has emerged as another critical determinant of customs Performance. Digital technologies, including electronic customs declarations, automated risk management systems, and integrated information platforms, are intended to simplify procedures, improve transparency, strengthen information exchange, and enhance coordination among stakeholders. However, inadequate technological integration, limited system utilization, and operational challenges may reduce the effectiveness of these digital reforms (Duval et al., 2018). Since transit procedures, document declaration procedures, warehouse procedures, and digital system utilization are interdependent components of customs operations, inefficiencies in one dimension can negatively influence the performance of the entire customs clearance system and undermine broader trade facilitation objectives (Beverelli & Ticku, 2022).

Several studies have investigated customs performance and trade facilitation in Ethiopia and other developing countries. Tadesse et al. (2022) examined import-export logistics performance and identified persistent inefficiencies within logistics chains that contribute to increased trade costs and reduced supply chain reliability. Mulugeta (2019) emphasized challenges related to human resource capacity, inter-agency coordination, and institutional constraints affecting customs operations. Likewise, Fathima and Ahmed (2024) highlighted the importance of procedural simplification and digital transformation in improving customs performance and trade facilitation outcomes. While these studies provide valuable insights, important research gaps remain.

First, most previous studies have focused on customs performance at the national or general level without providing branch-specific empirical evidence from strategically important customs offices

such as the Adama Customs Commission Branch. Since customs branches may differ in terms of workload, infrastructure, staffing, and operational practices, national-level findings may not adequately capture local realities. Second, many studies have examined customs clearance as a single construct rather than disaggregating it into specific operational dimensions such as transit procedures, document declaration procedures, warehouse procedures, and digital system utilization. Consequently, limited evidence exists regarding the individual and combined effects of these factors on trade facilitation Performance. Third, much of the available evidence relies on earlier reform periods and may not adequately reflect the current operational environment characterized by increasing digital transformation and ongoing customs modernization efforts.

Therefore, there is a need for updated empirical evidence that simultaneously examines these key customs clearance procedures within a specific operational context. This study addressed these gaps by investigating the effects of transit procedures, document declaration procedures, warehouse procedures, and digital system utilization on trade facilitation performance at the Adama Customs Commission Branch.

1.3. Objective of the Study

1.3.1. General Objective

The main objective of the study is to explain the effect of customs clearance procedures on trade performance in the case of the Adama Customs Commission Branch.

1.3.2. Specific Objectives

1. To explain the effect of transit procedures on trade-facilitation Performance in the Adama Customs Commission Branch.
2. To examine how document-declaration procedures affect trade-facilitation performance in the Adama Customs Commission Branch.
3. To evaluate the effect of warehouse procedures on trade-facilitation performance in the Adama Customs Commission Branch
4. To evaluate the effect of digital system utilization on trade facilitation performance in the Adama Customs Commission Branch.

1.4. Research Hypotheses

H₀1: Transit procedures have no significant effect on trade facilitation performance at the Adama Customs Commission Branch.

H_a1: Transit procedures have a positive and significant effect on trade facilitation performance at the Adama Customs Commission Branch.

H₀2: Document declaration procedures have no significant effect on trade facilitation performance at the Adama Customs Commission Branch.

H_a2: Document declaration procedures have a positive and significant effect on trade facilitation performance at the Adama Customs Commission Branch.

H₀3: Warehouse procedures have no significant effect on trade facilitation performance at the Adama Customs Commission Branch.

H_a3: Warehouse procedures have a positive and significant effect on trade facilitation performance at the Adama Customs Commission Branch.

H₀4: Digital system utilization has no significant effect on trade facilitation performance at the Adama Customs Commission Branch.

H_a4: Digital system utilization has a positive and significant effect on trade facilitation performance at the Adama Customs Commission Branch.

1.5. Significance of the Study

This study contributes to both academic scholarship and practical improvements in customs administration and trade facilitation. Its significance can be viewed from multiple perspectives. For the researcher, the present study constitutes a substantial academic achievement, fulfilling partial requirements for the Master of Arts degree in Logistics and Supply Chain Management. It has afforded an opportunity to rigorously apply quantitative research methods, statistical analysis, and theoretical frameworks to a real-world policy issue, thereby enhancing the researcher's analytical and scholarly competencies in the domain of international trade logistics.

For the Adama Customs Commission Branch and the Ethiopian Customs Commission more broadly, the findings provide actionable, branch-level empirical evidence on the relative

contributions of key customs clearance procedures to trade facilitation performance. By highlighting the dominant role of digital system utilization and the complementary effects of transit, document declaration, and warehouse procedures, the study offers a clear basis for targeted operational reforms, staff capacity development, and resource allocation. Such improvements are expected to reduce clearance delays, lower transaction costs, strengthen compliance, and ultimately enhance the branch's contribution to national trade competitiveness.

For future researchers, this study offers a robust conceptual and methodological foundation. The developed framework, validated measurement scales, and application of multiple linear regression in the Ethiopian customs context can be replicated, extended, or adapted to other regional branches or comparative settings. Furthermore, the study identifies several promising avenues for further inquiry, including mixed-methods designs, longitudinal assessments, and the integration of emerging technologies such as blockchain and artificial intelligence.

For policymakers and regulatory authorities, the research supplies evidence-based insights to inform ongoing customs modernization initiatives aligned with the WTO Trade Facilitation Agreement and Ethiopia's national development priorities. The results underscore the necessity of holistic rather than fragmented reforms and can guide strategic decisions concerning digital infrastructure investment, procedural harmonization, inter-agency collaboration, and performance monitoring at both branch and national levels.

1.6. Scope of the Study

The study focused on investigating customs clearance procedures and their influence on trade facilitation performance at the Adama Customs Commission Branch, an important node in Ethiopia's import and export network. Specifically, it examined four key components of the clearance process: transit procedures, document-declaration processes, warehouse operations, and the utilization of digital systems. This focus allowed the study to identify procedural bottlenecks and assess their impact on clearance time and operational Performance.

Geographically, the study was limited to the Adama Customs Commission Branch to allow for a detailed branch-specific investigation, although the findings may still offer useful insights for similar regional customs offices in Ethiopia. Methodologically, the study employed a quantitative

research approach using an explanatory research design to examine the causal relationship between customs clearance procedures and trade facilitation Performance.

The study was further delimited to procedural and operational factors affecting customs clearance Performance, while broader issues such as international trade policies, global market fluctuations, and national-level trade performance indicators were only considered where they were directly relevant. By clearly defining these boundaries, the study maintained a focused and feasible scope while generating evidence-based insights for improving customs clearance performance and trade facilitation at the branch level.

1.7. Limitations of the Study

Like any empirical research, this study has certain limitations that should be acknowledged. First, the study is confined to a single customs branch, the Adama Customs Commission Branch. While this focus enabled a detailed branch-level investigation, the findings may not be fully generalizable to other customs branches in Ethiopia that may differ in terms of infrastructure, staffing levels, workload, or technological maturity.

Second, the research relied exclusively on primary data gathered through self-administered structured questionnaires from customs employees. Although this approach aligned well with the explanatory research design, it is subject to potential common method bias and social desirability bias. Respondents' perceptions may not always correspond precisely with actual operational practices.

Third, the study captured only the perspectives of internal customs staff. The views of external stakeholders such as importers, exporters, clearing agents, and transit operators were not included. Future research incorporating these additional perspectives could offer a more holistic understanding of trade facilitation performance.

Despite these limitations, the study provides valuable context-specific insights into customs clearance procedures at a strategically important trade corridor. The adoption of rigorous methodological procedures including stratified random sampling, instrument pre-testing, reliability testing, and comprehensive regression diagnostics strengthens the credibility and practical relevance of the findings.

1.8. Definition of Key Terms

Customs Clearance Procedures: A series of processes and formalities that imported or exported goods must undergo at a customs office, including document verification, inspection, warehousing, and payment of duties, to ensure compliance with regulatory requirements.

Trade Facilitation Performance: The extent to which customs and border procedures enable the smooth, timely, and cost-effective movement of goods across borders, minimizing delays, operational bottlenecks, and unnecessary costs.

Transit Procedures: The rules and processes governing the movement of goods through customs checkpoints and between countries, including the management of transit documents, permits, and risk assessments, before final clearance.

Document-Declaration Processes: The preparation, submission, and verification of all required documentation by importers, exporters, and customs officials to ensure that goods comply with legal, fiscal, and regulatory requirements.

Warehouse Operations: The management of storage facilities, including the reception, holding, inspection, and release of goods at customs warehouses, which can influence clearance time and trade Performance.

Digital System Utilization: The adoption and application of information and communication technologies, such as the Electronic Single Window (eSW) and Electronic Data Interchange (EDI), to facilitate customs procedures, reduce manual processes, and enhance operational transparency and Performance.

Adama Customs Commission Branch: A regional branch of the Ethiopian Customs Commission located in Adama, responsible for managing import and export operations within its jurisdiction, including clearance procedures, compliance enforcement, and trade facilitation activities.

1.9. Organization of the Paper

This study is organized into five main sections to provide a clear and systematic presentation of the research. The first section introduces the study by presenting the background, statement of the problem, research objectives, research questions, significance, scope, and limitations. It also defines key terms and outlines the overall structure of the proposal.

The second section provides a comprehensive review of theoretical and empirical literature related to customs clearance procedures and trade facilitation Performance. It examines global and national perspectives, highlight the key factors affecting clearance performance, and identify the research gaps that this study addresses. The third section describes the research methodology to be employed, including the research design, population and sampling techniques, data collection methods, and analytical procedures. It also discusses the validity and reliability of the instruments, as well as the ethical considerations relevant to the study.

The fourth section presents and analyzes the findings of the study, focusing on the effects of transit procedures, document-declaration processes, warehouse operations, and digital system utilization on trade facilitation performance at the Adama Customs Commission Branch. The results are interpreted in relation to the research objectives and relevant literature.

The final section summarizes the key findings, draw conclusions based on the analysis, and provide recommendations for operational improvements, future research, and potential inputs for policymakers. This structure ensures a logical progression from problem identification to analysis and recommendations, facilitating a comprehensive understanding of the proposed study.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.1. Introduction

This chapter presents a comprehensive review of the literature relevant to the study on the effect of customs clearance procedures on trade facilitation performance at the Adama Customs Commission Branch. The purpose of this literature review is to provide a clear understanding of the concepts, theoretical frameworks, and empirical findings associated with trade facilitation and customs processes. A well-structured review situates the current study within the broader academic discourse, identifies gaps and inconsistencies, and justifies the need for the present research. The chapter is organized into five main sections: the conceptual review, the theoretical literature review, the empirical literature review, the research gap, and the conceptual framework of the study. The conceptual review discusses key concepts such as trade facilitation and customs clearance procedures, while the theoretical review examines the frameworks that reinforce the relationships between these variables. The empirical review assesses prior research and emphasizes results pertinent to the Ethiopian context. Finally, the research gap and conceptual framework provide the rationale and structure for the present study.

2.2. Conceptual Review

A conceptual review is essential for identifying and clarifying the principal constructs of a study (Polites et al., 2012). This research focuses on understanding what trade facilitation means, how customs clearance procedures are defined and categorized, and how the components of these procedures affect trade Performance. Trade facilitation is a broad concept that encompasses policy reforms, institutional practices, and technological adoption, while customs clearance procedures represent the practical mechanisms through which facilitation is implemented (Grainger, 2008). This review integrates perspectives from economics, international trade policy, logistics, and public administration, thereby strengthening the analytical foundation of the study. By examining these concepts in detail, the review ensures that the research is grounded in a coherent understanding of trade processes and their implications for Performance. Comparative insights from international and regional literature enhance the relevance of the study by highlighting how customs procedures and trade facilitation are operationalized in different contexts.

2.2.1. Trade Facilitation

Trade facilitation is recognized as a key determinant of trade performance and economic growth. It is defined by the World Trade Organization as the simplification, harmonization, and modernization of trade procedures to reduce the time and cost of international trade while ensuring compliance with regulatory requirements and security standards (WTO, 2025). Efficient trade facilitation enhances transparency and predictability, which in turn strengthens the reliability of supply chains and supports economic competitiveness. Trade facilitation encompasses a range of measures, including simplified customs operations, electronic submission of documents, risk-based inspections, and automated processing of trade information (Fontagné et al., 2016). The concept underscores that procedural performance at borders is not a technical adjustment but a strategic instrument for integrating national economies into global trade networks (Moïsé & Sorescu, 2013).

Research demonstrates that trade facilitation has measurable positive effects on trade Performance. According to the Organization for Economic Co-operation and Development (OECD), countries that implement procedural reforms experience reduced clearance times, lower trade costs, and improved competitiveness, especially in developing economies where administrative bottlenecks are more pronounced (OECD, 2025b). Studies on African economies show that reductions in time to export, costs to export, and documentation requirements correlate with increased intra-regional trade volumes and higher overall trade Performance (Sakyi & Afesorgbor, 2019b). Similarly, global research indicates that streamlined procedures facilitate bilateral trade, particularly for non-OECD countries participating in global value chains, where performance gains are more significant (Guedidi et al., 2024).

Trade facilitation extends beyond procedural improvements to broader economic benefits, including enhanced investment, export diversification, and deeper integration of developing economies into global value chains. In the Economic Community of West African States (ECOWAS), reforms reducing compliance costs have yielded substantial regional welfare gains through lower trade costs and improved market access (Safaeimanesh & Jenkins, 2020).

2.2.2. Trade Facilitation Performance

Trade facilitation performance refers to the capacity of customs and border management systems to process cross-border transactions in a manner that minimizes time, cost, and uncertainty while maintaining regulatory compliance. It is a performance-oriented construct that focuses specifically on how well existing systems and procedures deliver measurable outcomes for traders and regulatory authorities (OECD, 2025a). Progress on trade facilitation performance is occurring across all country income groups and regions as countries seek to ensure that global supply chains remain efficient, adaptable, and responsive to evolving patterns of trade, with low-income economies making notable strides particularly in the areas of transparency, predictability, and streamlining of border processes (OECD, 2025a). The literature identifies four primary indicators through which trade facilitation performance is conceptualized and measured.

First, clearance time refers to the total time elapsed from the submission of customs documentation to the physical release of goods and is widely regarded as the most direct measure of procedural performance. Evidence from the World Bank Trade Facilitation Support Program demonstrates that sustained procedural reforms have yielded a 21 percent reduction in the time required to comply with import and export clearance requirements across 58 countries, confirming that clearance time is highly responsive to targeted procedural interventions (Hassan, 2020). Shorter clearance times reduce inventory holding costs, improve supply chain reliability, and enhance the competitiveness of trading firms particularly in time-sensitive sectors. Second, procedural costs encompass the direct and indirect expenses incurred by traders in complying with customs requirements, including documentation fees, inspection charges, storage costs, and compliance-related expenditures. High procedural costs function as implicit trade barriers that disproportionately affect small and medium enterprises with limited administrative. Evidence from the Asia-Pacific region confirms that advancing digital trade facilitation reduces compliance costs and reverses the trend of escalating trade costs through enhanced performance achieved by streamlined procedures (Jain & Sen, 2026). Third, predictability refers to the consistency and reliability of customs processing times and outcomes across transactions. (Clark & Bernard, 2022) define predictability as the degree to which information on customs and border formalities, rights, and obligations is available in advance to all stakeholders, and argue that unpredictable clearance processes increase uncertainty in supply chain planning, raise inventory buffers, and discourage

trade participation particularly among new exporters. Fourth, compliance rates measure the degree to which traders and customs officials adhere to established regulatory requirements and procedural standards. Technology-centric and data-driven risk management has emerged as the dominant approach for balancing high compliance rates with enhanced trade facilitation performance, as administrations that deploy advanced analytics and automated risk profiling achieve measurable improvements in detecting non-compliant shipments while simultaneously accelerating clearance of low-risk consignments (Tabassum, 2025).

These four indicators are interrelated and collectively determine the overall performance of a customs system. Improvements in clearance time are often contingent on reductions in procedural costs and enhanced predictability, while high compliance rates reduce the need for intensive physical inspections that slow clearance. Understanding trade facilitation performance through these four indicators provides the analytical basis for assessing how customs clearance procedures at the Adama Customs Commission Branch affect trade facilitation performance.

2.2.3. Customs Clearance Procedures

Customs clearance procedures comprise several interrelated components that collectively determine the performance and effectiveness of trade facilitation (McInden et al., 2010). These factors play a key role in determining how long cross-border transactions take, how much they cost, and how predictable they are (Wulf & Sokol, 2005). The literature consistently identifies four primary components of customs clearance: transit procedures, document declaration procedures, warehouse procedures, and digital system utilization (Clark & Bernard, 2022; WCO, 2018). Each of these elements plays a distinct role in facilitating trade and ensuring compliance with regulatory requirements. Therefore, understanding these components individually and collectively is crucial for assessing the overall performance of customs systems and their impact on trade Performance.

2.2.3.1. Transit Procedures

Transit procedures involve the movement of goods under customs supervision from one point to another, often across multiple jurisdictions. Effective transit procedures are conceptually designed to allow goods to move swiftly while ensuring that duties and taxes are accounted for and that goods are not diverted to unauthorized markets (WCO, 2014). Inefficient transit procedures, including excessive inspections and documentation requirements, can lead to significant delays

and increase logistics costs (Arvis et al., 2010). Delays at border crossings due to cumbersome transit procedures are a barrier to intra-regional trade, potentially reducing competitiveness for exporting firms (Barka, 2012). Conversely, streamlined transit procedures, often supported by electronic tracking systems and risk-based inspections, enhance trade facilitation by reducing clearance time and improving reliability (WTO, 2015).

2.2.3.2. Document Declaration

Document declaration procedures encompass all administrative requirements for submitting trade documentation to customs authorities. This includes invoices, packing lists, certificates of origin, and other regulatory documents (WCO, 2018, 2023). Documentation processes are a major source of delays in customs clearance, particularly in developing countries where manual processing and verification remain common, with each additional day of delay reducing trade by at least 1% (Djankov et al., 2010). Simplifying document requirements, standardizing forms, and adopting electronic submission systems are recognized as critical interventions for improving Performance(WTO, 2015). Evidence from Ethiopia and neighboring countries indicates that when document declaration procedures are digitized and integrated into single-window platforms, traders experience reduced errors, faster processing, and improved predictability, which collectively enhance trade facilitation outcomes (World Bank, 2020).

2.2.3.3. Warehouse Procedures

It refers to the management and control of goods within customs-controlled storage facilities prior to final clearance. Proper warehouse management ensures that goods are safely stored, properly documented, and efficiently released to the importer or exporter upon compliance verification (WCO, 1999). Delays in warehouse procedures, such as slow inspection or poor coordination among storage facilities, can substantially affect overall clearance times and increase holding costs. Enhancing warehouse operations with technology-based inventory tracking, standardized procedures, and one-stop border facilities can substantially improve trade performance by cutting border crossing times and lowering transportation costs (Mendez Parra & Calabrese, 2023). Warehouse procedures therefore serve as a critical link between the administrative and physical aspects of customs clearance.

2.2.3.4. Digital System Utilization

Digital system utilization is increasingly recognized as a transformative component of customs clearance procedures. This involves the adoption of electronic systems for documentation, risk management, and overall transaction monitoring (WTO, 2015). Single-window platforms, electronic customs declarations, and automated risk assessment systems streamline the interaction between traders and customs authorities, reducing the need for physical document submission and manual inspections (Choi, 2011). Digital system adoption leads to significant reductions in processing time, errors, and compliance costs, ultimately facilitating faster and more reliable trade (Milner et al., 2008). Moreover, integrating digital systems with other components of customs procedures produces synergistic effects that further enhance overall trade facilitation Performance (Atkinson, 2020).

2.2.4. Customs Clearance Procedures Practice in Ethiopia

Ethiopia's customs clearance system operates under the mandate of the Ethiopian Customs Commission, which is responsible for implementing trade policies, collecting duties and taxes, and facilitating the movement of goods across borders in accordance with national and international regulatory frameworks. As a landlocked country, Ethiopia depends on the Djibouti corridor for more than 90 percent of its import and export cargo, making the performance of customs clearance procedures especially consequential for overall trade performance (Chilunjika, 2026). The Ethiopia-Djibouti corridor stretches approximately 900 kilometers from the Red Sea to the Ethiopian highlands, and procedural delays at checkpoints along this route directly translate into higher logistics costs, reduced supply chain reliability, and weakened competitiveness for Ethiopian exporters and importers (Chilunjika, 2026). Trucks along the corridor average only 2.5 trips per month against a target of six, a performance gap driven significantly by poor coordination, bottlenecks in transit procedures, and mismatched operating hours at border crossings rather than infrastructure constraints alone.

In terms of transit procedures, Ethiopia has faced persistent challenges related to multiple inspections, weak inter-agency coordination, and limited application of risk-based controls. A WCO field study conducted at Ethiopian border posts confirmed that bureaucratic hurdles and inconsistent procedural application significantly extend customs clearance times and create unpredictability for traders (Demeke, 2025). The study further identified a lack of clear

communication between customs and other border agencies as a systemic barrier to procedural performance, reinforcing that coordination failures rather than physical infrastructure are the primary source of transit delays (Demeke, 2025).

Regarding document declaration, empirical evidence confirms that paper-based processes remain prevalent in Ethiopia's customs operations and are a major source of clearance delay. A study examining export trade facilitation practices in Ethiopia found that paper-based declaration processes are time-consuming and that the lack of coordination between the business sector and trade-facilitating government entities makes document processing complicated and slow, contributing directly to export clearance delays (Mohammed, 2022). At the branch level, a study at the Addis Ababa Kality Customs Branch Office found that the automation system is underutilized due to inadequate training, insufficient ICT infrastructure, and frequent network failures, resulting in inconsistent clearance performance and increased compliance burdens for traders (Sintayehu, 2023).

Warehouse procedures in Ethiopia are characterized by capacity constraints, slow inspection processes, and poor coordination between storage facilities and customs clearance units. A study examining customs import procedures at the One Stop Border Post in Ethiopia identified warehouse-related bottlenecks, including delays in cargo handling and storage coordination, as recurring contributors to prolonged clearance times that undermine overall trade facilitation performance (Roba, 2025). These findings confirm that warehouse inefficiencies compound the procedural delays arising from documentation and transit challenges, creating cumulative clearance time costs for traders.

Digital system utilization has become a central pillar of Ethiopia's customs modernization strategy, with progressive expansion of electronic platforms and risk management systems aimed at reducing manual processing and improving transparency. However, empirical evidence consistently shows that performance gains from digitalization are constrained by human capacity limitations. Sintayehu (2023) found that risk management practices at Ethiopian customs branches are hindered by a lack of efficient information flow and an outdated risk profile database, while Demeke (2025)'s field observations confirmed that digital tools introduced to streamline border procedures were undermined by unclear responsibilities and inadequate inter-departmental communication.

2.3. Theoretical Review

This section examines the major theories that provide a conceptual foundation for understanding how customs clearance procedures influence trade facilitation Performance, specifically in the context of the Adama Customs Commission Branch. This study integrates multiple theories to explain both procedural and behavioral factors that determine how customs systems affect the performance of cross-border trade operations.

2.3.1. Trade Facilitation Theory

Trade Facilitation Theory emphasizes the importance of simplifying, harmonizing, and modernizing trade procedures to reduce administrative burdens and trade costs. According to international organizations such as the World Trade Organization (WTO) and the Organization for Economic Co-operation and Development (OECD), efficient border procedures enhance transparency, reduce delays, and improve firms' responsiveness in global value chains, which lowers operational costs and contributes to trade facilitation outcomes. Simplification and standardization of customs documentation and processes minimize procedural obstacles and thus facilitate smoother movement of goods across borders (Engman, 2005).

This theoretical perspective is central to understanding how customs procedures can be redesigned to improve Performance. Trade facilitation is not merely about procedural change but about institutional reform that aligns practices with international best standards aimed at reducing transaction costs and trade delays.

2.3.2. Transaction Cost Theory

Transaction Cost Theory, introduced by Coase (1993) and elaborated by Williamson (1979), focuses on the costs associated with economic exchanges, including information search, negotiation, monitoring, and enforcement. In the context of customs procedures, transaction costs manifest as time delays, administrative hurdles, uncertainty, and additional expenses incurred by traders and customs authorities. Complex and unpredictable customs processes increase the costs of compliance and compliance risks. Improving procedural design and integrating digital systems reduces transaction costs by eliminating inefficiencies and redundancies, thereby enhancing trade facilitation Performance. Reductions in transaction costs lead to faster clearance times and lower indirect costs, improving trade outcomes.

2.3.3. Institutional Theory

Institutional Theory explains how formal structures, norms, regulations, and governance arrangements influence organizational behaviors and outcomes. New institutionalism posits that institutional environments, rules, regulations, and cultural norms, shape how organizations adopt practices and technologies (Powell & DiMaggio, 2012). In customs contexts, institutional structures determine the design, implementation, and enforcement of clearance procedures, affecting both performance and compliance. Institutional constraints such as conflicting regulatory mandates, bureaucratic inertia, and lack of harmonization among agencies can impede effective customs reforms. Institutional Theory helps explain why some procedural changes are slow to implement and why compliance may vary across stakeholders.

2.3.4. Technology Acceptance Model (TAM) and UTAUT

The Technology Acceptance Model (TAM) developed by Davis (1989) explains how individuals come to accept and use technology, focusing on perceived usefulness and perceived ease of use. TAM has been widely applied to studies investigating adoption of digital customs systems, showing that acceptance of customs automation tools, such as electronic declarations, single window systems, or integrated management systems, depends largely on users' perceptions of these technologies' benefits and ease. The Unified Theory of Acceptance and Use of Technology (UTAUT) extend TAM by incorporating social influence and facilitating conditions, offering a broader understanding of adoption behavior. UTAUT constructs help explain variations in technology uptake among customs officers, traders, and stakeholders, which directly influences trade facilitation Performance.

2.3.5. Theory of Constraints

The Theory of Constraints (TOC), developed by Goldratt, asserts that any process contains a limiting factor, a constraint, that determines the system's overall performance. TOC focuses on identifying bottlenecks and prioritizing improvement efforts to enhance throughput. In customs contexts, bottlenecks may include inefficient documentation checks, manual processing steps, or system interoperability issues. TOC emphasizes the importance of focusing reform efforts on critical procedural barriers to improve trade facilitation outcomes (McMullen Jr, 1998).

2.3.6. Systems Theory

Systems Theory views organizations and processes as interconnected elements within a larger system. In the context of customs operations, Systems Theory suggests that changes in one procedural area (e.g., documentation or digital clearance) influences other parts of the trade process (e.g., warehousing, transit operations, interagency cooperation). Understanding customs procedures as parts of an integrated system emphasizes the importance of holistic reforms rather than isolated improvements (Whitchurch & Constantine, 1993).

2.4. Theoretical Framework

From the reviewed theoretical literature, Trade Facilitation Theory and Transaction Cost Theory are selected to guide this study. These theories provide a conceptual foundation for examining how customs clearance procedures influence trade facilitation performance at the Adama Customs Commission Branch.

Trade Facilitation Theory emphasizes that efficient trade flows depend on institutional arrangements and well-designed customs procedures. Simplification, standardization, and harmonization reduce administrative obstacles, enhance predictability and transparency, and improve the capacity of traders and regulatory authorities to conduct transactions efficiently. Efficient trade facilitation involves coordinated transit operations, document-declaration systems, warehousing processes, and the adoption of digital systems to streamline interactions between traders and customs authorities (Engman, 2005).

Transaction Cost Theory complements this by focusing on the economic costs of transactions, including time, administrative burdens, and uncertainty. Inefficient customs procedures, complex documentation, and limited use of digital systems increase transaction costs. Procedural improvements and adoption of digital systems reduce redundancy, enhance information availability, and improve predictability, thereby promoting trade Performance (Coase, 1993; Williamson, 1979).

By applying these two theories, this study is supported by a framework that explains both the procedural design (Trade Facilitation Theory) and economic rationale (Transaction Cost Theory) of customs clearance reforms, providing a clear conceptual lens for analyzing trade facilitation Performance.

2.5. Empirical Literature Review

Empirical literature provides evidence-based insights into how customs clearance procedures influence trade facilitation Performance. This section examines the role of transit procedures, document declaration procedures, warehouse operations, and digital system utilization in enhancing trade Performance, drawing on international, regional, and Ethiopian contexts to provide a comprehensive understanding.

2.5.1. Transit Procedures and Trade Facilitation Performance

Transit procedures encompass the customs-controlled administrative, regulatory, and operational processes governing the movement of goods from the point of entry to their final destination. Empirical literature consistently demonstrates that the performance of these procedures is a decisive determinant of trade facilitation outcomes, particularly in developing and landlocked economies where goods must traverse long transit corridors under multiple layers of customs supervision (Arvis, 2011). Studies further emphasize that transit procedures affect trade not only through direct clearance time but also through uncertainty, variability, and compliance costs, which undermine supply chain reliability and increase effective trade costs (Carballo et al., 2024; Djankov et al., 2010). Using cross-country panel data, Djankov et al. (2010) noted that each additional day of delay associated with transit and border procedures significantly reduces trade volumes, with stronger effects observed in low-income countries. Their findings confirmed that administrative delays embedded within transit regimes operate as implicit trade barriers, often exerting a greater restrictive effect on trade flows than tariffs, thereby laying the empirical foundation for later trade facilitation research.

Building on this foundational relationship, subsequent empirical studies adopted more refined methodologies to isolate the impact of transit procedures on trade costs and competitiveness. Using gravity models combined with logistics and customs performance indicators, Portugal-Perez and Wilson (2012) demonstrated that inefficiencies in transit procedures significantly increase trade costs and reduce export performance in developing countries. Their empirical analysis showed that delays associated with customs transit, documentation, and inspections had a stronger negative effect on exports than physical distance or tariff levels. Similarly, Hoekman and Nicita (2011) analyzed bilateral trade data alongside customs performance measures and found that

improvements in transit-related procedures, particularly those reducing clearance requirements and inspection frequency, were associated with higher export volumes and lower overall trade costs. More recently, Carballo et al. (2024), using transaction-level customs data, empirically confirmed that delays and uncertainty in border and transit procedures significantly reduce firms' trade participation, particularly for time-sensitive goods. Collectively, these studies provide robust empirical evidence that transit procedures are central determinants of trade facilitation Performance rather than peripheral administrative processes.

Corridor-level empirical investigations further deepen understanding of how transit procedures operate in practice. Through time-release studies and direct field observations along major African transport corridors, Raballand et al. (2008) empirically demonstrated that transit delays were driven primarily by procedural inefficiencies rather than infrastructural constraints. Their findings revealed that multiple inspections, repetitive controls, and weak coordination among customs and border agencies resulted in trucks spending a substantial proportion of transit time stationary at checkpoints, significantly increasing logistics costs and shipment unpredictability.

Complementing this evidence, Arvis (2011) analyzed transit performance in landlocked developing countries using corridor-level data and logistics indicators and found that simplified transit regimes and coordinated border management systems led to shorter and more predictable transit times. More recent empirical corridor studies confirm that procedural harmonization and reduction of redundant controls significantly improve transit Performance and corridor reliability (De Melo et al., 2025; Fernandes et al., 2016).

Additional empirical studies offer deeper insight into the distributional effects of transit inefficiencies. Using detailed shipment-tracking, Siqueira examined cargo movement through African ports and transit corridors and found that discretionary inspections and administrative delays significantly increased both official and unofficial costs for traders. Their empirical results showed that small and medium-sized enterprises were disproportionately affected by inefficient transit procedures due to their limited capacity to absorb delays or navigate complex administrative requirements. Similar firm-level evidence from customs transaction datasets demonstrates that transit delays reduce firms' probability of exporting and increase inventory and compliance costs, particularly for smaller firms and new exporters (Carballo et al., 2024). These findings empirically

confirm that inefficient transit procedures not only hinder aggregate trade performance but also exacerbate inequalities among traders.

More recent empirical research continues to confirm the trade-enhancing effects of transit procedure reforms. Employing gravity modeling techniques, Zaki (2015) found that reductions in transit documentation requirements and border compliance time had a statistically significant positive impact on export performance, with stronger effects observed in developing economies. Extending this evidence, De Melo et al. (2025) empirically demonstrated that improvements in border agency cooperation and transit-related trade facilitation measures significantly reduce clearance time and increase export growth, particularly in countries with initially weak customs performance. Their results confirm that procedural reforms yield larger trade gains than tariff reductions in high-friction trade environments. Panel-data analyses of customs modernization initiatives in Sub-Saharan Africa further show that coordinated border management and electronic transit monitoring systems significantly reduce clearance times and improve shipment predictability (Beverelli et al., 2015; Fernandes et al., 2016).

Empirical evidence from landlocked and transit-dependent countries, including Ethiopia, aligns closely with these broader findings. Studies analyzing customs clearance data and corridor performance indicate that transit delays are frequently linked to procedural complexity, limited application of risk-based controls, and weak inter-agency coordination (Arvis, 2011; De Melo et al., 2025). Empirical findings further demonstrate that reforms focusing on documentation simplification, reduced physical inspections, and improved coordination among border agencies contribute to measurable reductions in transit time and logistics uncertainty, particularly in landlocked economies where transit dependence amplifies the economic cost of delays (Fernandes et al., 2016; Portugal-Perez & Wilson, 2012). Given Ethiopia's reliance on transit corridors for international trade, inefficiencies in transit procedures exert a magnified impact on trade facilitation Performance, reinforcing the empirical case for sustained procedural reform.

2.5.2. Document Declaration Procedures and Trade Facilitation Performance

Document declaration procedures involve the submission, verification, and processing of trade-related paperwork required for customs clearance. A substantial body of empirical research demonstrates that the performance of these procedures significantly influences clearance time, administrative cost burdens, and overall trade facilitation performance. Cross-country studies

employing gravity models and logistics indicators consistently show that countries with simplified documentation systems experience higher levels of trade activity and lower clearance times. For example, Djankov et al. (2010) used panel data across a large group of countries and found that each additional required document was associated with lower trade volumes, indicating that complex document requirements act as implicit barriers to trade. Similarly, Limao and Venables (2001) applied panel analysis and customs effectiveness indices for over one hundred countries and found that harmonized documentation procedures and electronic submission systems are associated with lower transaction costs and increased export participation among developing economies. These empirical findings provide robust evidence that efficient document declaration procedures are central to improving trade facilitation outcomes.

Firm-level studies provide further evidence that document declaration procedures matter for trade outcomes at the micro scale. Using detailed customs transaction records for Chilean imports, Martincus et al. (2015) found that delays attributed to documentation errors and manual submission processes materially reduce the probability that firms clear goods within expected time frames. Their empirical model showed that compliance cost differentials associated with documentation were larger for smaller firms than for larger firms, a result that is consistent with the earlier findings of Fontagné et al. (2020). Fontagne and Orefice used firm survey data to show that complex documentation requirements impose greater burdens on small and medium enterprises because these firms have limited administrative capacity to manage compliance. Together these studies provide strong evidence that inefficient document declaration procedures impose unequal burdens on firms and reduce their competitiveness in international markets.

Researches conducted in Africa confirms the negative effects of ineffective document declaration procedures on trade facilitation Performance. Akodia et al. (2024) examined customs clearance time data in Ghana before and after implementation of an electronic single window system and found that average clearance times for import and export shipments declined substantially following the introduction of the new system. Their statistical analysis revealed greater improvements for shipments that required approvals from multiple government agencies, indicating that electronic integration can reduce coordination failures among institutions. Empirical work by Hiraide et al. (2022) used panel data from members of the Southern African Customs Union to show that harmonized documentation procedures and automated declaration

systems are linked to lower variance in clearance times, which is an important indicator of predictability for traders.

Empirical research focused on landlocked and transit-dependent countries highlights the interaction between document declaration procedures and overall logistics performance. Hiraide et al. (2022) applied structural gravity models to bilateral trade flows for landlocked African economies and found that each additional required document for customs clearance is associated with a statistically significant reduction in trade flows, after controlling for tariffs and distance. Their analysis also showed that improvements in electronic documentation and data sharing mitigate the negative effects of documentary requirements, particularly for goods that are sensitive to time in transit. These findings underscore the importance of efficient documentation for maintaining trade competitiveness in contexts where transit delays are costly.

2.5.3. Warehouse Procedures and Trade Facilitation Performance

Warehouse procedures involve the management of goods prior to customs clearance, including storage, handling, and internal movement within facilities. Empirical research shows that warehouse operations are a core element of logistics performance, which influences trade facilitation outcomes. For example, Tadesse et al. (2022) identify order lead time and other warehouse performance indicators as key components of import-export logistics chains in Ethiopia, demonstrating that efficient warehouse procedures improve overall logistics Performance. Evidence from Wang et al. (2024) indicates that higher logistics performance, which includes warehouse functions, is significantly associated with increased import and export trade flows. These findings suggest that effective warehouse operations play an essential role in reducing trade costs and delays and supporting smoother international trade.

Empirical research using gravity models confirms the centrality of operational logistics, including warehouse procedures, to trade flows. Hoekman and Nicita (2011) demonstrated that logistics Performance, which captures internal handling and storage processes, is positively associated with bilateral trade intensity. Their findings indicate that improvements in operational practices within warehouses, such as timeliness of cargo handling and proper inventory management, reduce indirect trade costs, improve predictability of shipment delivery, and encourage greater participation in international markets. In developing countries, where infrastructure and institutional capacity are often constrained, these operational improvements have even greater

marginal benefits. For instance, Shikur (2022) employed pooled regression analysis in a sample of low-income and developing countries and found that logistics timeliness, reflecting efficient handling of goods through storage and internal transport nodes, is strongly correlated with higher export and import values. This indicates that effective warehouse procedures embedded within logistics systems play a measurable role in facilitating trade.

Firm-level studies provide further evidence that warehouse management practices directly affect operational performance and indirectly influence trade performance. Mwizerwa and Akumuntu (2024) studied material handling, inventory control, and throughput planning in manufacturing and found that improvements in these areas significantly increased operational performance, including order fulfillment and delivery reliability. Efficient warehouse operations reduce the time goods spend in storage and facilitate faster processing through customs and logistics networks. These findings align with studies of port operations, which demonstrate that delays in warehouse handling and storage processes increase transaction costs and reduce throughput. Chadenyile and Kasembe (2025) reported that at Dar es Salaam Port, cargo handling inefficiencies, including delays in material movement and storage, resulted in higher logistics costs and longer clearance times, which can discourage trade and reduce competitiveness.

Regional empirical studies in Africa highlight the critical role of warehouse and customs procedural performance in facilitating trade. Hanaoka et al. (2019) examined the Northern and Central Corridors, linking the Port of Mombasa to inland markets in Kenya, Uganda, and Rwanda, and found that manual document handling, sequential clearance processes, and fragmented coordination among stakeholders significantly increase cargo dwell times and delays in customs clearance. Supporting this, Sakyi and Afesorgbor (2019a) used a structural gravity model for 52 African countries and showed that procedural bottlenecks and ineffective trade facilitation substantially reduce trade performance. Further, an empirical study of the Malaba-Busia and Taveta-Holili one-stop border posts demonstrated that coordinated and streamlined customs operations improve cross-border logistics performance, indicating that operational improvements in handling and warehouse processes can reduce delays and enhance trade Performance(Jonath et al., 2024).

These findings align with evidence from landlocked developing countries, where coordinated management of storage, handling, and inspection operations has been shown to accelerate transit times and increase predictability for shipments (Tadesse et al., 2022).

2.5.4. Digital System Utilization and Trade Facilitation Performance

Digital system utilization in customs and border procedures involves deploying electronic platforms, automated processing systems, and integrated information technologies to manage trade documentation, coordinate multiple agencies, and facilitate risk profiling. Research in Ethiopia indicates that implementing digital systems can increase transparency in administrative procedures, reduce redundant work, and accelerate the approval process (C. S. Demeke, 2025; Jaleta & Tulu, 2023). Rather than merely digitizing paperwork, these systems restructure procedural workflows, enabling real-time data sharing and verification across agencies. By automating documentation, providing pre-arrival processing, and integrating risk assessment tools, digital platforms reduce human error and enhance the predictability and reliability of customs operations (Bueno Rezende de Castro & Kornher, 2023).

In Kenya, Jedidah et al. (2025) used a quantitative approach to evaluate single window systems and integrated customs platforms, finding that their adoption significantly reduced cargo dwell times and improved overall operational performance. Likewise, evidence from the region indicates that moving to electronic documentation and paperless trade can cut bureaucratic delays and lower operational costs, which is especially helpful for small and medium enterprises (Sakyi & Afesorgbor, 2019a). The convergence of these findings indicates that digitalization not only accelerates customs processes but also systematically addresses procedural bottlenecks that hinder trade performance.

Ethiopian-specific empirical studies reinforce these conclusions. C. S. Demeke (2025) observed that blockchain-based cargo tracking, IoT-enabled monitoring, and AI-assisted risk profiling enhance supply chain visibility, facilitate early error detection, and optimize inspection prioritization. Jaleta and Tulu (2023) further demonstrate that system effectiveness is heavily mediated by human and institutional factors, such as digital literacy, training, and perceptions of usefulness. Their study shows that clearance times and procedural accuracy improve markedly when customs personnel are competent and confident in using digital tools. Together, these studies

reveal that digital adoption is contingent on both technological infrastructure and human capacity, highlighting the importance of comprehensive implementation strategies.

Beyond operational Performance, digital platforms contribute significantly to multi-agency coordination and compliance monitoring. By consolidating access to a single set of trade documents, interoperable systems reduce redundant inspections and administrative burden, streamlining cross-border procedures (C. S. Demeke, 2025; Jaleta & Tulu, 2023). This coordination is critical in landlocked or transit-dependent economies, where delays amplify trade costs. Comparative studies in Sub-Saharan Africa show that integrated digital customs systems reduce variance in clearance times, improve predictability, and enhance compliance outcomes (Bueno Rezende de Castro & Kornher, 2023). These studies collectively indicate that digitalization strengthens both performance and reliability, which are essential for facilitating international trade.

2.6. Research Gap

The review of empirical and conceptual literature shows that customs clearance procedures strongly influence trade facilitation Performance. Studies indicate that digital systems, document declaration, warehouse operations, and transit procedures each contribute to improving clearance times and trade performance. However, most research examines these components separately, without considering how they interact to shape overall customs Performance. These limits understanding of the combined effects of procedural reforms, particularly in contexts like Ethiopia, where multiple operational dimensions influence trade outcomes. There is therefore a clear need for studies that analyze these mechanisms holistically to assess their joint impact on trade facilitation.

Existing research often focuses on national-level outcomes and overlooks branch-level variations within customs authorities, where differences in resources, staffing, and technology adoption can lead to heterogeneous results. Moreover, while digital system adoption has shown Performance gains in other African countries, few studies explore how these technologies integrate with traditional procedures, warehouse management, and transit processes. Additionally, although frameworks such as Trade Facilitation Theory and Transaction Cost Theory provide conceptual guidance, their empirical application in Ethiopia remains limited. Addressing these gaps is essential for developing evidence-based policies that enhance operational performance and trade competitiveness at both national and subnational levels.

2.7. Conceptual Framework of the Study

The conceptual framework of this study illustrates the relationship between customs clearance procedures and trade facilitation performance at the Adama Customs Commission Branch, as clearly shown in Figure 2.1 below. Drawing on Trade Facilitation Theory and Transaction Cost Theory, the framework identifies the key components of customs clearance as independent variables, while trade facilitation Performance serves as the dependent variable.

A. Independent Variables

The study focuses on four core aspects of customs clearance procedures:

- i) **Transit Procedures:** Processes governing the movement of goods across borders, including coordination among agencies, inspections, and required documentation. Efficient transit procedures reduce delays and enhance predictability.
- ii) **Document Declaration Procedures:** Submission, verification, and processing of trade-related documents such as invoices and certificates of origin. Streamlined and digitized document procedures reduce errors, shorten clearance times, and lower administrative costs.
- iii) **Warehouse Procedures:** Handling, storage, and release of goods within customs-controlled facilities. Effective warehouse management minimizes holding costs, prevents congestion, and ensures timely delivery.
- iv) **Digital System Utilization:** Use of electronic systems, including single-window platforms, automated risk management, and electronic customs declarations. Digitalization improves coordination, transparency, and the overall Performance of transit, documentation, and warehouse procedures.

B. Dependent Variable

Trade Facilitation Performance: The capacity of customs authorities to ensure smooth, timely, and cost-effective movement of goods. It is measured using indicators such as clearance time, procedural costs, predictability, and compliance rates.

The conceptual framework of this study was developed by the researcher based on a synthesis of Trade Facilitation Theory and Transaction Cost Theory, drawing on the empirical and conceptual literature reviewed in this chapter. It illustrates the hypothesized relationship between customs

clearance procedures and trade facilitation performance at the Adama Customs Commission Branch, as shown in Figure 2.1 below."

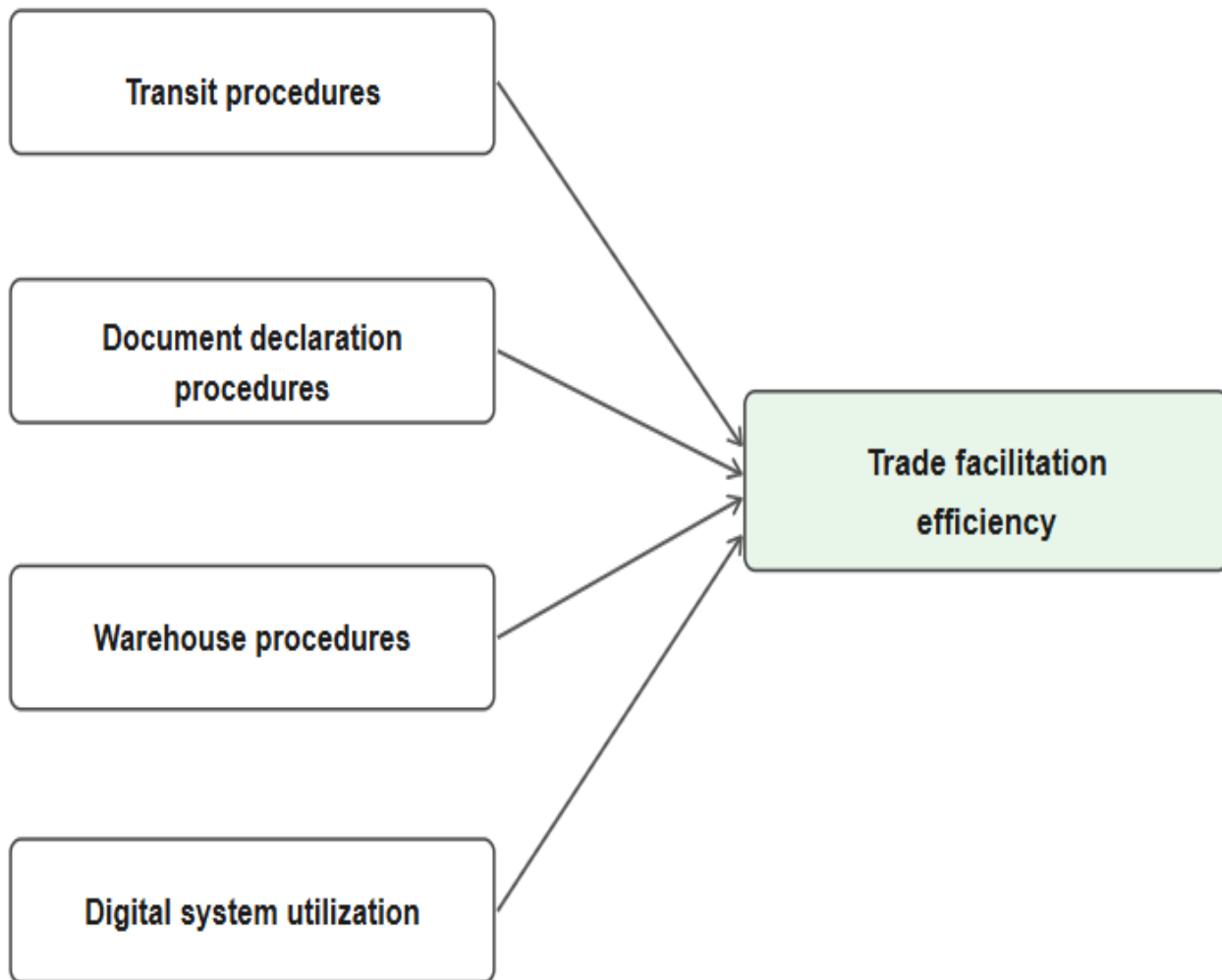


Figure 2.1. Conceptual Framework of the Study

CHAPTER THREE: RESEARCH METHODOLOGY

3.1. Description of the Study Area

Adama is a prominent urban center forming a special zone within the Oromia Regional State in Ethiopia, located approximately 99 kilometers southeast of Addis Ababa. The city lies at an elevation of about 1,712 meters above sea level on the transition between the Ethiopian Highlands and the eastern lowlands, near the western escarpment of the Great Rift Valley (File et al., 2019). Historically known as Nazret, the city officially reverted to its Oromo name, Adama, in 2000. Over the past several decades, Adama has experienced rapid spatial expansion and demographic growth, driven by its strategic location along major transport corridors connecting Addis Ababa with Dire Dawa and the Port of Djibouti, as well as its role as an economic hub within one of Ethiopia's most dynamic urban regions (Terfa et al., 2019).

The city's growth reflects broader national trends of accelerated urbanization, in which secondary cities are expanding more rapidly than larger metropolitan centers due to demographic pressures, internal migration, and economic restructuring. Spatial analyses indicate substantial increases in urban land use, reflecting the outward expansion of built environments and the conversion of peripheral lands to residential, commercial, and infrastructural purposes. This pattern aligns with Ethiopia's general urban development trajectory, where cities like Adama are responding to growing demand for housing, public services, and employment opportunities outside the capital (Terfa et al., 2019).

The city functions as a critical transportation and logistics hub in Ethiopia, situated along the main east-west corridor linking Addis Ababa to Dire Dawa and the Port of Djibouti. The construction of the first modern expressway connecting Addis Ababa and Adama has significantly reduced travel time, facilitating the movement of passengers and freight between these key economic centers (World Bank, 2017). Beyond its transport role, Adama serves as a regional commercial and administrative center, hosting diverse urban functions that contribute to its economic vitality (Debela, 2021). As cities grow rapidly, the demand for infrastructure, essential services, and public utilities rises, placing significant strain on urban systems (Takele & Tolcha, 2021). The focus of this study is the Adama Customs Commission Branch, located within this dynamic urban and

economic context. Positioned in a high-traffic commercial zone, the customs office plays a critical role in regulating and facilitating trade (Desta, 2018).

3.2. Research Design

This study adopted both explanatory and descriptive research designs to examine the effect of customs clearance procedures on trade facilitation Performance at the Adama Customs Commission Branch. A descriptive design was used to present background information on the demographic characteristics of respondents, including gender, age, educational level, years of service, and departmental affiliation; and second. An explanatory design was then applied to systematically investigate cause-and-effect relationships between variables, quantify the strength and direction of those relationships, and test hypotheses through inferential statistical analysis. This combined approach is particularly suited to studies that seek to go beyond description and provide evidence-based explanations of how specific variables influence an outcome of interest.

The study focused on four independent variables, namely transit procedures, document declaration procedures, warehouse procedures, and digital system utilization, and examined their individual and combined effects on trade facilitation Performances. Multiple linear regression analysis was employed as the primary analytical tool to determine which customs clearance procedures significantly influence trade facilitation performance and to quantify the magnitude of those effects at the Adama Customs Commission Branch.

3.3. Population of the Study

The study was conducted at the Adama Customs Commission Branch, an organization with a total workforce of 749 employees. Given the specific objectives of this research, a target population of 318 employees was identified as the focus for data collection. This target group comprised individuals directly involved in critical customs clearance operations, specifically those tasked with document examination, transit processing, warehouse operations, management of digital customs systems, and various supervisory roles.

These functional units were deliberately selected because they represent the essential, high-impact operational stages of the customs clearance process, all of which are directly relevant to the variables under investigation. By narrowing the scope to these specific departments, the study

ensured that the respondents possessed the requisite practical experience and direct exposure to the procedural nuances of customs operations necessary to provide informed and reliable data. Consequently, these 318 employees were considered the most appropriate and representative respondents to offer insights into the research variables, ensuring the findings would be grounded in the professional realities of the organization's core operations.

3.4. Sampling Technique and Sample Size

The study employed a stratified random sampling technique. This method was appropriate because the population of employees at the Adama Customs Commission Branch is distributed across different functional units involved in customs clearance operations. Stratification was applied to ensure that all key operational departments were proportionally represented in the study. The population was first grouped into strata based on functional roles directly related to customs clearance procedures, namely document examination, transit processing, warehouse operations, technology and support units, and supervisory staff. These strata were selected because they represent the main operational stages of the customs clearance process relevant to the study variables. Supervisory staff were not treated as a separate independent stratum; instead, they were proportionally distributed within their respective functional departments to ensure balanced representation across the organizational structure. After forming the strata, simple random sampling was applied within each stratum so that every employee had an equal chance of being selected.

The sample size was determined using Yamane's (1967) formula.

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

Where:

n = sample size

N = Target Population

e = margin of error at 5%

Substituting the values:

$$n = \frac{318}{1 + 318(0.05^2)}$$

$$n = \frac{318}{1 + 318(0.0025)}$$

$$n = \frac{318}{1 + 0.795}$$

$$n = \frac{318}{1.795}$$

$$n \approx 177$$

Thus, the required sample size for the study was 177 respondents.

To achieve representativeness, the population was stratified according to functional roles, and proportional allocation was applied as shown in table 3.1 below. The number of respondents per stratum was determined using the formula:

$$n_h = \frac{N_h}{N} \times n$$

Where:

n_h = sample size for stratum h

N_h = population of stratum h

N = total population

n = total sample size

Table 3.1: Population and Sample Size Distribution by Strata

Department / Stratum	Nh	Proportion (Nh/N)	Sample Size
Document Examination	125	0.39	70
Transit	65	0.20	36
Warehouse	70	0.22	39
Technology & Support	25	0.08	14
Supervisory Staff (Distributed within departments)	33	0.11	18
Total	318	1.00	177

Note: Supervisory staff were not treated as a separate independent stratum for analysis purposes. Instead, they were proportionally distributed within their respective functional departments (document examination, transit, warehouse, and digital system units) to ensure that managerial perspectives were represented across all operational stages of customs clearance without violating the process-based structure of the study variables.

3.5. Data Sources

The study relied on primary data sources. Primary data were collected directly from respondents through a structured questionnaire designed to capture their perceptions and experiences regarding transit procedures, document-declaration processes, warehouse operations, digital system utilization, and trade facilitation Performance. These data formed the main dataset for statistical analysis, including descriptive statistics and regression analysis used to test the study hypotheses.

The decision to rely exclusively on primary data was based on the nature and level of analysis required in this study. The study focuses on operational-level customs clearance processes, which require firsthand, employee-based evidence rather than aggregated institutional records. Secondary data available from reports and administrative documents are typically presented at a general or aggregated level and do not capture department-specific operational experiences, procedural bottlenecks, or Performance perceptions required for quantitative modeling of the study variables. In addition, variations in reporting formats and limited accessibility of disaggregated operational data within the customs system make secondary data less suitable for rigorous statistical analysis at the unit level.

3.6. Data Collection Instruments

Data for this study were collected using a structured questionnaire as the sole data collection instrument. The questionnaire was designed to obtain information on customs clearance procedures and their effect on trade facilitation performance at the Adama Customs Commission Branch. It covered the key dimensions of the study, namely transit procedures, document-declaration processes, warehouse operations, and digital system utilization. Respondents were requested to indicate their level of agreement or disagreement with statements related to the Performance, effectiveness, and challenges of each procedure. This approach enabled the generation of standardized and quantifiable data suitable for statistical analysis.

The use of a structured questionnaire as the only instrument was justified by the quantitative nature of the study and the requirement for uniform and comparable responses from a relatively large number of respondents. Since the study employed statistical techniques such as descriptive analysis and multiple regression analysis, the questionnaire was considered the most appropriate instrument for ensuring consistency in measurement and facilitating numerical analysis of variables.

In addition, the operational context of the customs environment and time constraints faced by employees limited the feasibility of employing interviews, focus group discussions, or direct observation. Moreover, the study primarily focused on employees' perceptions and assessments of customs clearance procedures rather than direct observation of operational activities. For these reasons, the structured questionnaire was deemed sufficient for achieving the objectives of the study. The questionnaire was administered to respondents selected through the sampling procedure, ensuring proportional representation across all relevant functional departments within the branch. To enhance the validity and reliability of the instrument, a pilot test was conducted on a small group of respondents outside the final sample.

3.7. Methods of Data Analysis

The data collected through structured questionnaires were analyzed using both descriptive and inferential statistical techniques. Descriptive statistics such as frequencies, percentages, mean, and were used to summarize the demographic characteristics of respondents, including age, sex, educational level, and work experience. Mean and standard deviation were also used to analyze the study variables. For inferential analysis, Pearson correlation and multiple linear regression were employed. Pearson correlation was used to examine the direction and strength of the relationship between transit procedures, document-declaration processes, warehouse operations, and digital system utilization with trade facilitation Performance, while multiple linear regression was used as the main technique to determine the influence of the independent variables on trade facilitation Performance. Prior to regression analysis, the assumptions of normality, linearity, homoscedasticity, and multicollinearity were tested to ensure the validity of the model. All analyses were performed using SPSS version 27.

3.8. Ethical Considerations

This study conducted in strict accordance with established ethical standards in social research. All participants were provided with comprehensive information regarding the purpose of the study and the nature of their participation. Participation was entirely voluntary, and respondents retained the right to refuse to answer any question or to withdraw from the study at any stage without any negative repercussions. The study prioritized the protection of participants' privacy and confidentiality. No personal or identifying information was recorded, and all responses were treated as strictly confidential and anonymous. Given that the research involved employees operating in sensitive functional areas, all collected data were handled with the utmost care.

CHAPTER FOUR: RESULTS AND DISCUSSION

4.1. Introduction

This chapter presents and interprets the data collected from respondents at the Adama Customs Commission Branch to examine how customs clearance procedures influence trade facilitation Performance. It begins with the response rate and demographic profile of respondents, followed by reliability and validity assessment and regression assumption diagnostics. Pearson correlation and multiple linear regression analyses are then employed to determine the individual and combined effects of Transit Procedures, Document Declaration Procedures, Warehouse Procedures, and Digital System Utilization on Trade Facilitation Performance. The chapter closes with a discussion of findings situated within the existing scholarly literature.

4.2. Response Rate

A total of 177 questionnaires were administered to the selected respondents. From these, 154 questionnaires were successfully completed and returned, whereas 23 were not retrieved. Accordingly, the study achieved a response rate of 87.0%, which is considered highly adequate for statistical analysis and reflects a strong level of engagement from the participants.

Table 4.1. Response Rate

Description	Frequency	Percentage (%)
Questionnaires Distributed	177	100
Questionnaires Returned	154	87.0
Questionnaires Not Returned	23	13.0

Source: Survey Data (2026)

Such a response rate is encouraging and suggests that the participants took genuine interest in the subject matter. It also strengthens confidence in the reliability of the data, as a higher number of returned questionnaires reduces the risk of non-response bias and makes the findings more representative of the study population. According Mugenda (2003), a response rate of 50% is adequate, 60% is good, and 70% and above is excellent for statistical analysis and reporting purposes. Thus, the 87.0% response rate achieved in this study is considered highly adequate and sufficient to draw meaningful conclusions.

4.3. Demographic Characteristics of Respondents

Table 4.2 presents the demographic characteristics of the respondents, including gender, age, educational level, years of service, and department. Understanding the background of participants provides a useful context for interpreting the study findings.

Table 4.2. Demographic Characteristics of Respondents

Variable	Category	Frequency (N)	Percentage (%)
Gender	Male	81	52.60%
	Female	73	47.40%
	Total	154	100%
Age	20 – 29	38	24.68%
	30 – 39	69	44.81%
	40 – 49	33	21.43%
	50 and above	14	9.09%
	Total	154	100%
Educational Level	Diploma	2	1.30%
	Bachelor's Degree	141	91.56%
	Master's Degree	11	7.14%
	Total	154	100%
Years of Service	Less than 3 years	28	18.18%
	3 – 5 years	48	31.17%
	6 – 10 years	50	32.47%
	More than 10 years	28	18.18%
	Total	154	100%
Department	Documentation	90	58.44%
	Transit	21	13.64%
	Warehousing	36	23.38%
	Digital System	7	4.55%
	Total	154	100%

Source: Survey Data (2026)

Table 4.2 presents the demographic profile of the 154 respondents who participated in this study. Regarding gender, male respondents constituted a slight majority, accounting for 81 respondents or 52.60%, while female respondents numbered 73, representing 47.40% of the total. This near-balanced gender distribution suggests that the Adama Customs Branch maintains a relatively inclusive workforce in terms of gender representation, which also reduces the likelihood of gender-related response bias in the study findings.

With respect to age, the largest proportion of respondents belonged to the 30–39 age group, comprising 69 respondents or 44.81%, followed by the 20-29 age group with 38 respondents or 24.68%, while respondents in the 40-49 and 50 and above categories accounted for 21.43% and 9.09% respectively. The predominance of respondents in the 30-39 age bracket indicates that the branch is largely staffed by a relatively young and mid-career workforce, which is particularly relevant given that younger employees tend to be more receptive to digital innovations and procedural reforms that are central to this study.

Concerning educational attainment, an overwhelming majority of respondents, specifically 141 individuals or 91.56%, held a Bachelor's Degree, while 11 respondents or 7.14% possessed a Master's Degree, and only 2 respondents or 1.30% held a Diploma qualification. This high concentration of degree holders implies that the respondents possess sufficient academic literacy to meaningfully engage with the customs procedures, regulatory frameworks, and digital systems that form the core subject matter of this study.

In terms of years of service, respondents with 6-10 years of experience constituted the largest group at 32.47%, followed closely by those with 3-5 years at 31.17%, while respondents with less than 3 years and more than 10 years of service each accounted for 18.18%. This distribution indicates that the majority of respondents possess moderate to substantial professional experience in customs operations, thereby enhancing the reliability and validity of their responses to the study instruments.

Regarding departmental affiliation, Document Examination constituted the largest share of respondents with 90 (58.44%), followed by Warehouse Operations with 36 (23.38%), Transit with 21 (13.64%), and Digital System with 7 (4.55%). This distribution indicates that respondents were drawn from all key operational units involved in customs clearance procedures. The inclusion of all relevant departments ensures that the study captures a comprehensive and balanced perspective

on customs clearance processes and their contribution to trade facilitation performance at the Adama Customs Commission Branch.

4.4. Reliability and Validity

Before proceeding to the main statistical analysis, the internal consistency of the measurement instruments was assessed using Cronbach's Alpha coefficient. This test determines whether the items measuring each construct are consistently capturing the same underlying concept.

A Cronbach's Alpha value of 0.70 and above is widely accepted as the minimum threshold for reliable measurement in social science research (Nunnally, 1978). Table 4.3 presents the reliability statistics for each construct.

Table 4.3. Reliability Statistics

Variable	Number of Items	Cronbach's Alpha
Transit Procedures (TP)	5	.790
Document Declaration Procedures (DDP)	5	.769
Warehouse Procedures (WP)	5	.804
Digital System Utilization (DSU)	4	.884
Trade Facilitation Performance (TFP)	6	.873
Total	25	.934

Source: Survey Data (2026)

As shown in Table 4.3, all constructs recorded Cronbach's Alpha values well above the acceptable threshold of 0.70. Digital System Utilization recorded the highest individual construct reliability at 0.884, followed by Trade Facilitation performance at 0.873, Warehouse Procedures at 0.804, Transit Procedures at 0.790, and Document Declaration Procedures at 0.769. The overall reliability coefficient of 0.934 across all 25 items indicates an excellent level of internal consistency. These results confirm that the measurement instruments used in this study are reliable and produce consistent and dependable measurements, making them fully appropriate for use in subsequent statistical analyses.

4.5. Descriptive Statistics of Study Variables

Respondent perceptions toward each study variable were examined through mean and standard deviation scores. Drawing on the five-point Likert scale interpretation framework proposed by Sekaran (2016), mean scores between 1.00 and 2.49 indicate low agreement, scores between 2.50 and 3.49 indicate moderate agreement, and scores between 3.50 and 5.00 indicate high agreement among respondents. The mean score reflects the average level of agreement across all respondents for a given variable, while the standard deviation measures the extent to which individual responses deviate from that average. A lower standard deviation indicates that respondents held similar views, whereas a higher standard deviation suggests greater variability in perceptions.

Table 4.4. Descriptive Statistics of Study Variables

Variable	N	Mean	Std. Deviation	Interpretation
Transit Procedures (TP)	154	4.5273	.49722	High agreement
Document Declaration Procedures (DDP)	154	4.3273	.68325	High agreement
Warehouse Procedures (WP)	154	4.3156	.69425	High agreement
Digital System Utilization (DSU)	154	4.2224	.88357	High agreement
Trade Facilitation Performance (TFP)	154	4.2229	.79924	High agreement

Source: Own Survey Data (2026)

As shown in Table 4.4, all study variables recorded mean values above 3.50, indicating a high level of agreement among respondents across all constructs. Transit Procedures recorded the highest mean score of 4.5273 with a standard deviation of 0.497, suggesting that respondents strongly agreed that transit procedures influence trade facilitation performance and that responses were closely clustered around the mean. Document Declaration Procedures recorded a mean of 4.3273 with a standard deviation of 0.683, followed by Warehouse Procedures at 4.3156 with a standard deviation of 0.694. Digital System Utilization recorded a mean of 4.2224 with a standard deviation of 0.884, while Trade Facilitation performance recorded a mean of 4.2229 with a standard deviation of 0.799. The relatively low standard deviation values across all variables indicate that respondents provided consistent responses, further supporting the reliability of the measurement instruments.

4.6. Regression Assumption Tests

Before conducting the correlation and regression analyses, it was essential to verify that the data satisfy the fundamental conditions required for multiple linear regression to produce valid and trustworthy results. Failure to meet these conditions risks producing biased estimates and misleading conclusions regardless of the quality of the data collected. To this end, five diagnostic tests were conducted, covering normality, linearity, multicollinearity, autocorrelation, and homoscedasticity. The results of each test are presented in the subsections that follow.

4.6.1. Normality Test

Normality refers to the assumption that the residuals of the regression model are approximately normally distributed. This assumption is fundamental for ensuring the validity of statistical inference, particularly in relation to hypothesis testing and confidence interval estimation. In this study, normality was assessed through visual inspection of a histogram and a Normal P-P plot of standardized residuals (Field, 2024).

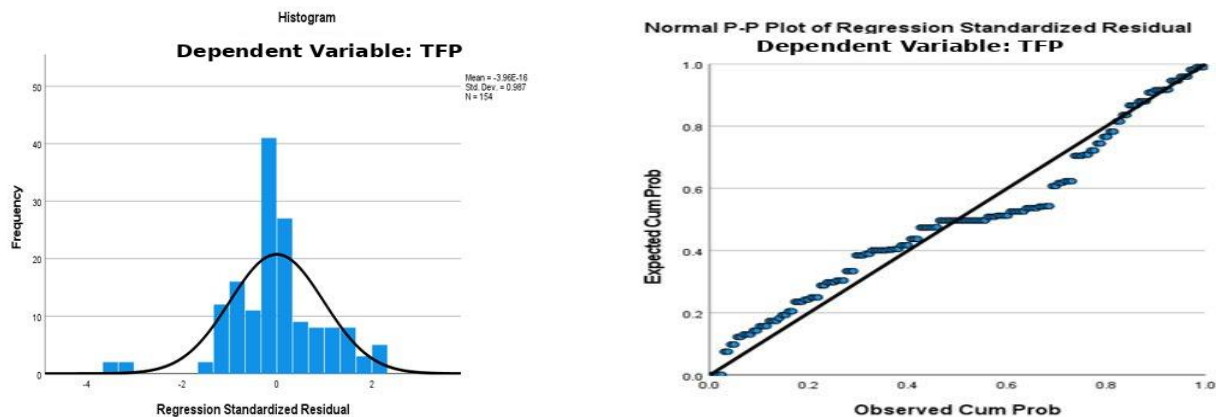


Figure 4.1. Normality Diagnostics: Histogram and Normal P-P Plot of Standardized Residuals

Source: Survey Data (2026)

As shown in Figure 4.1, the histogram of standardized residuals for Trade Facilitation Performance displays a distribution that reasonably approximates a bell-shaped curve, with a mean of approximately zero (Mean = $-3.96E-16$) and a standard deviation of 0.987, based on 154 observations. Although there is a slight positive skew visible in the distribution, the overall shape remains sufficiently close to normal for the purposes of regression analysis.

The Normal P-P plot further supports this assessment, as the observed cumulative probabilities align reasonably well along the diagonal reference line, with only minor deviations at certain points. These visual diagnostics collectively suggest that the residuals are approximately normally distributed, and therefore the normality assumption is considered satisfactorily met, supporting the appropriateness of the regression analysis conducted in this study.

4.6.2. Linearity Test

Linearity assumes that a straight-line relationship exists between each independent variable and the dependent variable. Any serious departure from this condition may produce inaccurate and biased regression results. In this study, the linearity assumption was examined through visual inspection of scatterplots between each independent variable, namely Transit Procedures, Document Declaration Procedures, Warehouse Procedures, and Digital System Utilization, and the dependent variable Trade Facilitation Performance. The inspection revealed that the data points followed a generally linear pattern for all four predictors, with no clear evidence of curved or irregular relationships. Based on this assessment, the linearity assumption is considered satisfied, confirming that the data are appropriate for multiple linear regression analysis.

4.6.3. Multicollinearity Test

Multicollinearity occurs when two or more independent variables in a regression model are highly correlated with each other, making it difficult to isolate the individual effect of each predictor on the dependent variable. To assess this, Tolerance values and the Variance Inflation Factor (VIF) were examined. As a general rule, Tolerance values above 0.10 and VIF values below 10 indicate that multicollinearity is not a concern.

Table 4.5. Collinearity Statistics

Model	Predictor Variable	Tolerance	VIF
1	TP	0.756	1.323
	DDP	0.481	2.081
	WP	0.659	1.518
	DSU	0.481	2.081

Source: Survey Data (2026)

The collinearity statistics presented in Table 4.4 reveal that all predictor variables fall comfortably within the acceptable ranges. Transit Procedures recorded the highest Tolerance value of 0.756 with a VIF of 1.323, followed by Warehouse Procedures at 0.659 with a VIF of 1.518, while both Document Declaration Procedures and Digital System Utilization recorded a Tolerance of 0.481 with a VIF of 2.081. Taken together, these results confirm that multicollinearity is not a concern among the independent variables, and the regression estimates are therefore considered stable and reliable.

4.6.4. Autocorrelation Test

Autocorrelation arises when the residuals in a regression model are correlated with one another, which can distort standard errors and lead to unreliable statistical inferences. To test this assumption, the Durbin-Watson statistic was applied. A Durbin-Watson value close to 2 indicates the absence of autocorrelation, while values approaching 0 or 4 signal positive or negative autocorrelation respectively.

Table 4.6. Durbin-Watson Test for Autocorrelation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.873	0.761	0.755	0.39557	2.107
a. Predictors: (Constant), DSU, TP, WP, DDP					
b. Dependent Variable: TFP					

Source: Survey Data (2026)

The Durbin-Watson statistic obtained from the model summary is 2.107, which is very close to the benchmark value of 2. This result indicates that the residuals are independent of one another and that there is no evidence of autocorrelation in the data. The assumption of independence of errors is therefore considered satisfied, confirming that the regression model produces reliable and unbiased estimates.

4.6.5. Homoscedasticity Test

Homoscedasticity assumes that the variance of the residuals remains constant across all levels of the predicted values in a regression model. When this condition is violated, the resulting heteroscedasticity can lead to inefficient estimates and biased standard errors, ultimately affecting

the reliability of hypothesis testing. In this study, homoscedasticity was assessed through visual inspection of a scatterplot of standardized residuals against standardized predicted values.

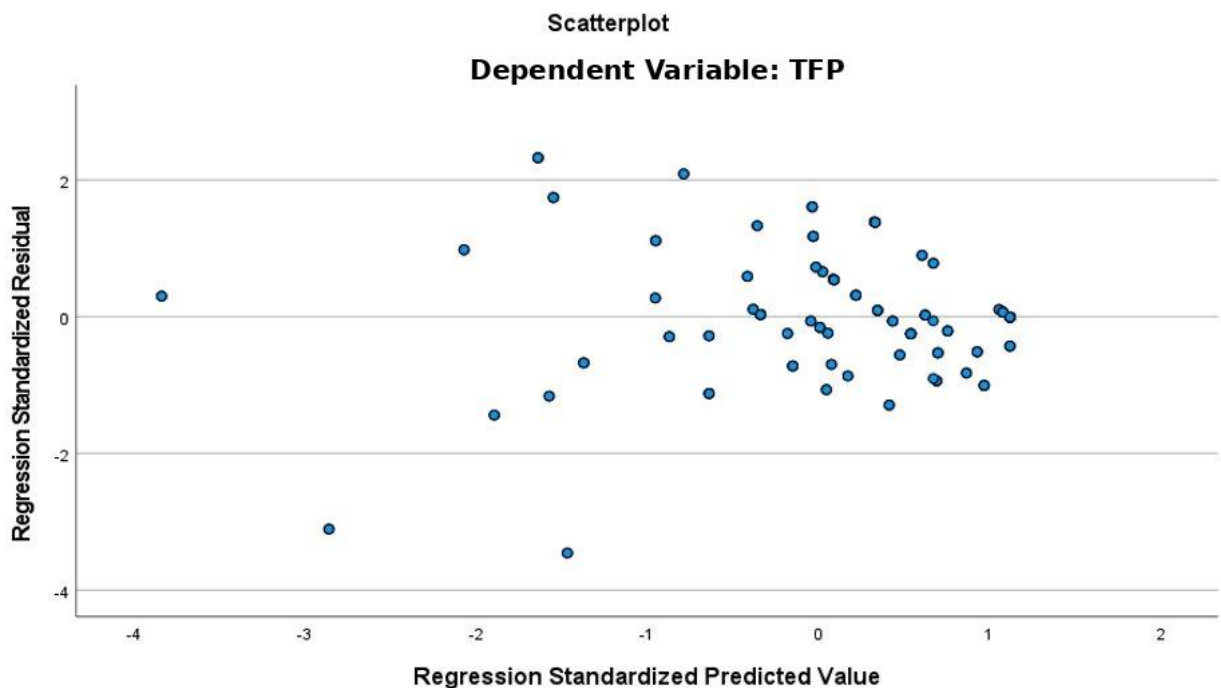


Figure 4.2. Homoscedasticity Test: Scatterplot of Standardized Residuals against Standardized Predicted Values

Source: Survey Data (2026)

The scatterplot presented in Figure 4.3 depicts the distribution of standardized residuals against standardized predicted values for Trade Facilitation Performance. The data points are scattered randomly across the plot without forming any discernible funnel-shaped, curved, or systematic pattern. The residuals appear to be evenly dispersed both above and below the horizontal axis across the range of predicted values, which is the expected pattern when homoscedasticity holds. On this basis, the assumption of homoscedasticity is considered satisfied, further confirming the suitability of the data for multiple linear regression analysis.

4.7. Correlation Analysis

Pearson correlation analysis was employed to determine the strength and direction of association among the study variables, specifically Transit Procedures (TP), Warehouse Procedures (WP), Document Declaration Procedures (DDP), Digital System Utilization (DSU), and Trade

Facilitation Performance (TFP). Following the guidelines proposed by Cohen (2013), correlation coefficients were interpreted as weak when r ranges from 0.00 to 0.29, moderate when r ranges from 0.30 to 0.49, and strong when r is 0.50 and above. The results are presented in Table 4.7.

Table 4.7. Correlation Matrix of Study Variables

Variables	TP	WP	DDP	DSU	TFP
TP	1	0.426**	0.418**	0.326**	0.473**
WP	0.426**	1	0.463**	0.509**	0.574**
DDP	0.418**	0.463**	1	0.687**	0.739**
DSU	0.326**	0.509**	0.687**	1	0.817**
TFP	0.473**	0.574**	0.739**	0.817**	1
Correlation is significant at the 0.01 level (2-tailed)					

Source: Survey Data (2026)

The correlation results confirm that all study variables are positively and significantly associated with one another at the 0.01 level. Digital System Utilization demonstrates the strongest positive relationship with Trade Facilitation Performance ($r = 0.817$, $p < 0.01$), indicating that advances in digital customs systems are closely linked to improved trade facilitation outcomes. This finding is consistent with Rbehat and Marafi (2024), who established that digital system adoption is the single most influential procedural factor in determining customs clearance speed and trade facilitation performance across customs administrations. Similarly, Sintayehu (2023) found that underutilization of digital customs systems was the leading contributor to clearance delays at Ethiopian customs branches, further corroborating the strong association observed here.

Document Declaration Procedures record a strong positive correlation with Trade Facilitation Performance ($r = 0.739$, $p < 0.01$), reflecting the critical role that streamlined declaration processes play in facilitating trade. This result aligns with Hiraide, Hanaoka, and Matsuda (2022), who

demonstrated that document and border procedure efficiency is among the strongest predictors of overall customs clearance performance across trading nations, and with Hoffmann (2021), who confirmed that documentation inefficiencies and manual processing are leading causes of import cargo delays in developing country customs systems.

Warehouse Procedures record a moderate positive relationship with Trade Facilitation Performance ($r = 0.574$, $p < 0.01$). This finding is supported by Vedaste and Muiruri (2021), who found a significant positive relationship between warehouse management quality and operational performance of clearing and forwarding companies in Rwanda, confirming that logistics management quality is a critical determinant of warehousing performance in East African trade corridors. The moderate strength of the correlation in the present study suggests that while warehouse operations meaningfully affect trade facilitation performance, their influence is partially constrained by the operational realities of the Branch, consistent with findings at comparable Ethiopian customs stations (Sintayehu, 2023).

Transit Procedures exhibit the weakest yet still meaningful positive correlation with Trade Facilitation Performance ($r = 0.473$, $p < 0.01$). Although weaker than the other variables, this result is consistent with Tadesse et al. (2022), who found that transit procedure inefficiencies along Ethiopian trade corridors contribute significantly to clearance delays, and with Ayal et al. (2024), who noted that transit coordination challenges are a persistent but secondary constraint on trade facilitation performance relative to documentation and digital system deficiencies. The moderate correlation suggests that while transit procedures matter, their direct effect on performance at a branch level may be partially absorbed by upstream corridor-level factors beyond the immediate control of branch operations.

Regarding the relationships among the independent variables themselves, Document Declaration Procedures and Digital System Utilization share the strongest inter-variable correlation ($r = 0.687$, $p < 0.01$), a finding that reflects the deeply integrated nature of these two dimensions in modern customs operations. UNCTAD (2024) notes that digital customs systems are primarily designed to automate and accelerate document declaration processes, which explains why improvements in one dimension tend to co-occur with improvements in the other. Digital System Utilization and Warehouse Procedures also share a meaningful correlation ($r = 0.509$, $p < 0.01$), consistent with Rodrigue (2024), who observed that digital inventory management systems and warehouse

operations are increasingly interlinked in contemporary customs facility management. All other inter-variable correlations remain moderate and well within acceptable multicollinearity limits. Overall, the results confirm that all four independent variables are positively associated with Trade Facilitation Performance and warrant their inclusion in the regression model for further analysis.

4.8. Multiple Linear Regression Analysis

This section presents the results of the multiple linear regression analysis conducted to examine the individual and combined effects of Transit Procedures (TP), Warehouse Procedures (WP), Document Declaration Procedures (DDP), and Digital System Utilization (DSU) on Trade Facilitation Performance (TFP).

4.8.1. Model Summary

The model summary provides an overview of the overall explanatory power of the regression model, indicating how well the four predictor variables jointly account for variations in Trade Facilitation Performance.

Table 4.8. Model Summary

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.873 ^a	.761	.755	.39557	2.107
a. Predictors: (Constant), DSU, TP, WP, DDP					
b. Dependent Variable: TFP					

Source: Survey Data (2026)

The model summary expresses a strong positive association between the combined predictor variables and Trade Facilitation Performance, reflected by a multiple correlation coefficient of $R = 0.873$. The coefficient of determination ($R^2 = 0.761$) indicates that 76.1% of the total variation in Trade Facilitation Performance is jointly explained by Transit Procedures, Warehouse Procedures, Document Declaration Procedures, and Digital System Utilization. The adjusted R^2 value of 0.755 confirms the robustness of the model after accounting for the number of predictors,

demonstrating strong and reliable explanatory power. The standard error of the estimate of 0.39557 indicates a relatively low level of dispersion between observed and predicted values, reflecting good model accuracy.

4.8.2. ANOVA Results

The Analysis of Variance test was conducted to determine whether the four independent variables jointly have a statistically significant effect on Trade Facilitation Performance.

Table 4.9. ANOVA Results

		ANOVA ^a				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	74.419	4	18.605	118.897	.000 ^b
	Residual	23.315	149	.156		
	Total	97.734	153			
a. Dependent Variable: TFP						
b. Predictors: (Constant), DSU, TP, WP, DDP						

Source: Survey Data (2026)

The ANOVA results confirm that the overall regression model is statistically significant ($F = 118.897$, $p < 0.001$). This establishes that Transit Procedures, Warehouse Procedures, Document Declaration Procedures, and Digital System Utilization, taken together, have a significant and meaningful effect on Trade Facilitation Performance. The probability value falls well below the 0.05 threshold, providing strong evidence that the model fits the data well and that the observed relationships are not attributable to chance.

4.8.3. Regression Coefficients

The regression coefficients provide detailed evidence on the individual contribution of each predictor variable in explaining variations in Trade Facilitation Performance.

Table 4.10. Multiple Linear Regression Coefficients

Coefficients ^a								
Model		Unstandardize		Standardize	t	Sig.	Collinearity	
		d Coefficients		d			Statistics	
				Coefficients				
		B	Std.	Beta			Toleranc	VIF
		Error					e	
1	(Constant)	-.741	.311		-2.382	.018		
	TP	.223	.074	.138	3.007	.003	.756	1.323
	WP	.144	.057	.125	2.535	.012	.659	1.518
	DDP	.304	.068	.260	4.498	.000	.481	2.081
	DSU	.479	.052	.529	9.172	.000	.481	2.081
a. Dependent Variable: TFP								

Source: Survey Data (2026)

The regression results confirm that all four predictor variables exert a positive and statistically significant effect on Trade Facilitation Performance, collectively validating the study's analytical framework. Digital System Utilization emerges as the strongest predictor ($\beta = 0.529$, $t = 9.172$, $p < 0.001$), with an unstandardized coefficient of $B = 0.479$, indicating that a one-unit improvement in Digital System Utilization produces a 0.479 unit increase in Trade Facilitation Performance, holding all other variables constant. Rbehat and Marafi (2024) established that streamlining customs procedures through digital platforms is essential for improving trade facilitation performance, as simplifying customs formalities for imports, exports, and transit of goods delivers multiple benefits including increased trade activity and reduced administrative costs. This is further corroborated by Sintayehu (2023), whose study at the Addis Ababa Kality Customs Branch Office found that the customs automation system ASYCUDA++ was underutilized due to

inadequate training, insufficient ICT infrastructure, and frequent network failures, directly constraining trade facilitation performance at Ethiopian customs branches. The dominance of Digital System Utilization in the present study therefore reflects a well-documented pattern in which digital customs reform consistently delivers the highest marginal return among all procedural interventions.

Document Declaration Procedures follow as the second strongest predictor ($\beta = 0.260$, $t = 4.498$, $p < 0.001$), with a one-unit improvement producing a 0.304 unit increase in Trade Facilitation Performance. Hiraide, Hanaoka, and Matsuda (2022) investigated the efficiency of document and border procedures across a global sample of trading nations and found that document procedure inefficiencies, measured in terms of required cost, time, and number of documents, are among the primary determinants of customs clearance performance. Their findings confirm that countries with streamlined document declaration procedures consistently achieve stronger trade facilitation outcomes, a pattern directly reflected in the present study's results. The magnitude of this coefficient further suggests that targeted investment in document declaration reform at the Adama Customs Commission Branch would yield the second highest improvement in overall trade facilitation performance after digital system upgrades.

Transit Procedures rank third in terms of influence ($\beta = 0.138$, $t = 3.007$, $p = 0.003$), with a one-unit improvement resulting in a 0.223 unit increase in Trade Facilitation Performance. Although Transit Procedures exert a comparatively modest effect, their statistically significant contribution confirms that streamlining transit operations remains a meaningful lever for improving facilitation outcomes at the Branch. Ayal et al. (2024) observed that Ethiopia experiences significant difficulties in cross-border trade arising from transit procedure inefficiencies, resulting in elevated business costs and reduced export competitiveness along its principal trade corridors. The WCO (2023) similarly identifies efficient transit procedure management as a foundational requirement for trade facilitation performance, particularly in landlocked developing countries such as Ethiopia that rely heavily on transit corridors for import and export operations.

Warehouse Procedures record the smallest yet still statistically significant effect among the four predictors ($\beta = 0.125$, $t = 2.535$, $p = 0.012$), with a one-unit improvement contributing a 0.144 unit increase in Trade Facilitation Performance. This result confirms that warehouse operations, though often treated as logistical rather than procedural concerns, remain a meaningful component of trade

facilitation performance and warrant dedicated attention in reform agendas. Vedaste and Muiruri (2021) found that warehouse management quality exerts a significant positive effect on the operational performance of clearing and forwarding companies, demonstrating that poor logistics management directly translates into higher operational costs and weaker clearance outcomes. Sintayehu (2023) similarly observed that inadequate customs procedures and insufficient inter-agency cooperation at Ethiopian customs branches compound the delays originating from warehouse-level inefficiencies, reinforcing the practical relevance of this finding for the Adama Customs Commission Branch specifically. The estimated regression equation derived from these results is expressed as:

$$TFP = -0.741 + 0.223(TP) + 0.144(WP) + 0.304(DDP) + 0.479(DSU)$$

This equation implies that holding all other factors constant, improvements in each predictor variable contribute positively and independently to Trade Facilitation Performance. The negative constant of -0.741 represents a mathematical baseline with no meaningful standalone interpretation. Taken together, the regression coefficients present a coherent and policy-relevant picture: Digital System Utilization and Document Declaration Procedures are the two highest-leverage intervention points for improving trade facilitation performance at the Adama Customs Commission Branch, while Transit Procedures and Warehouse Procedures represent complementary areas whose reform, though yielding smaller marginal gains, is necessary for a comprehensive and sustainable improvement in customs clearance outcomes.

4.8.4. Hypothesis Testing Results

Table 4.11. Summary of Hypothesis Testing Results

Hypothesis	Hypothesis Statement	Beta (β)	t- value	p- value	Decision
H1	Transit Procedures have a significant positive effect on Trade Facilitation Performance	0.138	3.007	0.003	Accepted
H2	Warehouse Procedures have a significant positive effect on Trade Facilitation Performance	0.125	2.535	0.012	Accepted

H3	Document Declaration Procedures have a significant positive effect on Trade Facilitation Performance	0.260	4.498	0.000	Accepted
H4	Digital System Utilization has a significant positive effect on Trade Facilitation Performance	0.529	9.172	0.000	Accepted

Source: Survey Data (2026)

The results presented in Table 4.11 provide comprehensive empirical evidence confirming the relationships between all four independent variables and Trade Facilitation Performance at the Adama Customs Commission Branch. All four alternative hypotheses are accepted and their corresponding null hypotheses rejected, with each predictor variable recording a positive beta coefficient and a p-value within the conventional significance threshold. The following subsections present a systematic evaluation of each hypothesis in relation to prior empirical literature.

Hypothesis One: Transit Procedures have a significant positive effect on Trade Facilitation Performance ($\beta = 0.138$, $t = 3.007$, $p = 0.003$) - Accepted.

The beta coefficient of 0.138 and t-value of 3.007, significant at the 0.01 level, confirm that improvements in Transit Procedures produce a measurable and statistically reliable increase in Trade Facilitation Performance. Ayal et al. (2024) established that Ethiopia experiences significant cross-border trade difficulties attributable to transit procedure inefficiencies, resulting in elevated business costs and diminished export competitiveness along its principal trade corridors. The World Customs Organization (2023) further affirms that efficient transit procedure management constitutes a foundational requirement for trade facilitation performance, particularly for landlocked developing countries such as Ethiopia whose trade flows depend entirely on transit corridor arrangements. The acceptance of this hypothesis is therefore grounded in a convergence of branch-level empirical evidence and broader institutional frameworks governing trade facilitation in landlocked economies.

Hypothesis Two: Warehouse Procedures have a significant positive effect on Trade Facilitation Performance ($\beta = 0.125$, $t = 2.535$, $p = 0.012$) - Accepted.

Although Warehouse Procedures recorded the smallest beta coefficient among the four predictors, the t-value of 2.535 and p-value of 0.012 confirm that this effect is both statistically significant and substantively meaningful. Vedaste and Muiruri (2021) demonstrated that warehouse management quality exerts a significant positive effect on the operational performance of clearing and forwarding companies, establishing that deficiencies in warehouse logistics management translate directly into elevated operational costs and reduced clearance efficiency. Sintayehu (2023) corroborates this within the Ethiopian context, identifying inadequate customs procedures and insufficient inter-agency coordination at Ethiopian customs branches as compounding factors that amplify existing warehouse-level inefficiencies.

Hypothesis Three: Document Declaration Procedures have a significant positive effect on Trade Facilitation Performance ($\beta = 0.260$, $t = 4.498$, $p < 0.001$) - Accepted.

The beta coefficient of 0.260 and t-value of 4.498, significant at the 0.001 level, position Document Declaration Procedures as the second most influential predictor of Trade Facilitation Performance in the model. Hiraide, Hanaoka, and Matsuda (2022) established through a cross-national investigation that document procedure inefficiencies, operationalized in terms of required cost, time, and number of documents associated with customs processing, are among the primary determinants of trade facilitation performance, and that economies with streamlined declaration systems consistently achieve superior outcomes relative to those relying on manual and fragmented documentation processes. This is further reinforced by Hoffmann (2021), who identified documentation inefficiencies and manual processing as leading causes of import cargo delays in developing country customs administrations.

Hypothesis Four: Digital System Utilization has a significant positive effect on Trade Facilitation Performance ($\beta = 0.529$, $t = 9.172$, $p < 0.001$) - Accepted.

The beta coefficient of 0.529 and t-value of 9.172, both significant at the 0.001 level, establish Digital System Utilization as the most dominant predictor of Trade Facilitation Performance in the model, accounting for a substantially larger proportion of explained variance than any of the remaining three variables. Rbehat and Marafi (2024) established that streamlining customs procedures through digital platforms is essential for trade facilitation performance, as the digitalization of customs formalities simultaneously reduces administrative costs, increases processing speed, and enhances the predictability of cargo release. Sintayehu (2023) provides

particularly compelling corroborating evidence from the Ethiopian context, finding that the underutilization of ASYCUDA++ at the Addis Ababa Kaliti Customs Branch Office, attributable to inadequate staff training, insufficient ICT infrastructure, and frequent network failures, constituted a primary institutional challenge constraining trade facilitation performance at a comparable Ethiopian customs branch.

4.9. Discussion of Findings

This section presents a detailed interpretation and critical discussion of the major findings derived from the statistical analysis. The discussion is organized around the four independent variables and their respective effects on Trade Facilitation Performance at the Adama Customs Commission Branch. Each variable is examined independently, situating the empirical results within the existing scholarly literature while advancing the researcher's analytical interpretation of what the findings mean for customs reform at the Branch and for Ethiopian trade facilitation policy more broadly.

4.9.1. Effect of Transit Procedures on Trade Facilitation Performance

The findings of this study confirm that Transit Procedures have a positive and statistically significant effect on Trade Facilitation Performance at the Adama Customs Commission Branch ($\beta = 0.138$, $p = 0.003$). Although Transit Procedures ranked third among the four predictors in terms of relative influence, the positive direction and statistical significance of the relationship establish that improvements in transit management meaningfully contribute to trade facilitation outcomes, and the first hypothesis is accordingly accepted.

These findings are consistent with Ayal et al. (2024), who established that Ethiopia experiences significant cross-border trade difficulties attributable to transit procedure inefficiencies, resulting in elevated business costs and diminished export competitiveness along its principal trade corridors. The WCO (2023) further affirms that efficient transit procedure management constitutes a foundational institutional requirement for trade facilitation performance, particularly for landlocked developing countries that depend entirely on transit corridor arrangements to access international markets. Tadesse et al. (2022) similarly identified transit procedure reform as one of the most consequential levers available to Ethiopian customs authorities seeking to improve logistics performance and reduce the cost of trading.

What is particularly noteworthy in the present finding is that Transit Procedures, despite recording the third lowest beta coefficient, remain statistically significant at the 0.01 level. This indicates that even marginal improvements in how the Branch manages transit documentation, inter-agency coordination, and border crossing requirements produce measurable gains in overall trade facilitation performance. In the researcher's assessment, the relatively modest beta coefficient does not diminish the strategic importance of transit reform. Rather, it reflects the fact that transit procedure outcomes at the Branch are partially shaped by upstream corridor-level factors such as port congestion at Djibouti and inter-agency coordination along the Addis Ababa to Dire Dawa corridor that lie outside the direct control of branch management. Addressing these upstream constraints in coordination with national-level authorities would amplify the Branch-level impact of transit procedure improvements beyond what the current coefficient alone suggests.

4.9.2. Effect of Document Declaration Procedures on Trade Facilitation Performance

The second major finding reveals that Document Declaration Procedures have a positive and statistically significant effect on Trade Facilitation Performance, emerging as the second most influential predictor in the regression model ($\beta = 0.260$, $p < 0.001$). The strong positive association underscores the critical role that streamlined and well-managed declaration processes play in determining how efficiently goods move through customs, and the second hypothesis is accordingly accepted.

Hiraide, Hanaoka, and Matsuda (2022) established through a cross-national investigation that document procedure inefficiencies, operationalized in terms of required cost, time, and number of documents associated with customs processing, are among the primary determinants of trade facilitation performance, and that economies with streamlined declaration systems consistently achieve superior outcomes. Hoffmann (2021) similarly identified documentation inefficiencies and manual processing as leading causes of import cargo delays in developing country customs administrations, a finding that carries direct relevance to the Ethiopian context where paper-based declaration systems remain prevalent at several branch offices.

From the researcher's perspective, the second-ranked influence of Document Declaration Procedures carries a particularly important policy message. While the literature frequently frames digital systems as the primary driver of customs modernization, the results of this study suggest that the gains from digital investment will be significantly constrained unless the underlying

document declaration processes are simultaneously simplified and standardized. A digital system built upon redundant, inconsistent, or overly complex declaration requirements will not deliver its full potential improvement in trade facilitation performance. The implication is that document declaration reform and digital system investment must be pursued as complementary and sequentially coordinated interventions rather than as independent priorities. to the policy discourse on customs modernization at the Adama Customs Commission Branch.

4.9.3. Effect of Warehouse Procedures on Trade Facilitation Performance

The third finding demonstrates that Warehouse Procedures have a positive and statistically significant effect on Trade Facilitation Performance. Although Warehouse Procedures recorded the smallest relative influence among the four predictors, the positive and significant nature of the relationship confirms that effective warehouse management meaningfully supports trade facilitation outcomes. The third hypothesis was therefore accepted.

These findings are supported by existing literature on the role of warehousing in trade and logistics performance. Mwizerwa and Akumuntu (2024) found that warehouse management practices have a significant positive effect on supply chain performance, with improvements in cargo handling, storage Performance, and timely goods release directly translating into better operational outcomes. Vedaste and Muiruri (2021) similarly demonstrated that effective warehouse management enhances the operational performance of clearing and forwarding companies, reducing delays and improving service quality. Appiah et al. (2018) further argued that warehousing is a critical precursor to overall logistics performance in developing economies, particularly where physical infrastructure constraints amplify the impact of procedural inefficiencies. The relatively lower influence observed in this study may reflect the fact that warehouse procedures function primarily as a support function within the broader customs clearance system. Nevertheless, the findings affirm that investment in modernizing warehouse procedures at the Adama Customs Commission Branch remains a worthwhile contributor to overall trade facilitation Performance.

4.9.4. Effect of Digital System Utilization on Trade Facilitation Performance

The fourth and most significant finding of this study establishes that Digital System Utilization has the strongest positive effect on Trade Facilitation Performance among all four predictor

variables, confirming the dominant role of digital systems in shaping trade facilitation outcomes at the Adama Customs Commission Branch. The fourth hypothesis was accordingly accepted.

This finding is strongly corroborated by a wide range of studies emphasizing the transformative impact of digital technologies on customs administration and trade facilitation. Jedidah et al. (2025) found that digital technologies have a significant positive effect on trade facilitation at customs stations, with automation and electronic processing substantially reducing clearance times and procedural bottlenecks. Akodia et al. (2024) demonstrated through a causal impact analysis that the implementation of single window systems produces measurable improvements in trade facilitation Performance by centralizing documentation and reducing redundant interactions between traders and customs authorities.

In the Ethiopian context, the World Bank (2020) reported that the introduction of an electronic single window system significantly reduced the cost and time required for trade processing, while Jaleta and Tulu (2023) found that logistics and customs digitalization practices have a significant positive effect on facilitation performance. Demeke (2025) further highlighted the potential of emerging technologies including blockchain, artificial intelligence, and the Internet of Things in accelerating Ethiopia's trade facilitation modernization agenda. The dominance of Digital System Utilization as a predictor in this study reinforces the consensus in the literature that technology adoption is not merely a complementary tool but a foundational driver of customs performance in the modern trade environment. For the Adama Customs Commission Branch, sustained investment in digital infrastructure, staff capacity development, and system integration represents the single most impactful lever for improving Trade Facilitation Performance.

4.9.5. Overall Model Fit and Combined Explanatory Power

Beyond the individual variable findings, the overall regression model provides compelling evidence of the collective importance of customs clearance procedures in determining Trade Facilitation Performance. The model demonstrates a strong explanatory power, confirming that Transit Procedures, Warehouse Procedures, Document Declaration Procedures, and Digital System Utilization together account for a substantial proportion of the variation observed in Trade Facilitation performance at the Adama Customs Commission Branch. The overall model significance further validates that customs performance is best understood as the product of multiple interacting procedural dimensions rather than any single factor in isolation. Hillberry and

Zhang (2018) similarly found that policy and procedural reforms across multiple customs dimensions produce the most substantial improvements in trade facilitation outcomes.

For policymakers and customs administrators at the Adama Customs Commission Branch, these findings carry a clear and practical implication. While Digital System Utilization emerges as the most influential individual predictor, the strong combined explanatory power of all four variables underscores the importance of a coordinated and comprehensive approach to customs reform. Strengthening any single procedure in isolation will yield improvements, but the greatest gains in Trade Facilitation Performance will come from simultaneously advancing digital systems, streamlining declaration processes, modernizing transit arrangements, and improving warehouse management. This integrated approach to customs modernization is not only supported by the empirical findings of this study but is also fully consistent with the broader international agenda on trade facilitation reform as articulated by the WTO Trade Facilitation Agreement (WTO, 2015) and the World Customs Organization's Revised Kyoto Convention (WCO, 2018).

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

This study was conducted to examine the effect of customs clearance procedures on trade facilitation performance at the Adama Customs Commission Branch. Specifically, it investigated the individual and combined effects of Transit Procedures, Document Declaration Procedures, Warehouse Procedures, and Digital System Utilization on Trade Facilitation Performance. Based on the empirical evidence generated through descriptive statistics, Pearson correlation analysis, and multiple linear regression analysis, the following conclusions are drawn.

The descriptive statistics reveal that respondents expressed consistently high levels of agreement regarding the importance and influence of all four customs clearance procedure variables on trade facilitation performance. Digital System Utilization recorded the highest mean score among the four independent variables, indicating that respondents perceive digital systems as the most influential procedural dimension affecting clearance outcomes at the Branch. Document Declaration Procedures recorded the second highest mean, followed by Warehouse Procedures and Transit Procedures respectively. Trade Facilitation Performance itself recorded a high mean score, suggesting that while respondents acknowledge meaningful levels of facilitation performance, considerable room for improvement remains across all procedural dimensions.

The Pearson correlation analysis establishes that all four independent variables are positively and significantly correlated with Trade Facilitation Performance at the 0.01 level. Digital System Utilization recorded the strongest positive correlation with Trade Facilitation Performance ($r = 0.817$), followed by Document Declaration Procedures ($r = 0.739$), Warehouse Procedures ($r = 0.574$), and Transit Procedures ($r = 0.473$). These correlation results confirm that all four customs clearance procedure dimensions move in the same direction as trade facilitation performance, providing initial empirical support for the hypothesized relationships before regression analysis. The strong inter-variable correlations observed among the independent variables, particularly between Document Declaration Procedures and Digital System Utilization ($r = 0.687$), further suggest that these procedural dimensions are deeply interconnected in practice, reinforcing the conclusion that customs reform must be approached as an integrated system rather than a collection of isolated interventions.

The multiple linear regression analysis confirms that all four predictor variables have a positive and statistically significant effect on Trade Facilitation Performance, and all four alternative hypotheses are accepted. Transit Procedures exert a positive and statistically significant effect on Trade Facilitation Performance ($\beta = 0.138$, $p = 0.003$), confirming that improvements in transit management contribute meaningfully to facilitation outcomes at the Branch despite ranking third among the four predictors. The finding is particularly significant given Ethiopia's landlocked geography and its heavy dependence on transit corridors for international trade, as weaknesses in transit management translate directly into delays, increased costs, and reduced competitiveness for Ethiopian traders.

Document Declaration Procedures emerged as the second most influential predictor of Trade Facilitation Performance ($\beta = 0.260$, $p < 0.001$), confirming that the quality, simplicity, and speed of declaration processes are among the most critical determinants of how efficiently goods move through customs. Redundant, complex, and paper-based declaration systems remain a significant source of delay at the Branch, and their reform represents a high-priority area for customs modernization. Warehouse Procedures were found to have a positive and statistically significant effect on Trade Facilitation Performance ($\beta = 0.125$, $p = 0.012$), though they recorded the smallest relative influence among the four predictors. This finding confirms that while warehousing functions as a support component within the broader customs clearance system, its contribution to overall facilitation performance is real and measurable, and improvements in cargo handling, storage management, and timely goods release directly support faster and more reliable customs processing.

Digital System Utilization emerged as the strongest and most influential predictor of Trade Facilitation Performance among all four variables examined ($\beta = 0.529$, $p < 0.001$). This finding confirms that the adoption and effective utilization of digital technologies in customs operations is not simply a modernization ambition but a practical and empirically proven driver of improved facilitation outcomes. The strength of this relationship, reflected in a beta coefficient that is more than double that of the next strongest predictor, underscores the urgency of deepening digital transformation efforts at the Adama Customs Commission Branch and across the Ethiopian customs system more broadly.

5.2. Recommendations

Based on the findings and conclusions of this study, the following recommendations are forwarded to the management of the Adama Customs Commission Branch, the Ethiopian Customs Commission, and relevant policymakers.

- Digital system utilization was found to be the strongest driver of trade facilitation performance; accordingly, the IT and Digital Systems Department should accelerate the expansion of the electronic single window system, automate routine customs processes, and ensure sustained competency-based staff training on digital platforms, supported by a dedicated technical support unit to oversee system maintenance and performance evaluation.
- Priority should be given to expanding system integration with external trade stakeholders, including freight forwarders, port authorities, and commercial banks, to enable seamless real-time information exchange and accelerate cargo release, as weak system connectivity was identified as a key operational constraint at the Branch.
- Document declaration procedures emerged as the second most influential factor affecting trade facilitation performance; the Declaration and Documentation Department should therefore eliminate redundant documents, reduce procedural steps, and harmonize declaration formats across all units, while developing clear guidance materials for traders and clearing agents to minimize errors and resubmissions.
- As transit procedures were found to significantly affect trade facilitation performance, the Branch should strengthen internal transit management through harmonized documentation requirements and effective use of cargo tracking systems, while engaging with the Ethiopian Customs Commission and relevant transport authorities to improve inter-agency coordination along key trade corridors, particularly the Djibouti corridor.
- Given that warehouse procedures exert a significant positive effect on trade facilitation performance, the Warehouse and Cargo Management Department should invest in upgrading physical infrastructure, implementing cargo tracking systems, and establishing standard operating procedures for cargo receipt, storage, and timely goods release, supported by regular staff training and strengthened inter-departmental coordination.

5.3. Suggestions for Future Research

This study opens several avenues for further scholarly inquiry that future researchers may wish to explore.

- Future studies should expand the geographical scope beyond the Adama Customs Commission Branch to include other major customs offices in Ethiopia, such as the Addis Ababa Kality Branch and the Mojo Dry Port, to generate broader and more generalizable findings.
- Future researchers are encouraged to adopt mixed methods approaches combining quantitative surveys with qualitative interviews to provide richer and more nuanced insights into the practical challenges influencing the implementation of customs procedures and their effect on trade facilitation Performance.
- The mediating and moderating roles of variables such as institutional capacity, staff competency, and regulatory environment in the relationship between customs clearance procedures and trade facilitation performance deserve further investigation.
- Given the dominant role of Digital System Utilization found in this study, future research should examine the specific contributions of emerging technologies including artificial intelligence, blockchain, and the Internet of Things to trade facilitation Performance in the Ethiopian customs context.
- Longitudinal research designs tracking changes in trade facilitation Performance over time in response to specific customs reforms would be particularly valuable in assessing the sustainability and long-term impact of modernization efforts.

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APPENDIX I

Questionnaire

Bahir Dar University

College of Business and Economics

Department of Logistics and Supply Chain Management

Introduction

My name is Samuel Abera, a postgraduate student at Bahir Dar University. I am conducting a study entitled “The Effect of Customs Clearance Procedures on Trade Facilitation Performance: The Case of Adama Customs” as part of the requirements for my Master’s thesis. The main objective of this study is to examine the effect of customs clearance procedures on trade facilitation Performance at the Ethiopian Customs Commission-Adama Customs Branch. Specifically, the study focuses on four key dimensions of customs operations: transit procedures, document-declaration procedures, warehouse procedures, and digital system utilization, and evaluates how these procedures influence trade facilitation Performance.

Your honest and thoughtful responses are very important for the success of this research. Participation in this study is entirely voluntary, and all information provided will be treated with strict confidentiality and used solely for academic research purposes.

General Instructions

- No need to write your name or any personal identifier.
- Tick only one response per item.
- Skip items that do not apply to your role.
- If you need further information or any clarification, please contact the author at samuelzike2123@gmail.com or via telephone at +251 940 632 280.

THANK YOU!

SECTION A: DEMOGRAPHIC INFORMATION

In this section, please provide your demographic information by selecting the option that best describes you. For questions with multiple choices, mark only one box per item. If “Other” is applicable, please specify where indicated.

1. Gender: ☐ Male ☐ Female
2. Age: ☐ 20–29 ☐ 30–39 ☐ 40–49 ☐ 50+
3. Educational Level: ☐ Diploma ☐ Bachelor ☐ Master ☐ Other: _____
4. Years of Service: ☐ <3 ☐ 3–5 ☐ 6–10 ☐ >10
5. Department: ☐ Documentation ☐ Valuation ☐ Transit ☐ Warehousing ☐ Digital System ☐ Other: _____

SECTION B: TRANSIT PROCEDURES

In this section, please indicate your experience and opinion regarding transit procedures within the customs system, including monitoring cargo, ensuring timely delivery, handling exceptions, and coordinating between departments.

Instruction: For each statement, tick the box that best reflects your opinion or experience.

1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

No	Statement	1	2	3	4	5
1	The transit procedures followed at the Adama Customs Branch are clearly documented, formally communicated to all relevant stakeholders, and consistently applied across all cargo movement operations to ensure procedural uniformity and compliance.					
2	Exceptional transit cases including unexpected cargo delays, incomplete or missing documentation, and route deviations are identified promptly and handled effectively by designated transit officers in accordance with established contingency protocols.					

3	Effective coordination and information sharing between the transit unit and other customs departments such as documentation, warehousing, and valuation ensures smooth, uninterrupted, and accountable transit operations throughout the clearance cycle.
4	Transit cargo tracking systems are consistently and effectively utilized by customs officers to monitor the real-time movement of goods, enforce compliance with transit timelines, and reduce the risk of cargo diversion or loss.
5	The implementation of standardized transit procedures at the Adama Customs Branch has contributed meaningfully to the reduction of clearance delays, improved cargo throughput, and enhanced the overall operational Performance of trade facilitation activities.

SECTION C: DOCUMENT-DECLARATION PROCEDURES

In this section, please indicate your experience and opinion regarding document-declaration procedures, including document verification, error correction, guidance to importers/exporters, and compliance with regulations.

Instruction: For each statement, tick the box that best reflects your opinion or experience.

1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

No	Statement	1	2	3	4	5
1	The documentation requirements prescribed by the Adama Customs Branch are clearly defined, readily accessible, and straightforward enough for both importers and exporters to understand and comply with without undue difficulty or repeated clarification.					
2	The verification of submitted trade documents including invoices, bills of lading, certificates of origin, and customs declarations is conducted thoroughly, accurately, and within acceptable time frames to prevent unnecessary processing delays.					

3	Errors, inconsistencies, or discrepancies identified in customs declarations and supporting trade documents are detected early in the review process and corrected promptly through established feedback and correction mechanisms to avoid prolonged delays.
4	Document-declaration procedures at the Adama Customs Branch are fully aligned with applicable national customs regulations and conform to internationally recognized trade facilitation standards including the WTO Trade Facilitation Agreement and WCO guidelines.
5	The overall Performance and accuracy of document-declaration procedures at the Adama Customs Branch have a direct and measurable positive contribution to the speed, predictability, and reliability of trade facilitation outcomes experienced by importers and exporters.

SECTION D: WAREHOUSE PROCEDURES

In this section, please indicate your experience and opinion regarding warehouse procedures, including storage, handling, inventory accuracy, staff competence, and operational Performance.

Instruction: For each statement, tick the box that best reflects your opinion or experience.

1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

No	Statement	1	2	3	4	5
1	Warehouse operations at the Adama Customs Branch are carried out in strict accordance with formally established standard operating procedures, ensuring consistency, accountability, and regulatory compliance in the storage and handling of all customs-held goods.					
2	Goods entering the customs warehouse are properly categorized, systematically arranged, and stored under appropriate conditions that ensure their physical safety, security, and protection from damage, theft, or unauthorized access throughout their detention period.					

-
- 3 Inventory records maintained in the customs warehouse are consistently accurate, regularly reconciled with actual stock, and updated in real time or at defined intervals to reflect the true status and location of all goods under customs control.
-
- 4 Warehouse procedures at the Adama Customs Branch are purposefully designed and operationally implemented to minimize unnecessary delays in the examination, processing, and timely release of cargo to authorized importers and exporters.
-
- 5 Effective operational coordination between the warehouse unit and other key customs departments including transit, documentation, and valuation plays a critical role in supporting seamless cargo processing and enhancing overall trade facilitation performance at the branch.
-

SECTION E: DIGITAL SYSTEM UTILIZATION

In this section, please indicate your experience and opinion regarding the utilization of digital systems, including system reliability, staff competency, integration with other departments, and contribution to operational Performance.

Instruction: For each statement, tick the box that best reflects your opinion or experience.

1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

No	Statement	1	2	3	4	5
1	The digital systems deployed at the Adama Customs Branch including the Automated System for Customs Data (ASYCUDA World) and other trade processing platforms are consistently reliable, operationally stable, and sufficiently user-friendly to support efficient day-to-day customs processing activities.					
2	Customs officers and relevant staff at the Adama Customs Branch are adequately and continuously trained in the use of digital customs management systems, enabling them to perform data entry, processing, and reporting tasks competently and with minimal errors.					

-
- 3 The utilization of digital systems at the Adama Customs Branch has demonstrably enhanced the speed, accuracy, and transparency of the customs clearance process by reducing dependence on manual documentation, paper-based workflows, and human error-prone procedures.
-
- 4 Digital systems used at the Adama Customs Branch are effectively integrated with other internal departments as well as external trade stakeholders including freight forwarders, port authorities, banks, and relevant government agencies, facilitating seamless, real-time information exchange and coordinated trade processing.
-

SECTION F: Trade Facilitation Performance

In this section, please indicate your experience and opinion regarding the overall Performance of trade facilitation at the branch, including timeliness, cost control, error reduction, and service quality.

Instruction: For each statement, tick the box that best reflects your opinion or experience.

1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

No	Statement	1	2	3	4	5
1	The Adama Customs Branch consistently meets its established customs clearance time targets, ensuring that imported and exported goods are processed, examined, and released within the prescribed timeframes without subjecting traders to unnecessary procedural delays.					
2	The operational and administrative costs incurred by importers, exporters, and freight agents in the course of completing customs clearance procedures at the Adama Customs Branch are effectively controlled and maintained within economically reasonable and internationally competitive limits.					
3	The frequency of errors, omissions, and inaccuracies in customs documentation and cargo processing at the Adama Customs Branch is					

minimal, reflecting a high standard of procedural accuracy that reduces costly reprocessing, reexamination, and administrative burdens on traders.

- 4 Importers, exporters, and other trade stakeholders who regularly interact with the Adama Customs Branch express a satisfactory level of confidence in the quality, consistency, fairness, and overall Performance of the customs services and procedures provided.
- 5 The customs procedures currently implemented at the Adama Customs Branch are effectively structured and operationally managed to identify and eliminate procedural bottlenecks, reduce bureaucratic redundancies, and facilitate the uninterrupted flow of legitimate trade activities.
- 6 The overall customs clearance process at the Adama Customs Branch encompassing transit, documentation, warehousing, and digital processing collectively supports the smooth, timely, cost-effective, and compliant movement of goods across Ethiopian borders in line with national trade facilitation objectives.

APPENDIX II

Case Processing Summary

		N	%
Cases	Valid	154	100.0
	Excluded ^a	0	.0
	Total	154	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.934	25

Item Statistics			
	Mean	Std. Deviation	N
The transit procedures followed at the Adama Customs Branch are clearly documented, formally communicated to all relevant stakeholders, and consistently applied across all cargo movement operations to ensure procedural uniformity and compliance.	4.73	.447	154
Exceptional transit cases including unexpected cargo delays, incomplete or missing documentation, and route deviations are identified promptly and handled effectively by designated transit officers in accordance with established contingency protocols.	4.52	.707	154
Effective coordination and information sharing between the transit unit and other customs departments such as documentation, warehousing, and valuation ensures smooth, uninterrupted, and accountable transit operations throughout the clearance cycle.	4.26	.839	154
Transit cargo tracking systems are consistently and effectively utilized by customs officers to monitor the real-time movement of goods, enforce compliance with transit timelines, and reduce the risk of cargo diversion or loss.	4.58	.674	154
The implementation of standardized transit procedures at the Adama Customs Branch has contributed meaningfully to the reduction of clearance delays, improved cargo throughput, and enhanced the overall operational performance of trade facilitation activities.	4.55	.648	154
Warehouse operations at the Adama Customs Branch are carried out in strict accordance with formally established standard operating procedures, ensuring consistency, accountability, and regulatory compliance in the storage and handling of all customs-held	4.43	.899	154
Goods entering the customs warehouse are properly categorized, systematically arranged, and stored under appropriate conditions that ensure their physical safety, security, and protection from	4.41	.738	154

damage, theft, or unauthorized access throughout their detention period.			
Inventory records maintained in the customs warehouse are consistently accurate, regularly reconciled with actual stock, and updated in real time or at defined intervals to reflect the true status and location of all goods under customs control.	4.32	.941	154
Warehouse procedures at the Adama Customs Branch are purposefully designed and operationally implemented to minimize unnecessary delays in the examination, processing, and timely release of cargo to authorized importers and exporters.	4.25	.945	154
Effective operational coordination between the warehouse unit and other key customs departments including transit, documentation, and valuation plays a critical role in supporting seamless cargo processing and enhancing overall trade facilitation performance.	4.18	1.079	154
The documentation requirements prescribed by the Adama Customs Branch are clearly defined, readily accessible, and straightforward enough for both importers and exporters to understand and comply with without undue difficulty or repeated clarification.	4.64	.789	154
The verification of submitted trade documents including invoices, bills of lading, certificates of origin, and customs declarations is conducted thoroughly, accurately, and within acceptable time frames to prevent unnecessary processing delays.	4.51	.752	154
Errors, inconsistencies, or discrepancies identified in customs declarations and supporting trade documents are detected early in the review process and corrected promptly through established feedback and correction mechanisms to avoid prolonged delays.	4.40	.851	154
Document-declaration procedures at the Adama Customs Branch are fully aligned with applicable national customs regulations and conform to internationally recognized trade facilitation standards including the WTO Trade Facilitation Agreement and WCO guideline.	4.02	1.075	154

The overall performance and accuracy of document-declaration procedures at the Adama Customs Branch have a direct and measurable positive contribution to the speed, predictability, and reliability of trade facilitation outcomes experienced by importers and	4.06	1.192	154
The digital systems deployed at the Adama Customs Branch including the Automated System for Customs Data (ASYCUDA World) and other trade processing platforms are consistently reliable, operationally stable, and sufficiently user-friendly to support Performance.	4.30	.930	154
Customs officers and relevant staff at the Adama Customs Branch are adequately and continuously trained in the use of digital customs management systems, enabling them to perform data entry, processing, and reporting tasks competently and with minimal err	4.25	.994	154
The utilization of digital systems at the Adama Customs Branch has demonstrably enhanced the speed, accuracy, and transparency of the customs clearance process by reducing dependence on manual documentation, paper-based workflows, and human error-prone pr	4.18	1.127	154
Digital systems used at the Adama Customs Branch are effectively integrated with other internal departments as well as external trade stakeholders including freight forwarders, port authorities, banks, and relevant government agencies, facilitating seamlessly.	4.16	1.045	154
The Adama Customs Branch consistently meets its established customs clearance time targets, ensuring that imported and exported goods are processed, examined, and released within the prescribed timeframes without subjecting traders to unnecessary procedures.	4.05	1.040	154
The operational and administrative costs incurred by importers, exporters, and freight agents in the course of completing customs clearance procedures at the Adama Customs Branch are	4.15	1.125	154

effectively controlled and maintained within economically reasonable and			
The frequency of errors, omissions, and inaccuracies in customs documentation and cargo processing at the Adama Customs Branch is minimal, reflecting a high standard of procedural accuracy that reduces costly reprocessing, reexamination, and administrative burdens on traders.	4.21	.954	154
Importers, exporters, and other trade stakeholders who regularly interact with the Adama Customs Branch express a satisfactory level of confidence in the quality, consistency, fairness, and overall performance of the customs services and procedures provide	4.18	1.069	154
The customs procedures currently implemented at the Adama Customs Branch are effectively structured and operationally managed to identify and eliminate procedural bottlenecks, reduce bureaucratic redundancies, and facilitate the uninterrupted flow of legitimate trade activities.	4.38	.943	154
The overall customs clearance process at the Adama Customs Branch encompassing transit, documentation, warehousing, and digital processing collectively supports the smooth, timely, cost-effective, and compliant movement of goods across Ethiopian borders in line with national trade facilitation objectives.	4.37	.983	154