

**MODERATING EFFECT OF TAXPAYER AWARENESS ON FACTORS
AFFECTING CUSTOMS DUTY PERFORMANCE IN NAIROBI
COUNTY, KENYA**

BY

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DECLARATION

Declaration by the Candidate

This research is my original work and has not been presented for an award of degree in any other university or college. No part of this project may be reproduced without prior written permission of the author and or Moi University.

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Declaration by the Supervisor

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DEDICATION

I dedicate this project to my wonderful family who has been highly supportive during this journey.

ACKNOWLEDGEMENT

I would like to convey my profound gratitude to God for providing me with the energy, will, resources and guidance throughout this study. I wish to express sincere gratitude to my supervisors Dr. Bruce Ogaga and Prof. Ronald Bonuke guidance they have given me throughout this period. This research projects could not have been completed on time without her help and support. Finally, I wish to thank my family, friends and colleagues for their assistance, criticisms, useful suggestions, encouragement, patience and prayers towards this research project

ABSTRACT

Tax is an important stream of revenue for government's development projects and therefore all efforts must be made by governments to ensure that it is accurately and efficiently collected so as to facilitate the government's operations. This study sought to determine the moderating effect of taxpayer awareness on factors affecting customs duty performance Nairobi County, Kenya. The specific objectives were to establish the effect of Integrated Customs Management System (ICMS) transaction cost infrastructure on customs duty performance in Nairobi County, Kenya. while the moderating variable was Tax awareness. The theories supporting the study were: Economic Based Theory, Technological Determinism Theory and Comparative Theory of International Trade. The study employed explanatory research design. The target population of this study was 438 respondents comprising of customs head of departments, customs officers and customs agents Embakasi Inland Depot, Nairobi. with a sample size of 209, out of which 173 respondents correctly filled the questionnaires and submitted them accordingly. The primary data was collected by use of questionnaires with close ended questions. The data collected was analysed through regression analysis, descriptive and inferential statistics. A Multiple linear regression model was used to establish the strength of the relationship between independent and dependent study variables. The coefficient study showed that a unit change in ICMS increases customs duty performance significantly $\beta = 0.271$ p-value $= 0.039144 < 0.05$. The coefficient study also showed that a unit change in transaction costs decreases customs duty performance significantly $\beta = -0.344$ p-value $= 0.000 < 0.05$. The coefficient study showed that a unit change in infrastructure increases customs duty performance significantly $\beta = 0.079$ p-value $= 0.000 < 0.05$. The study further found that taxpayer awareness improves customs duty performance significantly $\beta = 0.370$ p-value $= 0.000 < 0.05$. The study further found that taxpayer awareness moderates the relationship between Integrated Customs Management System on customs duty performance $\beta = 0.173$ p-value $= 0.000 < 0.05$. The study also shows that taxpayer awareness moderates the relationship between transaction cost on customs duty performance $\beta = 0.294$ p-value $= 0.000 < 0.05$. Lastly the study found that that taxpayer awareness moderates the relationship between infrastructure on customs duty performance $\beta = 0.039$ p-value $= 0.000 < 0.05$. Recommendations of study are that the KRA and the government of Kenya prioritize the continuous improvement of the Integrated Customs Management System (ICMS). Furthermore, the study recommends that the government of Kenya takes a strategic focus on reducing transaction costs. The study also recommends that the government of Kenya makes Investments in infrastructure as robust transportation networks, ports, and customs facilities are essential for efficient customs operations. The study also recommends that the KRA undertakes comprehensive taxpayer education and engagement initiatives. Future research should investigate other factors that could affect customs duty performance, such as political stability, regulatory frameworks, and international trade agreements. Studies could also examine the role of digital transformation and artificial intelligence in further enhancing customs efficiency.

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ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of variance
ICT	Information and Communication Technology
KESRA	Kenya School of Revenue Administration
KRA	Kenya Revenue Authority
OSBP	One Stop Border Point
PGD	Post Graduate Diploma
RKC	Revised Kyoto Protocol
SPSS	Statistical Package for Social Sciences
TFA	Trade Facilitation Agreement
TMEA	Trade Mark East Africa
USA	United States of America
USAID	United states of America International Development
WCO	World Customs Organization
WTO	World Trade Organization

OPERATIONAL DEFINITION OF TERMS

- Customs duty performance:** This refers to the level of success attained; measured by port clearance time, total costs for import- and export-related transactions, and identification and interdiction of high-risk cargo and transparency (Holloway, 2010).
- Infrastructure:** The basic physical systems and resources that support transportation, communication and operations of an organization (Ojadi & Walters, 2015)
- Tax awareness:** Taxpayer education refers to programs aimed at teaching taxpayers about their tax rights, responsibilities and legal requirements. It also refers to the method of educating the people about the whole process of taxation and why they should pay tax (Nayaho, 2020).
- Transaction Costs:** These are costs direct or indirect that result in delayed clearance of goods through customs systems and administrations through the international supply chain (Verwaal & Donkers, 2003).

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter systematically introduces the study that includes the background of the study, statement of the problem, objective of the study, research hypothesis, significance of the study and the scope of the study.

1.1 Background of the Study

Tax is fundamental to state development; in terms of funding infrastructure and redistribution and creating a fiscal social contract between government and citizens. If tax is not adequate to cover requisite expenditure in areas such as infrastructure, health and education, this becomes a critical constant (Forstater, 2019). Generally, citizens are prepared to pay taxes if it is perceived to be fair, especially if they feel that the taxes are utilized for purposes that benefit them.

Available data according to OECD (2020) shows that taxation patterns around the world today exhibit large cross-country differences, especially between developed and developing countries. Developed countries collect a larger proportion of their national output in taxes than compared to developing nations; and they tend to rely more on income taxation. On the other hand, developing countries tend to rely more heavily on trade taxes as well as on consumption taxes such as value added tax (VAT) and excise duty.

The operating environment for customs in the 21st Century has evolved and this has necessitated the adaptation of modern operations and mind set. This is to serve the expectations of the international trading community working environment that envisages the most affordable, less complex, time saving and most efficient way of

doing trade in business. Traders are looking for time saving, simplicity, and speed (World Trade Organization, 2015). The performance of customs patrol has an integral role of managing the trade activities along the border points. Customs patrol is one of the large departments in terms of manpower and mandated to revenue collection and facilitation of trade and commerce (KRA, 2017).

Global Alliance for Customs Performance and World Economic Forum report (2016) indicated those developing countries, by contrast, have pursued broad-based customs reform efforts that, in some cases, include both infrastructure and institutional (soft infrastructure) reform. In South Sahara Africa (SSA), for example, customs reform is often associated with so-called “hard infrastructure reform,” including the building or improvement of roads, railways, airports, and seaports, Information And Communications Technology (ICT) systems, and reliable sources of power. “Soft infrastructure reform” encompasses the streamlining and harmonization of customs and border procedures, the incorporation of ICT enabled processes, and the elimination of corruption at border checkpoints.

Customs agencies, globally, are facing the emerging dilemma of balancing demands to improve Customs Performance while at the same time meeting increasing needs for compliance. They are under pressure to deliver customer-focused services, collect accurate revenues and prevent illegal trade within the constraints of limited resources. This call for modernization of customs administration to deliver agility, accuracy, security, and transparency using systems that are empowering rather than restrictive.

Regionally African continent has experienced rapid growth in trade over decade, trade within African countries has been slow due to low level of Customs Performance and industrialization. Factor mobility across the borders and the coordination of policies

would facilitate economic growth and greater welfare for participating countries thereby reducing poverty and solving unemployment. Member states are to initiate measures for Customs Performance programmes such as promoting, developing and adopting common solutions to problems in Customs Performance and establishing joint programmes among member states for easier movement of goods and people (WTO, 2015).

Njinkeau, Dominique and Hartmann (2015) posited that the use of manual processes for customs documentation in Africa, or the deployment of automated systems without adequate electricity or capacity for repair, contributes to customs delays in the region. These delays, in turn, increase the likelihood of traders making “facilitative payments” (bribes) to customs officials to speed the clearance of their goods through border checkpoints. According to Shinyekwa and Othieno (2013), an efficient and secured border management is vital for conducting cross-border trade in a smooth and cost-effective way. This is particularly true for the landlocked developing countries which are far away from seaports.

In Kenya Customs performance has not been satisfactory. Various instances of inefficiency have been reported. The cost of business transactions within the Kenya has more than doubled due to imposition of non-tariff barriers and other complex procedures of customs administration (Mghenyi, 2017). KRA officers no longer facilitate trade. Ineffective KRA officers have led to incurrence of extra storage costs. Importers incur an unprecedented extra Sh10 million each day due to payment for cargo storage charges and extra taxes owing to the imposed non- tariff barriers (Mghenyi, 2017). Delay in container cargo clearance is hindering trade. Clearance period is usually long and containers overstay for more than 10 to 12 days (Milimu, 2015).

1.1.1 Customs Performance in Kenya

Customs performance in Kenya has been under review form the past decade. Tariff code rationalization, reduction of the average tariffs and reduction of the number of tariff bands have formed customs duty reforms in the past. Since the 1990s, reforms have been driven partly by conditions for development aid, preferential trade arrangements and efforts to comply with the World Trade Organization (WTO) regulations. Thereafter, there has been a gradual reduction in both the tariff rates; especially on imported intermediate inputs; and tariff bands. Customs reforms were implemented alongside trade liberalization whose main objective was to enhance trade openness by moving away from the restrictive import substitution strategy towards export-oriented industrialization (Kamau, 2014).

A central pillar of a reliable customs administration is a stable automated IT system that can facilitate rapid cargo clearance and electronic exchange of data within the trading community. Recommendations in various IMF consultancy reports by the fiscal advisory division had repeatedly cited the lack of a customs system as a major impediment to trade. According to a 2008 report by KRA, the Simba 2005 system has been at the center of customs modernization in Kenya and has facilitated the automation of about 90% of operations at customs, thereby doing away with the requirement for tax payers to physically visit KRA due to the web based characteristics of the system. As a result, over the recent years a lot of gains have been realized with customs revenue rising from KShs. 96 billion in financial year 2003/04 to KShs. 331 billion in 2013/2014 financial year

1.2 Statement of the Problem

Customs mandate are revenue collection, border protection, collection of international trade statistics and trade facilitation (Ayuma, 2018). Collection of revenues has been used as the apex yardstick for measuring the performance of Kenya's customs and border control department (Morini, De'SaPorto, & Inacio, 2017). Customs and Border Control Department in Kenya has not been performing to the expectations of the treasury. The issue is that the customs department has on several occasions missed its collection targets.

For instance, in the year 2016/2017, the department collected 443.5 billion out of the targeted 462 billion. The following financial year 2017/2018, the department missed the target collecting 469.97 billion out of the targeted 484.97 billion (KRA, 2019). Kenya shares in merchandise trade remains very low at 2.7% in 2021, Kenya's share in world exports declined from 3.5% in 2018 to 2.5% in 2022, the lowest regional share. In 2022, 79% of people who imported goods experienced delays in facilitation. Between October 2019-August 2021, the number of containers that had overstayed at Inland Container Depot Nairobi was 4923 (KPA, 2022).

From the existing empirical studies by previous researchers such as Duval, Utoktham and Kravchenko (2018) who conducted a study on the effect of implementation of digital trade facilitation on trade costs in Asia. Hence conceptual gap and contextual gap Sameti and Rafie (2020) analyzed the effects of customs duty tax and economic growth in South Africa. They used panel data regression thus conceptual and methodological gaps. Gacanja (2021) explored the relationship between tax awareness and economic growth in Kenya for the period 2015-2020, hence conceptual gap. This study therefore sought to fill in the gaps by focusing on the moderating effect of

taxpayer awareness on factors affecting customs duty performance in Nairobi County, Kenya.

1.3 Objectives of the Study

The following objectives guided the study;

1.3.1 General Objective

The general objective of this study was to establish the moderating effect of taxpayer awareness on factors affecting customs duty performance in Nairobi County, Kenya.

1.3.2 Specific objectives

The specific objectives of study were:

- i. To establish the effect of Integrated Customs Management System (ICMS) on customs duty performance in Nairobi County, Kenya.
- ii. To determine the effect of transaction cost on customs duty performance in Nairobi County, Kenya.
- iii. To determine the effect of infrastructure on customs duty performance in Nairobi County, Kenya.
- iv. To find out the moderating effect of taxpayer awareness on the relationship between Integrated Customs Management System, transaction cost and infrastructure on customs duty performance in Nairobi County, Kenya.
 - a) To establish the moderating effect of taxpayer awareness on relationship between Integrated Customs Management System on customs duty performance in Nairobi County, Kenya.
 - b) To establish the moderating effect of taxpayer awareness on relationship between transaction cost on customs duty performance in

Nairobi County, Kenya.

- c) To establish the moderating effect of taxpayer awareness on relationship between infrastructure on customs duty performance in Nairobi County, Kenya.

1.4 Research Hypotheses

The study was guided by the following hypotheses:

- i. **H₀₁**- Integrated Customs Management System has no significant effect on customs duty performance in Nairobi County, Kenya..
- ii. **H₀₂**- Transaction Cost has no significant effect on customs duty performance in Nairobi County, Kenya.
- v. **H₀₃**- Infrastructure has no significant effect on customs duty performance in Nairobi County, Kenya.
- vi. **H₀₄**: There is no significant moderating effect of taxpayer awareness on the relationship between Integrated Customs Management System, transaction cost and infrastructure on customs duty performance in Nairobi County, Kenya.
 - a) **H_{04a}**: Taxpayer awareness has no significant moderating effect on the relationship between Integrated Customs Management System on customs duty performance in Nairobi County, Kenya.
 - b) **H_{04b}**: Taxpayer awareness has no significant moderating effect on the relationship between transaction cost on customs duty performance in Nairobi County, Kenya.

- c) **H_{04c}**: Taxpayer awareness has no significant moderating effect on the relationship between infrastructure on customs duty performance in Nairobi County, Kenya.

1.5 Significance of the Study

This study will be of importance to the following stakeholders

Kenya Revenue Authority, and administrators used this study in collection and administration of tax revenue; as a form of managerial practice. Traders may find the study beneficial as they get information on customs performance and challenges inherent. The study may give them more information for objective suggestions to Kenya Revenue Authority. Clearing and forwarding agents who are important in clearance may establish the contribution of ICMS on their operations

Policy makers will be able to perform legislation on customs and general tax laws. Public revenue collection is an integral component of fiscal policy and administration in any economy because of its influence on government operations. It is the fuel of every government as it is the main instrument through which government funding is ensured. Consequentially, external data base from other government agencies are also improved.

These agencies included those of the Registrar of Companies, the Deeds Office, and others. The study will fill knowledge gaps in literature on the factors affecting customs duty performance of and propel further research by scholars in other countries and in different aspects of customs performance such as Integrated Customs Management System, transaction cost and infrastructure.

1.6 Scope of the Study

The study focused on moderating effect of taxpayer awareness on factors affecting customs duty performance in Embakasi Inland Depot, Nairobi. Specifically, to determine the effect of Integrated Customs Management System, transaction cost and infrastructure on customs duty performance in Nairobi County, Kenya. The study employed explanatory research design. The target population of this study was 438 respondents comprising of customs head of departments, customs officers and clearance agents in Nairobi, County, and sample size of 209 respondents. The study focused on 2022/2023 financial year.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter highlights the conceptual review, a review of theories that underpin the study, empirical review, summary of the literature review, knowledge gaps, and the conceptual framework.

2.1 Conceptual Review

This section discusses on the concepts of the dependent and the independent variables.

2.1.1 Customs Duty Performance

Different countries are developing performance measurement models in order to analyze results on speed, release of goods, benefits, service, public perception and costings (Karlsson, 2017). Most western nations would be interested in measuring customs in terms of protection from entry of illegal or harmful products and persons. The same applies to developing countries but that function comes second or third after revenue collection in form of custom duties and levies. Revenue collection remains the top most yard stick for measurement of performance of customs and border control department in Kenya as for many other African countries (Chalendard, Raballand, & Rakotoarisoa, 2016).

Global Alliance for Customs Performance and World Economic Forum report (2016) indicated that developing countries, by contrast, have pursued broad-based customs reform efforts that, in some cases, include both infrastructure and institutional (soft infrastructure) reform. In South Sahara Africa (SSA), for example, customs reform is often associated with so-called “hard infrastructure reform,” including the building or

improvement of roads, railways, airports, and seaports, Information and Communications Technology (ICT) systems, and reliable sources of power. “Soft infrastructure reform” encompasses the streamlining and harmonization of customs and border procedures, the incorporation of ICT enabled processes, and the elimination of corruption at border checkpoints.

Customs agencies, globally, are facing the emerging dilemma of balancing demands to improve Customs Performance while at the same time meeting increasing needs for compliance. They are under pressure to deliver customer-focused services, collect accurate revenues and prevent illegal trade within the constraints of limited resources. This call for modernization of customs administration to deliver agility, accuracy, security, and transparency using systems that are empowering rather than restrict

2.1.2 Intergraded customs management system

Customs agencies, globally, are facing the emerging dilemma of continuously balancing demands to improve trade facilitation while at the same time meeting increasing needs for compliance. They are under pressure to deliver customer-focused services, collect accurate revenues and prevent illegal trade within the constraints of limited resources. This calls for modernization of customs administration to deliver agility, accuracy, security, and transparency using systems that are empowering rather than restrictive. It is for this reason that the Kenya Revenue Authority (KRA) is implementing the Integrated Customs Management System (iCMS). This new system consolidates all the existing Customs systems into one modern, robust and more efficient system built on the latest technology with capability of seamlessly interfacing with other internal and external systems as need arises OECD, (2019)

The system is bound to be a game changer in Customs processing as it will align operations with international best practices and improve ease of doing business not only in Kenya but also the in East African Community (EAC) region. In line with the World Trade Organization, (2020) requirement for the simplification and harmonization of international trade procedures, iCMS promises to further simplify and optimize Customs processes. The needed changes involved coming up with a new system that incorporates all the subsystems built around the main clearance system as well newly defined functionalities. The current Customs system, Simba 2005/2014, system runs on a multiplicity of sub-systems and requires multiple points of authentication for users hence sometimes takes more time. But with the new state-of-the-art system, it is envisioned that clearance time for imports and exports reduced by at least 60 per cent.

For a long time, all EAC member states, except Kenya, have been using the Automated System for Customs Data (Asycuda). The iCMS a system is now able to exchange Customs declaration information with Asycuda. This is, no doubt, of great benefit to countries that rely on the Mombasa port including Rwanda, Uganda, South Sudan, Burundi and the Democratic Republic of Congo. With the new iCMS, all the countries that have been using the port of Mombasa will be able to track the movement of their cargo. The issue of possible diversion of transit goods into the local market or disappearance of containers will be a thing of the past KRA, (2019).

Further, the new system has friendly interactive capabilities that were eliminated redundant processes, automate manual and semi-manual processes, and incorporate robust management in all Customs transactions. This paved the way for the era when traders were enabled to make their own cargo self-declarations KRA, (2021). In addition, the iCMS solution comes with best practice features including auto-upload of

cargo import data from shipping manifest to prevent import falsification, auto-exchange of information with iTax to counter non-compliant traders and a virtual electronic auction platform to make Customs cargo auctions accessible to all. OECD, (2020)

2.1.3 Transaction Costs

Transaction cost are costs other than production costs in international trade that add to the overall cost of an imported product to the final consumer. These costs are perceived to be an impediment to international trade (Verwaal & Donkers, 2019). They include cost due to delays and longer clearance times. Transaction costs to a larger extent in customs are escalated by clearance times. It encompasses time necessary for the entire trade transaction, processing the required documentation, clearance at the border point and even time taken for interventions by other border agencies including customs. These are big determinants of transaction costs. System downtimes in customs and other agencies involved in border operations also contribute to delays hence higher costs.

In most cases delays in clearance in countries such as Kenya are occasioned by transaction costs may also escalate due to government-imposed compliance requirements. These include total number of documents to establish or maintain trade business, the number of documents required for each trade transaction, the total number of documents necessary for each clearance at the border and the total number of border agencies with which one has to deal for specific transactions. The simpler the procedures the lower the costs of cross border trade (Fernandes, Hillberry, & Alcantara, 2015).

Operational efficiencies at customs offices and border posts is a topic synonymous with most customs administrations in developing countries like Kenya. This is blamed on

skewed sourcing of human capital. The result is untrained and unqualified staff leading to performance gaps which then become a breeding ground for vices such as corruption which is a cost to consumers of customs services.

2.1.4 Infrastructure

The availability of key resources and equipment to the customs agencies is vital in increasing the agency capacity to respond effectively towards the core operations. Subsequently, the needs of customs agencies differ based on the terrain and environment they operate from including land entry points, sea and air entry points. Provision and availability of appropriate infrastructure helps build the capacity of institutional operations (Ojadi and Walters, 2019). Customs department has a responsibility of regulating the cargo that passes through border points. The agency requires vehicles for efficient operations. Having vehicles allows the customs officers to traverse large areas along border points, therefore, ensuring that the agency discharges its duties accordingly.

Countries with access to the ocean have seaports that are essential for the development of trade in those particular regions (Murithi and Moyi 2013). Consequently, customs agencies have a duty to patrol and manage the trade operations within seaports. Normally, slow moving cargo as that found in ships corresponds with high dwell times that tend to bring down the efficiency of seaports and competitiveness of a nations port. It therefore, necessitates the customs agencies to have the right infrastructure and resources to patrol the seaport. Fast moving boats augment the dissemination of duties by the customs agencies. Seaport infrastructure supports the efficient operations of customs agencies within the entry point. It is imperative that the operations of a customs agency within a seaport continue to add value to the trade taking place. Consequently,

the availability of fast-moving boats ensures that operations of different stakeholders are monitored during patrols.

Apart from physical infrastructure, the operations of the customs agencies improve when information technology platforms are incorporated. The customs activities of KRA customs department improve through the application of RECTS system. RECTS is an automated system that avails real-time tracking of cargo from the entry port to the final destination where it is picked. Moreover, the system can track goods from the manufacturer if they are meant for local consumption. Through the RECTS system the number of days that are required to deliver goods has reduced significantly along the Northern Corridor (KRA, 2017). Furthermore, RECTS has assisted in bringing down tax evasion coupled with improved efficient management of the different goods under transit in the East African region.

2.1.5 Taxpayer Awareness

Tax awareness is the knowledge of which is required to be able to fulfil the various obligation by an individual whereas education involves impacting the know how to an individual with a view of producing a positive result. Tax awareness involves the knowledge recognition respect and obedience towards applicable laws and regulation in relation to taxation (Mulian and Shewan 2021). Increasing awareness through and education and other modes of facilitation impacts either way in that it may increase tax compliance or might not have any change. Tax awareness is an interterm in that the two goes hand in hand through education and facilitation the tax knowledge and awareness for mutual benefits of the government and public and may improve the way the taxpayers view the tax laws and implement them.

Tax awareness is an understanding of essential tax concepts within a country (Fauziate et al; 2016) It is important in determination of the correct tax liability in the era of self-assessment and according to KRA policy which is aimed at Trust and facilitation whereby it is expected that the taxpayer is aware and educated on the tax rules and regulations. Newman et al 2015 established that the SMEs in developed countries do not comply to the tax laws and noted that introductory classes be introduced at the basic learning levels.

2.2 Theoretical Framework

This study was guided by economic based theory being the main Theory, technological determinism theory and comparative theory of international trade

2.2.1 Economic Based Theory

Economic Based Theory based theory was postulated by the works of Becker (1968) and has evolved over a period of years with different researchers looking at different variables and challenging the findings made by the predecessor. This stipulates that individuals are driven by purely self-interest. Economic or deterrence theory means that there are factors that prevent individuals from achieving full compliance levels due to some harboring factors such as the cost benefit effect of the same. The works of Becker were challenged by the works of Allingham and Sandmo (1972) which stated that taxpayers usually want to maximize their gains. The economic also known as deterrence theory place emphasis on rewards and incentives obtained from the process.

Economic based theory basically places emphasis on economic factors such as costs incurred, the probability of detection and punishment that an individual may get due to failure to comply with some regulations. Most businessmen core objective of business is to incur less costs and in cases where there are detected and or the fine they can pay

when detected is less, they tend to overlook the compliance aspect. They like playing audit lottery according to (Trivedi and Shehata, 2005), therefore the taxpayers normally adjust their returns when filing to suit them. Therefore, the best way to prevent deterrence is by increasing fines and penalties once a taxpayer has been identified for the acts of omission and or commission.

According to Yitzhaki (1974), the taxpayer's attitude and behavioral aspects towards risk whether risk averse or risk taker influences the level of compliance in that risk aversion decreased with increase in the level of income. Thus due to the varying opinions on what actually should be done to improve compliance level within the small scale traders, this study would be useful in further determining what actually can deal with the gaps in the various theories and increase the knowledge gap.

The theory links to the current study in that despite there being aware of penalties and fines and the taxpayer's attitude towards risk, the compliance level of the traders have not improved. This is because most of the persons in this group are not in the tax bracket. The awareness of how the fines and penalties affect their compliance level would actually be important in understanding their compliance level., (Slemrod, 1989) noted a weakness in relation to theory in that it had inability to deal with items with different situations of a taxpayer. Other studies suggested a system comprising of both the punitive and persuasive measures may counter the problem of deterrence and therefore improve compliance level Falkinger, (1991).

2.2.2 Technological Determinism Theory

Technological determinism is a reductionist theory that aims to provide a causative link between technology and a society's nature. It was introduced by a German Economist: Karl Marx. Technological determinism is manifested at various levels; initially starting

with the introduction of newer technologies introduces various changes and at times these changes can also lead to a loss of existing knowledge as well. It creates a notion that technological change and development is inevitable, and that the characteristics of any given technology determine the way it is used by the society in which it is developed. The concept of technological determinism is dependent upon the premise that social changes come about as a result of the new capabilities that new technologies enable (Bimber, 1990).

Merritt (1996) also defines technological determinism as the belief in technology as a key governing force in society. An alternative weaker view of technological determinism says that technology is serving a mediating function because despite it leading to changes in culture, it is actually controlled by human beings. When control of technology slowly reduces from being in the hands of few human beings, it passes completely into the control of technology itself. In this case, it is referred to as autonomous technological determinism. Another critique of technological determinism is that technology never forces itself on members of the society. Given the proliferation of new technologies in modern capitalism, the Technological Determinism debate is continually revisited.

Mackenzie & Wajeman, (1999) dismiss the theory of Technological Determinism as mere “technological politics” that has fascinated historians, philosophers, and political scientists. Technologies always embody compromise. Political, economics available raw material all of these are thrown into the melting pot whenever an artifact is designed or built. Technologies do not, we suggest, evolve under the impetus of some necessary inner technological or scientific logic. They are not possessed of an inherent momentum. If they evolve or change, it is because they have been pressed into that

shape. Additionally, William & Edge (1996) hold the same view and posit that organizational, political, economic and cultural factors do influence the design and implementation of technology. Chandler (2000) states that other than technological issue other factors have driving forces and some including economic pressures, political issues, educational background, general attitudes amongst others.

Technological determinism has evolved over the years to Diffusion Theory and Instrumentalist theory. The Diffusion of Innovation Theory was developed in 1962 by E.M Rogers. Surry. D. (1997) explains how, over time, an idea or product or service diffuses or spreads through a specific social system or population. The end result of this diffusion is that people, as part of a social system, adopt a new idea, behavior, or 19 products. This means that technological and other advancements spread throughout societies and cultures, from introduction to wider-adoption. The diffusion of innovations theory seeks to explain how and why new ideas and practices are adopted, with timelines potentially spread out over long periods. This way, marketers and new companies know how to navigate a market and assess trends (Lamorte, 2019).

The Instrumentalist theory rejects the assumption that superior products and practices will automatically be attractive to potential users/ system adopters. They view the end user as the primary force for the technological change. Segal (1994) states the importance of adopter based theories when he writes "all structures and machines, primitive or sophisticated, exist in a social context and, unless designed for the sake of design itself, serve a social function (Surry, 1997). In the view point of Technological determinism, technology exists outside of society and follows an internal logic (Burmeister, 2017). Technological Determinism supports ICMS showing how their implementations are made and diffused throughout a specific timeline.

Its relevance to the study is that technological uptake may be embraced with the end user as the primary force to the changes. It explains further why societal values have any effect on technological implementation on customs duty performance. The theory will support Integrated Customs Management System.

2.2.3 Comparative Theory of International Trade

The theory also known as the Ricardian theory rides on autarky of prices. Countries have different relative labor productivities (Ruffin, 2002). When countries do not trade at all with one another in what refers to as autarky, the relative price of one good expressed in terms of the other good differs between the countries. Hypothetically, this difference in relative prices opens up opportunities for welfare enhancing international trade at a world price lying between the two autarky prices. Autarky prices are determined by countries' consumption preferences and their relative sizes (Markusen, 1995). A country will prefer to specialize completely in the production of goods in which it has a comparative advantage as explained by Heckscher-Ohlin (Keuschnigg, 1999). Inefficient trade procedures result in high customs costs which create a wedge between the relative prices faced by the two countries (Samuelson, 1954). Hence the imbalance of product prices in developed and developing countries.

Furthermore, this wedge in the relative prices faced by the two countries also means a divergence in factor prices. There develops a trickledown effect to the final consumer who pays a higher than would have been expected price for the final product as explained by the "Iceberg partial equilibrium" theory (Irarrazaba, Moxnesz, & Opromolla, 2010). Hence trade facilitation will improve terms of trade for both the importing country and the exporting country. The comparative theory applies by simultaneously reducing the price paid by domestic consumers for imports and

increases the price received by foreign importers. If trade costs become high enough, the international price faced by one country can become less favorable than its autarky price and trade ceases altogether, returning both countries to their autarky equilibria.

For both the importing and exporting country, the comparative theory applies by simultaneously reducing the price paid by domestic consumers for imports and increases the price received by foreign importers. Therefore, this theory provided a guide into investigating the effect of transaction costs on performance of customs and border control department with emphasis on revenue collection and trade facilitation. The study will support customs duty performance

2.3 Empirical Review

This section discusses empirical studies of study variables

2.3.1 Transaction and Customs Duty Performance

As early as 2011, studies conducted in Southern Asia and China pointed out significant welfare gains that can be achieved through reduction of trade transaction costs (Pellán & Wong, 2019). Streamlined trade procedures, including implementation of WTO TFA-related measures, is essential to reducing trade costs (Duval, Neufeld, & Utoktham, 2019). A study by the Inter-American Development Bank on the heterogeneous costs of port-of-entry delays in Peru concluded that port-of-entry delays are costly (Carballo, et al., 2014). That trade costs increased by 0.9 percent for every one day increase in procedures. The average delay for imports then was about 8.5days. Combined, this resulted in a port-of-entry cost of about 7.65 percent. Port delays and costs incurred due to an additional day of delay are heterogeneous across different types of firms and imports. Cost of delays becomes even higher at the airport than at the

seaport (Koley, Datta, & Mukherjee, 2016). Seaport delays are however costlier for larger firms than for small firms. This is important to policy makers.

Port-of-entry delays due to clearance procedures are directly related to trade policy as well as customs and port infrastructure (Lewis, Erera, Nowak, & White-III, 2020). From study estimates it was concluded that all firms whether big or small face significant costs due to port of entry delays (Carballo, et al., 2019). Since revenue collection is at the heart of customs administrations for most African countries, governments set procedures and processes for clearing while at the same time providing the necessary infrastructure for international trade (Shepa, 2021). The study by Shepa (2021) found that delays in clearing of goods at the port of Dar Es Salam emergence and increase in demurrage costs and that clearance procedures were too long and dodged with corruption.

In her study of the Kenya custom Wanyama, 2017, points that lack of smooth flow of documentation process and operational inefficiencies were also found to be contributing factors to the delay in the clearance of goods with corruption as a major course (Wanyama, 2017). Number of officers deployed at the verification section would not match the demand of the work as volume of goods had increased and therefore, the laid down number of containers that every officer is supposed to verify, cannot reduce congestion at the port. The bureaucratic system existing in long rooms means the documents have to pass through many stages that are not value adding in anyway. For goods to be released, they have to be verified by other government bodies such as public health, Kenya bureau of standards, Kenya police and other interested government organs. These processes prolong the procedures at the expense of the importers.

2.3.2 Integrated customs management system and Customs Duty Performance

According to Ward and Dietmar (2020) automation brings about benefits such as faster release of cargo passing through customs clearance; simpler procedures and documents, based on international standards; reduced physical examination of goods; separation of payment of duties and taxes from physical clearance of goods and faster electronic lodgement of customs declarations, using Direct Trader Input or other on-line connections. Holniker (2005) highlighted other advantages as: reduced customs auditing of documents.

Swindley (2007) adds payment and accounting, to register and account for payments by importers and exporters; and risk management, to select those consignments bearing higher risks, concealing duty and tax noncompliance, illegal importation of drugs or materials aimed 34 for terrorist activities; statistics and reporting, to extract data for dissemination of foreign trade statistics and to generate management reports for customs for efficient communication between customs, traders, and other government agencies. The overarching benefit is the direct and indirect reduction in administration cost and increased effectiveness in collection of customs revenue, this since customs administration leads to increased collection of duties and taxes due to the uniform application of laws and regulations through the automated calculation of tax due; and built-in security

Mwonge, (2011) conducted a study that sought to find out the influence of electronic tax filing on customs tax collection in Uganda. The study found out that with the commencement of an e-filing system (e Tax) in June 2009, at least US\$ 7 trillion worth of revenue resulting from 1.4 million payments has been receipted through electronic tax payments. This revenue is a result of over 360,000 tax returns that have been

received online. The study made the recommendations that the tax authority should upgrade the e tax servers, incorporate user friendly features to improve tax payer's interest in the use of the system and embark on a country wide sensitization programme to enhance the adoption of the system

Madola (2013) in his study on the factors affecting adoption of ITMS by Small and Medium sized entities in Nairobi between the years 2008 and 2012 revealed that perception of taxpayers towards e-filing technology as well as its perceived ease of use and perceived usefulness greatly determine the adoption and usage of the system. Over 88.9% of the 245 interviewed taxpayers in Nairobi consider e-filing technology a beneficial idea and its availability motivates them to comply with their tax obligations, particularly because they find the online system efficient as compared to the manual system. However, they feel K.R.A has not put in place enough measures to ensure that taxpayers know how to use the system. This could also be a reason as to why those who do not feel the e-filing technology is a necessary or efficient system are yet to appreciate it and use it.

2.3.3 Infrastructure and Customs Duty Performance

According to Economic Commission for Africa reports (2020), Infrastructure investments in Ethiopia have been a vital part of two successful growth and Tax revenue transformation plans (2010-2015, 2016-2020). Besides joint projects with Djibouti, the government of Ethiopia has also expanded domestic railways and launched the construction of Africa's largest dam (the Grand Ethiopian Renaissance Dam) and a number of large industrial zones which has resulted to great improvements in the manufacturing sector an industrialization (Dinh, Palinade & Chandra, 2019) This has

resulted to growth in tax revenue to GDP ratio in Ethiopia from 6.6% in 2009 to 9.4% in 2012 (World Bank, 2014).

Omondi (2019) assessed the role of road customs infrastructure in enhancing regional integration: the case study of Kenya's. This study addresses the relationship between customs infrastructure and regional integration specifically, within the East African Community and how this relation enhances economic growth and development in the region. The study found that, improved customs infrastructure hugely contributes to regional integration and hence enhances economic growth and development.

Kosgei (2017), using Granger causality test found a positive link between infrastructural development and the growth of tax revenue in Kenya particularly the ad-valorem and excise duty tax. Similarly Kimani (2017), Simiyu (2016) and Wanyama (2018) using the Pairwise Granger Causality Test found a uni-direct causality between infrastructural development and tax growth rates in Kenya. In addition, unemployment levels was found to Granger cause tax growth rates at 57% (Wanyama, 2018)

Wamboye and Simiyu (2017) in a study on the relationship between infrastructure development and tax growth, using Vector Error Correction Model found out that infrastructural development had moderate impact on tax revenue growth in the short run but no significant effect in the long run. The above two studies gave contrasting results hence the need to investigate the relationship between infrastructural development and rates of tax compliance in Kenya using recent data which this current study has found out.

2.3.4 Tax awareness and Customs duty performance as a moderator

According to Oladipupo and Obazee (2016) in their investigation on the impacts of tax payers' Awareness and penalties on tax compliance amongst small and medium enterprises in Nigeria using a survey research design. The data obtained from questionnaire were analyzed using the Ordinary Least Square regression method. The results showed that tax knowledge had a positive significant impact on tax compliance. Thus, the study shows that tax awareness has a higher tendency to promote tax compliance. Small and medium scale business owners should also seek to advance their tax awareness for the mutual benefits of the governments and taxpayers.

Greater education is directly linked to a likelihood of compliance. Educated taxpayers may be aware of noncompliance opportunities, but their potentially better understanding of the tax system and their higher level of moral development promotes a more favorable taxpayer attitude and therefore greater compliance (Chan et. al. 2020). Chan et. al. also suggested that those with a higher education level are more likely to have a higher level of moral development and higher level attitudes toward compliance and thus will tend to comply more.

One of the measures to increase voluntary compliance is by assuring that taxpayers have a certain level of qualifications, ability and confidence to exercise their tax responsibility (Mohani, 2001). Taxpayers who have attended a tax course would be expected to have better tax knowledge and tax compliance attitude in comparison with taxpayers who have never attended a tax course (Mohd, 2010). Hite and Hasseldine (2001) highlighted that tax authority need to emphasize teaching tax courses because of impact of education on compliance.

2.4 Summary of Previous Studies and Knowledge Gaps

Ward and Dietmar (2020) automation brings about benefits such as faster release of cargo passing through customs clearance; simpler procedures and documents, based on international standards; reduced physical examination of goods; separation of payment of duties and taxes from physical clearance of goods and faster electronic lodgement of customs declarations, using Direct Trader Input or other on-line connections hence Conceptual gap

Mwonge, (2011) conducted a study that sought to find out the influence of electronic tax filing on customs tax performance in Uganda. The study found out that with the commencement of an e-filing system (e Tax) in June 2009, at least US\$ 7 trillion worth of revenue resulting from 1.4 million payments has been receipted through electronic tax payments. This revenue is a result of over 360,000 tax returns that have been received online. The study made the recommendations that the tax authority should upgrade the e tax servers, incorporate user friendly features to improve tax payer's interest in the use of the system and embark on a country wide sensitization programme to enhance the adoption of the system. The study focused on e-filing on customs tax performance hence conceptual gap.

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tax awareness for the mutual benefits of the governments and taxpayers. The study questionnaire were analyzed using the Ordinary Least Square regression method hence methodological gap

2.5 Conceptual Framework

A conceptual framework is an interconnected set of ideas or theories about how a particular phenomenon functions or is related to its parts (Svinicki, 2010). The study focused on dependent variable customs duty performance which were measured by Revenue collected and Trade Facilitation. Dependent variable ICMS which was measured by Declaration of goods Verification. Transaction cost was measured by agency fee and time and infrastructure was measured by Conveyor belts and One Stop Border Post While the moderating variable was taxpayer awareness was measured by Customs and border control and Taxpayer rights.

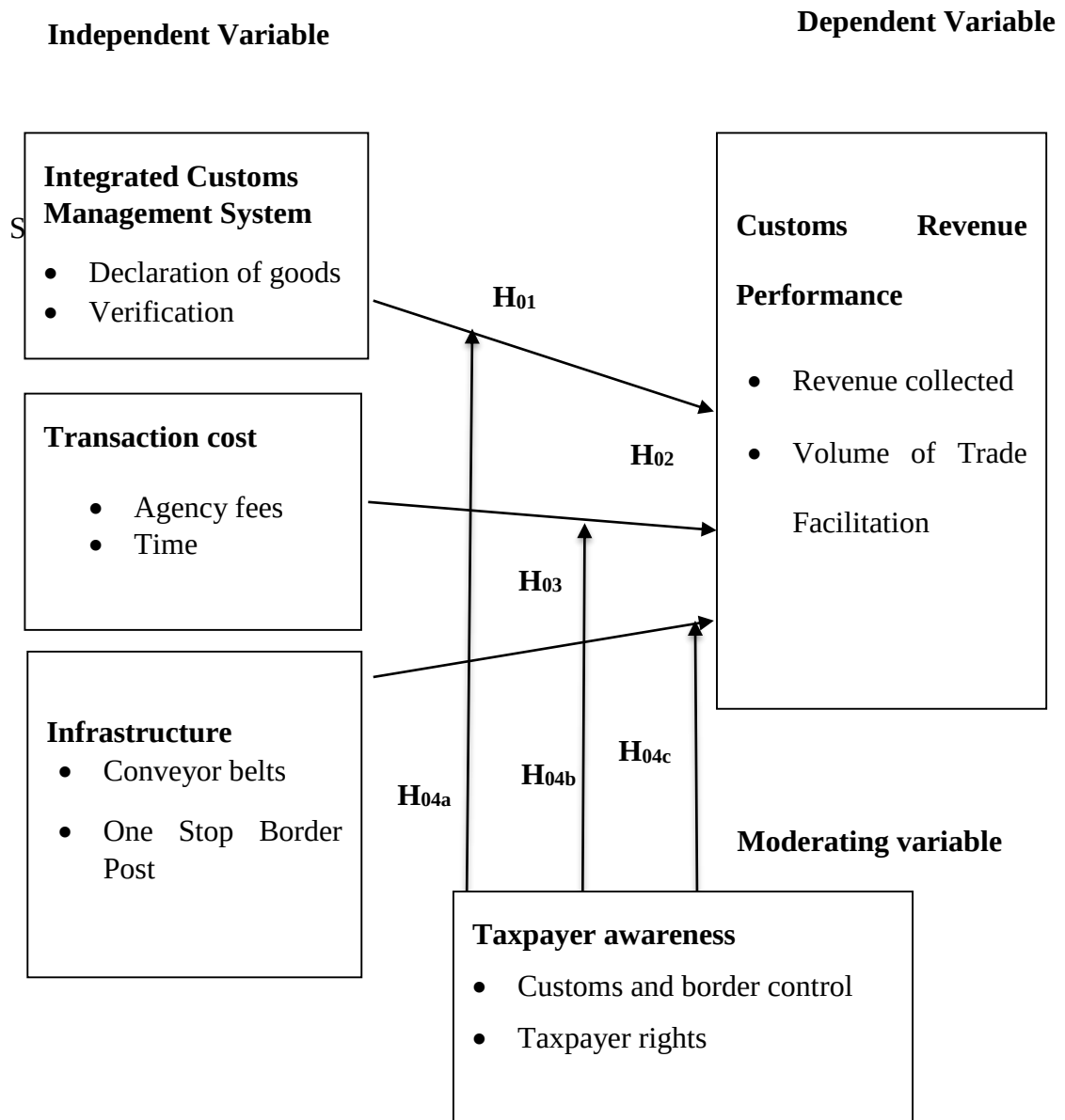


Figure 2.1: Conceptual Framework

Source: Research (2024)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter highlights the research methodology used in the study. It also outlines the method applies in conducting the research, and contains the research design, population of the study, data collection, data collection procedure, pilot test, validity and reliability tests, and analysis of data as well as operationalizing variables of the study variables.

3.2 Research Design

Akhtar (2016) defines research design as the blueprint, which guides the conduct process of a study with a clear plan for data collection, measurement, and analysis to give answers to the research questions. This study adopted explanatory research design, which was used to establish the cause and effect in the relationship between the variables. Explanatory research aims to explain why things happen and anticipate what will happen in the future. Hypotheses that determine the type and direction of the link between or among the variables evaluated characterize explanatory investigations.

3.3 Target Population

A population refers to a set of elements (objects or persons) that possess similar characteristics defined by the sampling criteria established by the researcher. It also includes all people or items with the characteristic the researcher wishes to understand (Donald Cooper 2010). There is rarely enough time or money to gather information from everyone or everything in a population and therefore the goal becomes finding a representative sample of that population. The target population of this study was 438 respondents comprising of customs head of departments, customs officers and Clearance Agents in Nairobi, County (KRA, 2023).

The choice of targeting the Embakasi Inland Depot in Nairobi County for this study on customs duty performance is well justified by the strategic role that this location plays within Kenya's customs operations. Embakasi Inland Depot is a central customs hub in Nairobi, handling a significant volume of imports and exports that pass through Kenya. Due to its location in Nairobi County, the depot is crucial for enforcing customs policies, managing the Integrated Customs Management System (ICMS), and implementing infrastructure projects and cost control measures—all critical to understanding customs duty performance (Kenya Revenue Authority, 2022). By focusing on Embakasi, the study captures insights directly from customs professionals, such as customs heads of departments, officers, and clearance agents, who have frontline experience with the challenges and processes impacting customs duties.

This geographic focus also allows the study to examine customs duty performance within a high-traffic inland customs station, providing a representative sample for Nairobi County, which is a core economic zone for Kenya. Nairobi's status as a primary commercial and logistics hub for East Africa makes it an appropriate location for studying customs-related variables like ICMS, transaction costs, and infrastructure, as these factors are likely to impact both revenue collection and trade facilitation. Additionally, the study's concentration on the 2022/2023 financial year is relevant, as it provides current data reflective of recent policy and operational changes in the customs sector. The sample size of 209 respondents, drawn from a target population of 438, offers a statistically reliable representation of customs stakeholders within Nairobi County, enhancing the study's validity and applicability to the customs duty landscape in Kenya.

Table 3.1: Target population

Category	Target population
Head of departments	220
Customs officers	108
Clearance Agents	110
TOTAL	438

3.4 Sampling Technique and Sample Size

A sampling technique refers to the procedure the researcher would adopt in selecting items for the sample. Sample design may as well lay down the number of items to be included in the sample (Marshall, 1996). The sampling technique applied in this study used stratified sampling using proportional allocation. Under stratified sampling the population is divided into several sub-populations (strata) which are individually more homogeneous than the total population. Then select items from each stratum to constitute a sample.

A sample is a part of the target population, carefully selected to represent that population (Dell, Holleran, & Ramakrishnan, 2002). More often it may not be feasible to obtain data from all counts that forms a target population due to practical reasons such as time and resource constraints. When this is the case, a portion of the population considered and this is small portion is known as sample size. A variety of arguments have been put across on what is the best mechanism for sample size pick. This instant study adopt the Yamane formula which is a widely accepted sample size formula

This formula was chosen because it considers the size of the population.

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

Where by:

n = Desired sample size

N = Target population under study (in this case, there are 438 respondents)

E = Signifies the Margin of error in this case taken as 5%

$$n = \frac{438}{1 + 438 * 0.05^2} = 209 \text{ respondents}$$

Table 3.2: Sample Frame

Category	Target population	Sample Size
Head of departments	220	105
Customs officers	108	52
Clearance Agents	110	52
TOTAL	438	209

3.5 Data Collection Instruments

The data collection process employed the use of primary data collected by the use of structured questionnaires containing closed-ended questions. Questionnaires are preferred as they are an effective tool for data collection. Questionnaires are powerful instruments that allow respondents to express their thought about the research problem. The questionnaire used five Likert scale (from strongly agree to strongly disagree).

3.6 Data Collection Procedure

Primary data for this study was gathered through the use of questionnaires. The researcher sought approvals and obtain data collection letter from KESRA and research permit from NACOSTI before beginning data collection. After that, the researcher made sure the questionnaire is valid and reliable through pre-testing. Research assistants handed out questionnaires individually. Participants were informed of the importance of the study, and their anonymity and responses was protected at all times. After a week has passed, we collected the questionnaires from the respondents to ensure they have had ample time to complete them.

3.7 Pilot Testing

Before the main activity of collecting data, a pilot test is often undertaken in order to ensure that vital aspect of the study with respect to tool used in data collection have not been overlooked (Cooper & Schindler, 2012). There are several benefits of having investigation before the actual study in that, firstly, it ensures that resources needed can be gathered and assembled in time which enhances field work. Secondly, it enables the researcher to plan in advance and know the time needed for various tasks which ensures that none of the tasks are left during actual fieldwork. Thirdly, it ensures that the tool used for data collection can be examined for validity and reliability. This study picked 20 respondents from Machakos county to be used for purpose of pilot testing. The respondents who were selected for the pilot exercise did not form part of the population under study. The information which obtained was then subjected to descriptive and inferential statistical data analysis techniques. Questions not well captured were adjusted accordingly. The pilot helped to determine if the questions were well understood by the respondents and if they ultimately offered reliable and valid information for this study.

3.7.1 Reliability Test

Use of questionnaires in collecting primary data is faced with an inherent problem; that the questionnaire may fail to be reliable in providing information on aspects being tested by the study. This study employed the Cronbach's alpha in evaluating the reliability of the questionnaire. Nunnally (1978) argued that a Cronbach's alpha value of 0.7 and above proves that the research instrument used is reliable. Reliability level of 0.7 and below is deemed to be weak (Cooper & Schindler, 2011). For the purpose of this study, Cronbach alpha coefficient of 0.7 was adopted to enhance reliability.

3.7.2 Validity Test

Validity refers to how well the results of a study measure what they are intended to measure (Sauro, 2014). Several ways may be used to estimate the validity of a test including content validity, face validity, construct validity, and criterion-related validity. Creswell (2013) defines content validity as the extent to which the questions on the instrument and the scores from these questions represent all possible questions about the content. It ensures that the questionnaire includes adequate set of items that tap the concept. In their analysis of recurrent events, Cook & Lawless (2006) describes face validity as validity without empirical testing hence the weakest (Robertson & Kandola, 1982).

Anastasi & Urbina (1997) describe construct validity as the extent to which a test may be said to measure a theoretical trait. It is verified by comparing the test to other tests that measure similar qualities to see how highly correlated the two measures are. Criterion-related validity is one which correlates test results with another criterion of interest (Pallant, 2011). To this end, the study diligently pursued to capture data from the right source using appropriate instruments to make them valid. Factor analysis will

be taken into account to determine validity and to ensure that the instruments content and accuracy of variables under study is correct.

3.8 Assumptions of Regression

Prior to performing the inferential analyses, statistical assumptions was tested to establish if the data met the normality, and collinearity assumptions, and it was on the basis of these results, that tests of associations and prediction was performed.

3.8.1 Normality Test

The Shapiro-Wilk test was employed to test for normality. This test establishes the extent of normality of the data by detecting existence of skewness or kurtosis or both. Shapiro-Wilk statistic ranges from zero to one with figures higher than 0.05 indicating that the data is normal (De Vos, Strydom, Fouche & Delpont, 2011). Normality was tested using the Shapiro-Wilk test and if the results showed that the variables are above 0.05 ($p > 0.05$) hence that confirmation data normality.

3.8.2 Multi-collinearity Test

Multi-collinearity is a phenomenon whereby high correlation exists between the independent variables. It occurs in a multiple regression model when high correlation exists between these predictor variables leading to unreliable estimates of regression coefficients. This leads to strange results when attempts are made to determine the extent to which individual independent variables contribute to the understanding of dependent variable (Creswell, 2014).

Osborne and Walters (2014), states that to access whether there was a high correlation between one or more variables in the study a Multicollinearity test which is the Variable Inflation Factor was employed. VIF measured correlation level between the predictor variables and estimated the inflated variances due to linear dependence with other

explanatory variables. It was tested by computing the Variance Inflation Factors (VIF) and its reciprocal, the tolerance. A variance inflation factor test was conducted to test for multicollinearity of the predictors and a value less than 10 is acceptable.

3.8.3 Heteroscedasticity Test

The concept of homoscedasticity in a regression model implies that the difference between actual and predicted outcomes remains stable, regardless of the specific outcome. To check for this, the Cook-Weisberg test was used. - When the p value is significant at 95%, we can conclude that the data does not have equal variability and instead exhibits different levels of variability. (Gujarati & Porter, 2014).

3.8.4 Linearity Test

Multiple linear regression model demands that the relationship between dependent and independent variables be linear to ensure that the analysis is valid and reliable. To confirm linearity by creating scatter plots to show the relationship between each of the dependent and independent variables. Garson, (2012) states that If the Ramsey RESET test for linearity has p value greater than 0.05 the assumption for linearity was not violated

3.9 Data Analysis

The data was analyzed using descriptive and inferential statistics analysis techniques. Data Analysis Questionnaires was checked for completeness and was organized in an appropriate manner to facilitate data analysis. The collected data thereafter was coded, edited and cleaned to facilitate data analysis. With respect to data transformation, primary data collected by use of questionnaire structured on a five-point Likert scale was summarized in terms of Means based on the dependent and independent variables of the study. The Means of the dependent and independent variables of the study was

then be subjected to descriptive and inferential statistical analysis. Inferential statistical analysis was employed Pearson correlation and multiple regression analysis to establish the significance of the relationship between the predictor and the outcome variables. The equation representing the algebraic expression of the study model is as follows;

The study adopted regression analysis as shown

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

3.9.1 Moderation Process

The steps from Baron and Kenny (1986) perspective for the hierarchical model process for moderation involves three distinct steps: Direct effects: First, assess whether there is a relationship between the independent variables (Integrated Customs Management System, transaction cost, infrastructure) and the dependent variable (customs duty performance) without taking the moderating variable into account. Before adding the moderator, the statistical assumptions for normality, heteroscedasticity, multicollinearity and linearity must be met. Adding the Moderator: Next, include the moderator (taxpayer awareness) in the regression model and determine if it significantly impacts customs duty compliance. Interaction Terms: Then, create interaction terms by multiplying each independent variable with the moderator (ICMS * taxpayer awareness, transaction cost * taxpayer awareness, and infrastructure * taxpayer awareness). Evaluate the impact of these interaction terms by adding them to the regression model one at a time, in hierarchical order, and check for significant effects. Finally, test the regression model with all interaction terms included to see if they are significant. If the p-values are less than 0.05, it indicates that digitization has a significant moderating effect on the direct relationships. The subsequent equations were;

Equation (ii)

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + M + \varepsilon$$

Equation (iii)

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + M + M^* X_1 + \varepsilon$$

Equation (iv)

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + M + M^* X_1 + M^* X_2 + \varepsilon$$

Equation (v)

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + M + M^* X_1 + M^* X_2 + M^* X_3 + \varepsilon$$

Where,

Y = Customs duty performance

β_0 = Constant term

$\beta_1, \beta_2, \beta_3$ = Beta coefficients of the independent variables

X_1 = Integrated customs management system

X_2 = Transaction cost

X_3 = Infrastructure

M = Taxpayer Awareness as a moderator

$M^* X_1$ = Integrated customs management system * Taxpayer Awareness

$M^* X_2$ = Transaction cost * Taxpayer Awareness

$M^* X_3$ = Infrastructure * Taxpayer Awareness

ε = error term

3.10 Operationalization and Measurements

Operationalization of variables refers to the process of defining and measuring a variable in a way that it can be observed and quantified. It involves the process of taking a concept or construct and converting it into a measurable form. In conducting this study on customs duty performance, each variable is carefully measured to ensure accurate representation and analysis, guided by established sources and appropriate measurement scales. This section provides a detailed justification of the measurement choices and the sources that validate these decisions, in APA format.

The independent variable, the Integrated Customs Management System (ICMS), is assessed through two primary indicators: Declaration of goods and Verification. Shepa (2021) suggests that these indicators are essential for capturing the system's effectiveness in managing customs operations. The ICMS is measured using a 5-point Likert scale, which allows respondents to express varying levels of agreement or disagreement regarding the effectiveness of these customs management aspects. This ordinal scale is appropriate as it captures nuanced perceptions and facilitates the use of both correlation and regression analysis, which are instrumental for understanding the relationship between ICMS and customs duty performance.

The second independent variable, Transaction Cost, is defined by Agency fees and Time. These indicators are based on the study by Verwaal and Donkers (2019), which highlights transaction costs as crucial in influencing trade efficiency. A 5-point Likert scale is used for measurement, where participants can indicate their perceived cost levels. This scale is well-suited for capturing subjective responses, enabling the study to quantify the perceived burden of transaction costs, thus supporting correlation and regression analysis to assess their impact on customs duty performance.

The third independent variable, Infrastructure, includes Conveyor Belts and One Stop Border Post as indicators. According to Dinh, Palinade, and Chandra (2019), these components are integral to infrastructure efficiency, impacting customs and trade processes. A 5-point Likert scale is employed here, allowing participants to rate the adequacy of infrastructure, which can influence the performance outcomes of customs duties. This scaling method facilitates both descriptive and inferential analysis, including correlation and regression, to gauge the influence of infrastructure on customs duty performance effectively.

The study's moderator, Taxpayer Awareness, is measured through indicators of Customs and Border Control and Taxpayer Rights, as proposed by Mulian and Shewan (2021). A 5-point Likert scale is chosen for its ability to capture degrees of awareness, from low to high, making it easier to interpret the moderation effect on customs duty performance. The responses gathered via this scale provide insight into taxpayer knowledge, which can affect customs outcomes and justify its moderation role in the study's analytical models.

Finally, the dependent variable, Customs Duty Performance, is represented by Revenue Collected and Trade Facilitation, drawing from the Kenya Revenue Authority (KRA, 2022). Using a 5-point Likert scale aligns with common practice for performance indicators, enabling respondents to rate effectiveness levels. This variable's measurement is fundamental to the study, as it reflects the customs department's efficiency and supports both correlation and regression analyses to test hypothesized relationships with the independent variables.

Each variable's measurement strategy aligns with prior research and is designed to enable robust statistical analysis, supporting the study's aim to understand factors influencing customs duty performance comprehensively.

Table 3.3: Operationalization of Variables

Variable	Indicators	Source	Measurement Scale	Data collection instrument	Type of analysis
Independent Integrated customs management system	- Declaration of goods - Verification	Shepa (2021)	5- point Likert scale	Questionnaire	Correlation Regression Analysis
Independent Transaction cost	Agency fees Time	Verwaal & Donkers, 2019	5- point Likert scale	Questionnaire	Correlation. Regression Analysis.
Independent infrastructure	- Conveyor belts - One Stop Border Post	Dinh, Palinade & Chandra, 2019	5- point Likert scale	Questionnaire	Correlation Regression Analysis
Moderator Taxpayer Awareness	- Customs and border control - Taxpayer rights	Mulian and Shewan 2021	5- point Likert scale	Questionnaire	Correlation Regression Analysis
Dependent Customs duty performance	- Revenue collected - Trade Facilitation	KRA,(2022)	5- point Likert scale	Questionnaire	Correlation Regression Analysis

3.11 Ethical Considerations

In any research undertaken, there are important logistical and ethical considerations that the researcher must be aware of before starting the research as this helps the researcher to protect their integrity and also ensure honest results (Mugenda & Mugenda, 2003). Ethical clearance to carry out the research was obtained from Kenya School of Revenue Administrative (KESRA). And research permit from NACOSTI. Confidentiality was observed during the study, by not disclosing the actual identity of

the respondents. Moreover, proper explanation were given to the respondents regarding the aim of the study, and they were assured that their information was used only for the purpose of the research. No any form of coercion or manipulation was applied to collect data from the respondents. They were left to participate out of free will, and they were at liberty to withdraw their participation at any given stage of the study without any far-reaching consequences.

CHAPTER FOUR

DATA ANALYSIS DISCUSSION OF FINDINGS

4.1 Introduction

This chapter presents the research findings in line with the four objectives outlined in chapter one. It starts with demographic representation, followed by descriptive statistics, diagnostic tests, correlation analysis, regression analysis, and hypothesis testing. The results are displayed using tables and charts.

4.2 Response Rate

Fincham (2008) states that it is important to check if the answers are complete and correct when looking at the answers from surveys during data analysis. However, response rate is important if it bears on representativeness. When total non-response occurs in sample elements drawn from populations that are small, the effect of nonresponse bias is even more profound.

Table 4.1 shows that the researcher distributed 209 questionnaires and 173 were correctly filled and returned representing 82.8%. However, 36 of the questionnaires representing 17.2% were not returned.

Table 4.1: Response Rate

	Frequency	Percentage (%)
Responded Questionnaires	173	82.8%
Non-responded Questionnaires	36	17.2%
Total	209	100%

(Source: Research 2024)

4.3 Reliability Test

The Pilot test was conducted, the study selected 20 respondents from Machakos county to be used for purpose of pilot testing. The respondents who were selected for the pilot exercise was not part of the population under study, The reliability results indicates that for the various items Cronbach's alpha values are 0.991, for respondents to integrated Customs Management System for respondents to transaction cost are 0.902, for infrastructure 0.832, and for taxpayer awareness the alpha value is 0.842, for customs duty performance the alpha value is 0.983, the results indicate Nunnally (1978) argued that a Cronbach's alpha value of 0.7 and above proves that the research instrument used is reliable The responses from the survey had alpha values >0.7 reliability.

Table 4.2: Reliability test

Variable	Cronbach's Alpha	Number of Items
integrated Customs Management System	0.991	5
transaction cost	0.902	5
Infrastructure	0.832	5
taxpayer awareness	0.842	5
customs duty performance	0.983	5

(Source: Research 2024)

4.4 Demographics Data

The demographics data presented in Table 4.3 provides a comprehensive overview of the respondents' gender, age, and educational background. Conducting demographic analysis is essential as it provides a comprehensive understanding of the sample's composition, which is crucial for interpreting study findings accurately. By examining characteristics such as age, gender, and education level, researchers can assess the

representativeness of the sample, allowing for greater generalizability of results to broader populations. Demographic analysis also helps in identifying potential confounding variables that may influence outcomes, thereby enhancing the validity of the research. Additionally, understanding demographic distributions allows researchers to tailor interventions, recommendations, or conclusions to specific groups, ensuring that findings are both relevant and applicable.

Table 4.3: Demographics Data

		Frequency	Percent %
Gender	Female	81	46.8%
	Male	92	53.2%
Age	30 to 40 years	39	22.5%
	41 to 50 years	49	28.3%
	Above 50 years	41	23.7%
	Below 30 years	44	25.4%
Education	Post graduate	50	28.9%
	Secondary education	27	15.6%
	Technical level	47	27.2%
	Undergraduate	49	28.3%
Total		173	100%

(Source: Research 2024)

The sample consists of 173 individuals, with a slight male majority of 53.2% (92 individuals) compared to 46.8% females (81 individuals). Analysing the age distribution, the majority of respondents fall within the 41 to 50 years age bracket, representing 28.3% (49 individuals) of the total sample. This is closely followed by those below 30 years, accounting for 25.4% (44 individuals). The next significant age

group is those aged above 50 years, making up 23.7% (41 individuals), while those aged 30 to 40 years constitute 22.5% (39 individuals). Educational level, the respondents display a diverse range of qualifications. The largest group holds postgraduate degrees, comprising 28.9% (50 individuals) of the sample. Individuals with undergraduate degrees represent 28.3% (49 individuals), closely mirroring the postgraduate segment. Those with technical level education make up 27.2% (47 individuals), and the smallest group consists of respondents with secondary education, totalling 15.6% (27 individuals).

4.5 Descriptive Statistics

Measures of central tendency, mean standard deviation, skewness and kurtosis for the responses for items presented for Integrated Customs Management System, transaction cost, infrastructure, taxpayer awareness, and customs duty performance were presented and interpreted. The questionnaire responses are based off a Likert scale 1-5.

4.5.1 Integrated Customs Management System Descriptive Summary

Table 4.4 presents the descriptive statistics for various questionnaire items related to the Integrated Customs Management System (ICMS).

Table 4.4: ICMS Descriptive Summary

Items	N	Mean	Std. Dev	Skewness	Kurtosis
The transmission of declarations electronically to customs services is fast	173	3.94	1.024	-.595	-.790
The electronic lodging of entries against the manifest registered electronically is efficient		4.19	.942	-1.024	.128
ICMS is critical in streamlining customs procedures.		3.98	1.037	-.661	-.762
ICMS Training is available to all stakeholders.		4.18	.849	-.998	.571
Using ICMS decentralizes customs operations affecting time costs.		4.16	.969	-.990	-.022
Aggregate Mean		4.09			

(Source: Research 2024)

The transmission of declarations electronically to customs services is fast: The mean score for this item is 3.94 (SD = 1.024), indicating that respondents generally agree that the transmission is fast. The skewness of -.595 suggests a slight negative skew, meaning most responses are clustered towards higher agreement. The kurtosis of -.790 indicates a relatively flat distribution compared to a normal distribution. The electronic lodging of entries against the manifest registered electronically is efficient: This item has a mean score of 4.19 (SD = .942), suggesting that respondents agree with the efficiency of electronic lodging. The skewness of -1.024 shows a more pronounced negative skew, with many respondents selecting higher agreement. The kurtosis value of .128 indicates a distribution close to normal but slightly peaked. ICMS is critical in streamlining customs procedures: The mean score for this statement is 3.98 (SD = 1.037), which shows that respondents generally agree on the critical role of ICMS. The skewness of -.661 suggests a moderate negative skew, indicating a tendency towards higher agreement. The kurtosis of -.762 suggests a distribution flatter than normal. ICMS

Training is available to all stakeholders: This item has a mean score of 4.18 (SD = .849), indicating agreement that training is widely available. The skewness of -.998 shows a negative skew, with most respondents agreeing. The kurtosis of .571 indicates a slightly more peaked distribution compared to a normal distribution. Using ICMS decentralizes customs operations affecting time costs: The mean score is 4.16 (SD = .969), suggesting that respondents agree with the statement. The skewness of -.990 indicates a negative skew, meaning most responses are towards higher agreement. The kurtosis of -.022 indicates a distribution very close to normal. The mean scores indicate general agreement across all items, with an average mean score of 4.09. The skewness values consistently show negative skews, indicating a tendency towards higher agreement on the Likert scale. The kurtosis values vary, with some distributions being flatter or more peaked than normal, but none indicating extreme deviations.

4.5.2 Transaction Cost descriptive Summary

Table 4.5 shows the descriptive summary.

Table 4.5: Transaction Cost Descriptive Summary

Items	N	Mean	Std. Dev	Skewness	Kurtosis
Government imposed trade procedures in customs and border control department add to transaction costs and affect customs duty performance	173	3.87	.950	-.648	-.400
Longer clearance times increase total import/export costs and affect customs duty performance		4.11	.810	-.934	.801
Government imposed trade procedures are a cost and affect custom's role in protecting the society		4.12	.791	-.494	-.464
Government-imposed trade procedures are a cost and affect trade facilitation		4.09	.717	-.425	-.068
The cost of hiring a tax agent is high		3.97	.727	-.232	-.360
Aggregate Mean		4.03			

(Source: Research 2024)

For the item Government imposed trade procedures in customs and border control department add to transaction costs and affect customs duty performance. The average response of 3.87 indicates that respondents generally agree with the statement, leaning slightly towards agreement. The standard deviation of .950 shows moderate variability in responses. The negative skewness of -.648 suggests that responses are slightly skewed towards the higher end of the scale, indicating more respondents tend to agree or strongly agree. The kurtosis of -.400 indicates a distribution that is slightly flatter than the normal distribution, with fewer extreme responses. Longer clearance times increase total import/export costs and affect customs duty performance with a mean of 4.11, respondents tend to agree with this statement, showing a stronger inclination towards agreement. The standard deviation of .810 reflects moderate variability in responses. The negative skewness of -.934 indicates a distribution that is skewed towards higher agreement levels. The positive kurtosis of .801 suggests a distribution with slightly more peakedness, indicating responses are more clustered around the mean. Government imposed trade procedures are a cost and affect custom's role in protecting the society. The mean of 4.12 shows that respondents agree with the statement. A standard deviation of .791 indicates moderate variability among responses. The skewness of -.494 indicates a slight skew towards agreement. The kurtosis of -.464 suggests a slightly flatter distribution, indicating a wider range of responses around the mean.

Government-imposed trade procedures are a cost and affect trade facilitation. The mean of 4.09 indicates that respondents agree with the statement. The standard deviation of .717 shows relatively low variability in responses. The skewness of -.425 indicates a slight skew towards agreement. The kurtosis of -.068 suggests a distribution close to normal, with responses evenly spread around the mean.

The cost of hiring a tax agent is high. The mean of 3.97 indicates respondents generally agree with this statement. The standard deviation of .727 reflects low variability in responses. The skewness of -.232 shows a slight skew towards agreement. The kurtosis of -.360 suggests a slightly flatter distribution, indicating responses are spread out around the mean. The mean scores across the items average to 4.03, suggesting a general agreement among respondents on the impact of government-imposed trade procedures and associated costs on customs duty performance and related factors.

4.5.3 Infrastructure Descriptive Summary

Table 4.6 presents the descriptive statistics for various items related to infrastructure, including the mean, standard deviation, skewness, and kurtosis.

Table 4.6: Infrastructure Descriptive Summary

Items	N	Mean	Std. Dev	Skewness	Kurtosis
Construction of modern halls has enhanced clearance of goods which takes reasonably less time	173	4.07	.925	-.808	-.143
The expansion of roads in Nairobi has led to smooth flow of traffic hence saving transaction cost of importers and exporters		4.01	1.037	-.708	-.700
Modern facilities such as gantries and weighbridge has reduced traffic flow in Nairobi		3.98	1.006	-.682	-.612
There is enough parking space for vehicles waiting clearance		4.10	.915	-.899	.080
There is sharing of equipment's and facilities among EAC partner states customs authorities stationed in Nairobi.		3.82	.959	-.622	-.470
Aggregate Mean		4.00			

(Source: Research 2024)

For Construction of modern halls has enhanced clearance of goods which takes reasonably less time The average rating is 4.07, indicating a general agreement with the statement. Standard Deviation of 0.925, showing a moderate variability in responses.

Skewness of -0.808, suggesting a left-skewed distribution, with more respondents rating this statement highly. Kurtosis of -0.143, indicating a relatively flat distribution compared to the normal distribution. For The expansion of roads in Nairobi has led to smooth flow of traffic hence saving transaction cost of importers and exporters The mean score is 4.01, reflecting agreement with the statement. The standard deviation of 1.037, indicating a slightly higher variability in responses compared to the first item. Skewness of -0.708, indicating a left-skewed distribution, but less skewed than the first item. Kurtosis of -0.700, suggesting a flatter distribution than the normal distribution. For Modern facilities such as gantries and weighbridge has reduced traffic flow in Nairobi. The mean is 3.98, suggesting agreement among respondents, though slightly less than the previous items. The Standard Deviation of 1.006, showing moderate variability in responses. Skewness of -0.682, indicating a left-skewed distribution with more high ratings. Kurtosis of -0.612, reflects a flatter than normal distribution. There is enough parking space for vehicles waiting clearance The mean score of 4.10, indicates a strong agreement with the statement. The Standard Deviation of 0.915, showing moderate variability in responses. The skewness of -0.899, suggesting a more pronounced left-skew with many respondents rating this statement highly. The Kurtosis of 0.080, indicating a distribution close to normal. There is sharing of equipment and facilities among EAC partner states customs authorities stationed in Nairobi, the mean of 3.82, reflects moderate agreement, though it is the lowest among the items listed. The standard Deviation of 0.959, showing moderate variability in the responses. The skewness of -0.622, indicating a left-skewed distribution, while the kurtosis of -0.470, suggesting a relatively flat distribution.

The overall mean for these items is 4.00, which falls within the "Agree" range on the Likert scale, indicating general agreement across all statements related to infrastructure.

In summary, respondents generally agree with the positive statements about the infrastructure improvements in Nairobi, as evidenced by means close to 4.0. The variability, skewness, and kurtosis suggest a consistent trend towards positive evaluations, with minor variations across different items.

4.5.4 Taxpayer Awareness Descriptive Summary

Table 4.7 shows the summary statistics for the items measuring taxpayer awareness.

Table 4.7: Taxpayer Awareness Descriptive Summary

Items	N	Mean	Std. Dev	Skewness	Kurtosis
I'm aware how to declare actual income received from all sources to the tax authority	173	3.97	.714	-.240	-.250
I have interacted with Kenya Revenue Authority officials during one of the workshops organized for tax training and awareness		4.08	.739	-.382	-.319
I am aware of the implications of non-compliance		4.09	.730	-.407	-.210
I am aware that I need to file my taxes monthly		4.01	.682	-.348	.199
I understand that I should pay taxes due within the prescribed period from the date of issue of the Notice of Assessment or within the stipulated period		4.10	.763	-.416	-.485
Aggregate Mean		4.05			

(Source: Research 2024)

For the statement "I'm aware how to declare actual income received from all sources to the tax authority" (N = 173), the mean score was 3.97 (SD = .714), indicating a high level of agreement among respondents. The distribution was slightly negatively skewed (-.240) and had a kurtosis of -.250, suggesting a relatively normal distribution with a slight tendency towards higher responses. The statement "I have interacted with Kenya Revenue Authority officials during one of the workshops organized for tax training and awareness" had a mean score of 4.08 (SD = .739), indicating agreement among

respondents. The skewness was $-.382$ and the kurtosis was $-.319$, indicating a slight negative skew and a distribution that is somewhat flat relative to a normal distribution. For the statement "I am aware of the implications of non-compliance," the mean was 4.09 ($SD = .730$), showing strong agreement. The skewness value was $-.407$ and kurtosis was $-.210$, indicating a slight negative skew and a distribution approaching normality but with fewer extreme responses. Regarding the awareness of the need to file taxes monthly, respondents reported a mean score of 4.01 ($SD = .682$). The skewness was $-.348$, and the kurtosis was $.199$, indicating a slight negative skew and a slight peak relative to a normal distribution. Lastly, the statement "I understand that I should pay taxes due within the prescribed period from the date of issue of the Notice of Assessment or within the stipulated period" had the highest mean score of 4.10 ($SD = .763$), indicating strong agreement. The skewness was $-.416$ and the kurtosis was $-.485$, suggesting a slight negative skew and a flatter distribution than normal. The average mean score across all items was 4.05 , reflecting a general consensus of agreement among the respondents on their awareness of tax-related obligations. The standard deviations were relatively low, indicating consistency in responses, and the skewness and kurtosis values suggested distributions that were generally symmetrical and mesokurtic or slightly platykurtic.

4.5.5 Customs Duty Performance Descriptive Summary

Table 4.8 shows the summary statistics for the customs duty performance items are presented detailing respondents' agreement levels on various statements using a Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5).

Table 4.8: Customs Duty Performance Descriptive Summary

Items	N	Mean	Std. Dev	Skewness	Kurtosis
I always make correct customs duty declaration	173	3.95	1.056	-.657	-.447
I always file return on time and as required by law		4.01	1.113	-.754	-.646
I file customs duty returns voluntarily because it's an obligation		3.98	1.078	-.742	-.411
I pay the tax liability that arise from my customs duty obligation without failure		4.06	1.038	-.873	-.045
I pay tax by the due date		4.04	1.069	-.918	.030
Aggregate Mean		4.01			

(Source: Research 2024)

For the statement "I always make correct customs duty declaration," the mean score was 3.95 (SD = 1.056), indicating that respondents generally agree with the statement. The skewness of -.657 suggests a slight leftward skew, meaning more respondents reported higher agreement levels. The kurtosis of -.447 indicates a relatively flat distribution compared to a normal distribution. The statement "I always file return on time and as required by law" had a mean of 4.01 (SD = 1.113), showing a slight tendency towards agreement. The skewness of -.754 indicates a moderate leftward skew, suggesting a higher frequency of responses towards the higher end of the scale. The kurtosis of -.646 indicates a flatter distribution than normal. For the item "I file customs duty returns voluntarily because it's an obligation," the mean score was 3.98 (SD = 1.078), indicating a general agreement. The skewness of -.742 shows a moderate leftward skew, implying a tendency towards higher agreement responses. The kurtosis of -.411 suggests a flatter distribution than the normal curve. Respondents generally agreed with the statement "I pay the tax liability that arise from my customs duty obligation without failure," which had a mean of 4.06 (SD = 1.038). The skewness of -.873 shows a noticeable leftward skew, indicating a tendency towards higher

agreement. The kurtosis of $-.045$ suggests that the distribution is close to normal, but slightly flatter. Lastly, the statement "I pay tax by the due date" received a mean score of 4.04 ($SD = 1.069$), showing that respondents tend to agree with this practice. The skewness of $-.918$ indicates a noticeable leftward skew, reflecting higher agreement levels among respondents. The kurtosis of $.030$ suggests that the distribution is close to normal, with a slight tendency towards a sharper peak. In general, the mean scores of all items range around 4.01 , reflecting a general trend of agreement among respondents regarding their customs duty performance. The skewness values consistently show a leftward skew across all items, indicating a tendency towards higher agreement levels, while the kurtosis values mostly suggest flatter distributions compared to a normal distribution.

4.6 Factor Analysis

Engelhardt (2013) states that Factor analysis is a mathematical method for identifying correlations among different elements. It observes the relationships between various entities and attempts to streamline them. It is also employed to illustrate the relationships between different entities and to uncover any concealed patterns within a collection of items. Reducing the scale of an object involves representing it as the combination of two smaller parts along with added random factors. A method to display the variances we observe is by converting them from a multitude of possibilities to a smaller selection, such as from 3D to 2D.

4.6.1 Factor Analysis suitability

The KMO and Bartlett's test The Kaiser-Meyer-Olkin (KMO) measure and Bartlett's Test of Sphericity assess the suitability of data for factor analysis. The KMO statistic quantifies sampling adequacy, with values closer to 1 indicating better suitability.

Bartlett's Test evaluates whether the correlation matrix significantly $p < 0.05$, differs from an identity matrix, confirming correlations among variables are sufficiently large for factor analysis (Field, 2018; Tabachnick & Fidell, 2019).

Table 4.9: Factor Validity Test

	Customs Duty Performance	Integrated Customs Management System	Transaction Cost	Infrastructure	Taxpayer Awareness
KMO	0.839	0.812	0.776	0.731	0.890
Bartlett's test for Sphericity	0.000<0.05	0.000<0.05	0.000<0.05	0.000<0.05	0.000<0.05

(Source: Research 2024)

Table 4.9 show that Customs Duty performance has KMO score of 0.8319, that ICMS has KMO score of 0.812, that transaction cost has a KMO score of 0.776, infrastructure has a KMO score of 0.731, and lastly taxpayer awareness has a KMO score of 0.890, the Bartlett's test shows that all the variables significantly differ from identity matrix $p < 0.05$, this indicates that factor analysis was sufficient for all the items.

4.6.2 Convergence Validity

Factor Convergent Validity is a type of construct validity that assesses whether a measure of a construct correlates with other measures of the same or similar constructs. It's used to ensure that different items intended to measure the same concept are indeed doing so consistently.

In the context of reducing dimensionality in questionnaire items, factor convergence validity is crucial. When you have multiple items designed to measure the same construct, you expect them to correlate highly > 0.5 with each other. If they don't, it may

indicate that they're not all measuring the same thing, which can lead to redundancy and complexity in data analysis. Loewen (2015).

Table 4.10: Convergence Validity

		CDP1	CDP2	CDP3	CDP4	CDP5
Correlation	CDP1	1.000	.822	.776	.793	.718
	CDP2	.822	1.000	.916	.820	.811
	CDP3	.776	.916	1.000	.900	.883
	CDP4	.793	.820	.900	1.000	.862
	CDP5	.718	.811	.883	.862	1.000
		ICMS1	ICMS2	ICMS3	ICMS4	ICMS5
	ICMS1	1.000	.664	.700	.649	.684
	ICMS2	.664	1.000	.700	.704	.972
	ICMS3	.700	.700	1.000	.690	.697
	ICMS4	.649	.704	.690	1.000	.691
	ICMS5	.684	.972	.697	.691	1.000
		TC1	TC2	TC3	TC4	TC5
	TC1	1.000	.509	.244	.615	.584
	TC2	.509	1.000	.606	.713	.548
	TC3	.244	.606	1.000	.524	.471
	TC4	.615	.713	.524	1.000	.797
	TC5	.584	.548	.471	.797	1.000
		INF1	INF2	INF3	INF4	INF5
	INF1	1.000	.624	.646	.706	.100
	INF2	.624	1.000	.959	.734	.177
	INF3	.646	.959	1.000	.710	.140
	INF4	.706	.734	.710	1.000	.155
	INF5	.100	.177	.140	.155	1.000
		TPA1	TPA2	TPA3	TPA4	TPA5
	TPA1	1.000	.775	.853	.908	.817
	TPA2	.775	1.000	.903	.840	.852
	TPA3	.853	.903	1.000	.909	.902
	TPA4	.908	.840	.909	1.000	.869
	TPA5	.817	.852	.902	.869	1.000

Table 4.10 found that Customs Duty Performance (CDP): The items CDP1, CDP2, CDP3, CDP4, and CDP5 show high convergence validity, as all correlations are

statistically significant and range from 0.718 to 0.916, indicating strong relationships among these items.

For Integrated Customs Management System (ICMS) The items ICMS1, ICMS2, ICMS3, ICMS4, and ICMS5 also exhibit high convergence validity, with correlations ranging from 0.649 to 0.972. However, ICMS1 seems to have a weaker correlation with other items compared to the rest.

For Transaction Cost (TC) The items TC1, TC2, TC3, TC4, and TC5 show lower convergence validity. While some correlations are high (e.g., TC2 with TC4 and TC5), others are relatively low (e.g., TC1 with TC3, TC4, and TC5). This suggests that the items in this construct may not be measuring the same concept uniformly.

For Infrastructure (INF) The items INF1, INF2, INF3, INF4, and INF5 have low convergence validity, as correlations among them are generally weak, especially INF5 with all other items (ranging from 0.100 to 0.177). This indicates that the items in this construct may not be measuring the same concept consistently.

4.6.3 Exploratory Factor loadings

The cut-off for factor loadings is a threshold value that helps determine which items should be retained for constructing a variable. Typically, factor loadings of 0.30 to 0.40 are considered minimal for retaining an item. However, a loading of 0.50 or above is generally seen as strong, and a loading of 0.70 or above is considered very strong. In most cases, items with factor loadings less than 0.40 are excluded as they do not contribute significantly to the factor. Mayer (2006), Retaining items with higher loadings ensures that the factor is accurately represented by its items, improving the construct validity of the measurement. By excluding items with low factor loadings,

you minimize the impact of measurement error or noise in the data. Thus the term dimension reduction.

Table 4.11: Principal Components Factor Analysis

Variables	Questionnaire items	Factor loadings	Eigen Values
Customs Duty Performance	CDP1	.881	4.324
	CDP2	.940	
	CDP3	.964	
	CDP4	.942	
	CDP5	.920	
Integrated Customs Management System	ICMS1	.836	3.867
	ICMS2	.925	
	ICMS3	.859	
	ICMS4	.846	
	ICMS5	.926	
Transaction Cost	TC1	.728	3.275
	TC2	.839	
	TC3	.689	
	TC4	.917	
	TC5	.853	
Infrastructure	INF1	.818	3.234
	INF2	.935	
	INF3	.931	
	INF4	.878	
	INF5	.230	
Taxpayer Awareness	TPA1	.922	4.453
	TPA2	.926	
	TPA3	.968	
	TPA4	.960	
	TPA5	.941	

(Source: Research 2024)

The Tables 4.10 Illustrates the correlation of each item with a factor, and categorize them accordingly. - In general, if something fails to meet the requirement, it's because it doesn't have a factor loading value greater than 0. It was excluded from the study due to its loading on only one factor. The Eigen values for Customs Duty Performance $4.324 > 1.0$, for ICMS is $3.867 > 1.0$ for transaction costs $3.275 > 1.$, for infrastructure 3.234 , and for taxpayer awareness 4.453 this implies that each factor can explain more

variance than a single variable. Variable Construction from Factor Loadings from each construct Customs Duty Performance, Integrated Customs Management System) consists of questionnaire items. The factor loadings indicate the extent of each item's contribution to its construct. Customs Duty Performance (CDP) Includes CDP1, CDP2, CDP3, CDP4, CDP5. All items have high factor loadings between (0.881 to 0.964), signifying significant contributions. All items should be included in constructing this variable. Integrated Customs Management System (ICMS) Comprises ICMS1, ICMS2, ICMS3, ICMS4, ICMS5. With loadings between 0.836 and 0.926, all items significantly contribute to the ICMS construct. They should all be retained. Transaction Cost (TC) Contains TC1, TC2, TC3, TC4, TC5. While TC3 has a lower loading (0.689), it is still above the 0.50 threshold. The other items have high loadings. TC3's relevance should be reviewed, but it can be included. Infrastructure (INF) Includes INF1, INF2, INF3, INF4, INF5. INF5 has a low loading (0.230), below the 0.50 cut-off. The remaining items have high loadings. INF5 should be excluded; the rest are good indicators of the INF construct. Taxpayer Awareness (TPA) Comprises TPA1, TPA2, TPA3, TPA4, TPA5. All items have high loadings (0.922 to 0.968), indicating strong contributions. All items should be included in constructing the TPA variable.

Mayer (2006), states the steps for exploratory factor analysis involves Collect and explore data: choose relevant variables. Extract initial factors via principal components, choose the number of factors to retain, choose the estimation method and estimate the model, rotate and decide if changes need to be made, and then repeat steps 4 and 5, after which scales are created for variables to be used in data analysis.

4.7 Regression Assumptions

Regression assumptions were tested to determine suitability of data for regression analysis, the tests for normality, homoscedasticity, linearity, multicollinearity were conducted.

4.7.1 Test for Normality

The Shapiro-Wilk statistic ranges from zero to one with probability > 0.05 indicating that the error terms of the variable is normally distributed (De Vos, Strydom, Fouche & Delport, 2011).

Table 4.12: Tests of Normality

		Kolmogorov-Smirnov ^a			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
Integrated Customs Management System		.190	173	.122	.842	173	.544
Transaction Cost		.260	173	.644	.782	173	.210
Infrastructure		.186	173	.700	.842	173	.100
Taxpayer Awareness		.178	173	.820	.847	173	.059

a. Lilliefors Significance Correction

The normality test on table 4.12 results shows that ICMS has a p-value of $0.544 > 0.05$, transaction cost has p-value of 0.210 , infrastructure has a p-value of $0.100 > 0.05$, and lastly taxpayer awareness has -value of $0.059 > 0.05$. The probability values imply that the error terms of the variables analysed do not significantly drift from a normal distribution.

4.7.2 Test for Homoscedasticity

The concept of homoscedasticity in a regression model implies that the difference between actual and predicted outcomes remains stable, regardless of the specific outcome. To check for this, the Cook-Weisberg test was used. - When the p value is significant at 95% level of confidence, we can conclude that the data does not have

equal variability and instead exhibits different levels of variability. (Gujarati & Porter, 2014).

Table 4.13: Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance Variables: fitted values of custom_duty_performance		
chi2(1)	=	0.90
Prob > chi2	=	0.3440

(Source: Research 2024)

Table 4.12 shows $\text{Prob} > \chi^2 = 0.3440 > 0.05$, this implies that the assumption for homoscedasticity has not been violated.

4.7.3 Test for Linearity

The Ramsey RESET test was employed if any nonlinear transforms of the specified independent variables have been omitted Garson (2012).

Table 4.14: Ramsey RESET test

Ramsey RESET test using powers of the fitted values of custom duty performance		
Ho: model has no omitted variables		
F (3, 165)	=	1.36
Prob > F =	=	0.520

(Source: Research 2024)

Table 4.14 shows the P-value of 0.520, and F statistic of 1.36, this implies that the linear relationship between factors affecting customs duty performance, and custom duty performance.

4.7.4 Multicollinearity Test

Osborne and Walters (2014), multi-collinearity is a phenomenon whereby high correlation exists between the independent variables. It occurs in a multiple regression model when high correlation exists between these predictor variables leading to unreliable estimates of regression coefficients. $VIF > 10$ implies lower levels of intercorrelation between predictors. High multicollinearity typically results in inflated standard errors, wider confidence intervals, and reduced statistical power, increasing the likelihood of Type II errors (failing to detect a true relationship when one exists). In such situations, the R-squared value may appear high, but the estimated coefficients and their standard errors become highly sensitive to small changes in a few data points. This sensitivity can distort the interpretation of the results and make it difficult to accurately assess the significance of the coefficients. (Garson, 2012).

Table 4.15: Multicollinearity Test

Model		Collinearity Statistics	
		Tolerance	VIF
1	Integrated Customs Management System	.488	2.051
	Transaction Cost	.700	1.428
	Infrastructure	.510	1.962
	Taxpayer Awareness	.509	1.967

a. Dependent Variable: Custom Duty Performance

(Source: Research 2024)

The multicollinearity test on table 4.15 shows VIF for Integrated Customs Management System is $2.051 < 10$, for Transaction Cost is $1.428 < 10$, for infrastructure is $1.962 < 10$, Taxpayer awareness has VIF of 1.967. The VIF statistics implies that there low correlation exists between the independent variables.

4.8 Correlation Analysis

Table 4.16: Correlation Analysis

		A	B	C	D	E
Custom Duty Performance	Pearson	1				
	Correlation					
	Sig. (2-tailed)					
	N	173				
Integrated Customs Management System	Pearson	.641**	1			
	Correlation					
	Sig. (2-tailed)	.000				
	N	173	173			
Transaction Cost	Pearson	-.833**	-.491**	1		
	Correlation					
	Sig. (2-tailed)	.000	.000			
	N	173	173	173		
Infrastructure	Pearson	.587**	.237**	-.323**	1	
	Correlation					
	Sig. (2-tailed)	.000	.000	.000		
	N	173	173	173	173	
Taxpayer Awareness	Pearson	.612**	.415**	-.487**	.317**	1
	Correlation					
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	173	173	173	173	173

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

(Source: Research 2024)

The correlation analysis on table 4.16 shows that there is a strong positive correlation between the Integrated Customs Management System and Custom Duty Performance, at 64.1% This correlation is statistically significant at the 0.05 level. The correlation matrix also shows that There is a very strong negative correlation between Transaction Cost and Custom Duty Performance at -83.3%. This correlation is statistically significant at the 0.05 level. The matrix also shows that there is a strong positive correlation between Infrastructure and Custom Duty Performance at 58.7%. This correlation is statistically significant at the 0.05 level. Lastly there is a strong positive correlation between Taxpayer Awareness and Custom Duty Performance at 61.2%. This correlation is statistically significant at the 0.05 level.

4.9 Regression Analysis

The general objective of this study was to establish the moderating effect of taxpayer awareness on factors affecting customs duty performance in Nairobi County, Kenya. The direct effects between Integrated Customs Management System, transaction cost, infrastructure and customs duty performance.

4.9.1 Model Summary without moderator

Table 4.17: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.685	0.469	0.433	0.572647

a. Predictors: (Constant), infrastructure, transaction cost, ICMS

(Source: Research 2024)

The model summary on table 4.17 shows that there is a positive and significant correlation between Integrated Customs Management System, transaction cost, infrastructure and customs duty performance at 68.5%. The Coefficient of determination shows that Integrated Customs Management System, transaction cost, infrastructure cause a 46.9% variation on customs duty performance. 53.1% of the remaining variation is caused by factors not captured in the model.

4.9.2 Analysis of Variance without moderator

Table 4.18: ANOVA without moderation

Mode l		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	120.138	3	40.046	49.801	0.000
	Residual	135.897	169	0.804		
	Total	256.035	172			

(Source: Research 2024)

The ANOVA statistic on table 4.17 shows that the variation caused on customs duty performance is statistically significant F-statistic 49.801 p-value =0.000<0.05.

4.9.3 Regression Coefficient Analysis

The regression model for the direct effects of Integrated Customs Management System, transaction cost, infrastructure on customs duty performance.

$$Y = 3.417 + 0.205 X_1 - 0.657X_2 + 0.179X_3$$

Table 4.19: Regression Coefficients without Moderator

Model	Standardized Coefficients β	Std. Error	UnStandardized Coefficients β	t	Sig.
1 (Constant)	3.417	0.226		15.119	0.000000
ICMS	0.205	0.052	0.216	3.942	0.000046
Transaction Cost	-0.657	0.035	-0.558	-18.771	0.000000
Infrastructure	0.179	0.050	0.189	3.580	0.000207

a. Dependent Variable: customs duty performance.

(Source: Research 2024)

Table 4.19 shows that a unit change in ICMS causes a 0.205 increase in customs duty performance. Further investigation showed that unit change in transaction cost causes a -0.657 decrease in customs duty performance. Lastly a unit change in infrastructure causes a 0.179 increase in customs duty performance. The changes caused by factors on customs duty performance, are statistically significant $p < 0.05$.

4.10 Hierarchical Regression model

The steps from Baron and Kenny (1986) perspective for the hierarchical model process for moderation involves three distinct steps: Direct effects: First, assess whether there is a relationship between the independent variables (Integrated Customs Management System, transaction cost, infrastructure) and the dependent variable (customs duty performance) without taking the moderating variable into account. Adding the Moderator: Next, include the moderator (taxpayer awareness) in the regression model and determine if it significantly impacts customs duty compliance. Interaction Terms: Then, create interaction terms by multiplying each independent variable with the

moderator (ICMS * taxpayer awareness, transaction cost * taxpayer awareness, and infrastructure * taxpayer awareness). Evaluate the impact of these interaction terms by adding them to the regression model one at a time, in hierarchical order, and check for significant effects. Finally, test the regression model with all interaction terms included to see if they are significant. If the p-values are less than 0.05, it indicates that digitization has a significant moderating effect on the direct relationships. Figure 4.1 shows the illustration of hierarchical model.

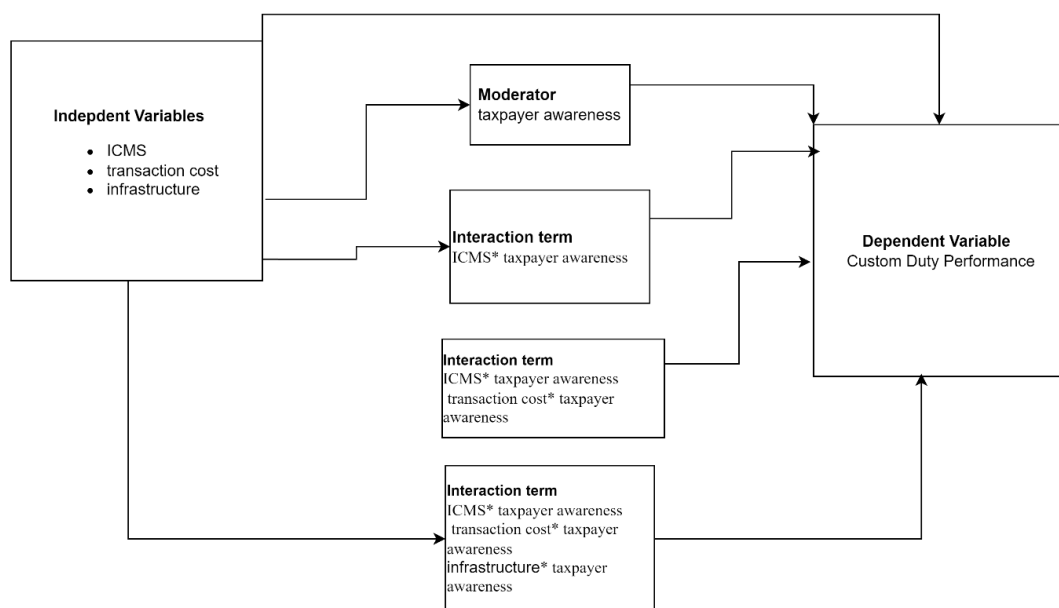


Figure 4.1: Hierarchical Model

(Source: Baron & Kenny (1986))

4.10.1 Model Summary with moderator

Table 4.20: Model Summary with moderator

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Sig. F Change
1	0.685	0.469	0.433	0.572647		0.000
2	0.686	0.471	0.441	0.071347	0.001	0.004
3	0.687	0.472	0.455	0.715250	0.001	0.000
4	0.689	0.475	0.461	0.069704	0.003	0.002
5	0.701	0.491	0.471	0.069908	0.017	0.006

(Source: Research 2024)

The model summary on table 4.20 shows that there are changes in R square from model 1 0.649, and model 5 has R square of 0.491, The R square changes in variation caused on custom duty performance are statistically significant in all models, this implies that as the effects introduction of taxpayer awareness causes a significant change in variation caused on custom duty performance. P-value =0.006<0.05.

4.10.2 Analysis of Variance with moderator

Table 4.21: ANOVA With Moderator

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	120.138	3	40.046	49.801	0.000
	Residual	135.897	169	0.804		
	Total	256.035	172			
2	Regression	120.489	4	30.122	37.334	0.000
	Residual	135.546	168	0.807		
	Total	256.035	172			
3	Regression	120.841	5	24.168	29.854	0.000
	Residual	135.194	167	0.810		
	Total	256.035	172			
4	Regression	121.545	6	20.258	25.004	0.000
	Residual	134.490	166	0.810		
	Total	256.035	172			
5	Regression	125.816	7	17.974	22.774	0.000
	Residual	130.219	165	0.789		
	Total	256.035	172			

a. Dependent Variable: LOG_CDP

(Source: Research 2024)

The ANOVA table 4.21 shows that the variation caused after the introduction of taxpayer awareness to moderate the effects of Integrated Customs Management System, transaction cost, infrastructure on customs duty performance is statistically significant F-statistic of model 5 22.774 and p-value =0.000<0.05.

4.10.3 Regression Coefficient Analysis with moderator

The model equations for the hierarchical models are as such

Equation (i)

$$Y = 3.417 + 0.205 X_1 - 0.657X_2 + 0.179X_3$$

Equation (ii)

$$Y = 1.410 + 0.179X_1 - 0.665X_2 + 0.072X_3 + 0.138M$$

Equation (iii)

$$Y = 1.334 + 0.208X_1 - 0.664X_2 + 0.072X_3 + 0.165M + 0.052M \cdot X_1$$

Equation (iv)

$$Y = 0.743 + 0.254X_1 - 0.346X_2 + 0.099X_3 + 0.373M + 0.140M \cdot X_1 + 0.292M \cdot X_2$$

Equation (v)

$$Y = 0.749 + 0.271X_1 - 0.344X_2 + 0.079X_3 + 0.370M + 0.173M \cdot X_1 + 0.294M \cdot X_2 + 0.039M \cdot X_3$$

Table 4.22: Regression Coefficients Analysis with Moderator

	Model	Standardized Coefficients		Unstandardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.417	0.226		15.119	0.000000
	ICMS	0.205	0.052	0.216	3.942	0.000046
	transaction cost	-0.657	0.035	-0.558	-18.771	0.000000
	infrastructure	0.179	0.050	0.189	3.580	0.000207
2	(Constant)	1.410	0.096		14.688	0.000000
	ICMS	0.179	0.050	0.186	3.580	0.000263
	transaction cost	-0.665	0.024	-0.399	-27.708	0.000207
	infrastructure	0.072	0.021	0.076	3.429	0.000473
3	taxpayer Awareness	0.138	0.050	0.147	2.760	0.003781
	(Constant)	1.334	0.212		6.292	0.000000
	ICMS	0.208	0.091	0.216	2.286	0.018284
	transaction cost	-0.664	0.024	-0.399	-27.667	0.000000
	infrastructure	0.072	0.021	0.076	3.429	0.003314
	taxpayer Awareness	0.165	0.048	0.176	3.438	0.004781
4	ICMS*taxpayer Awareness	0.052	0.003	0.001	17.333	0.000000
	(Constant)	0.743	0.280		2.654	0.008659
	ICMS	0.254	0.090	0.264	2.822	0.004000
	transaction cost	-0.346	0.065	-0.208	-5.323	0.002000
	infrastructure	0.099	0.045	0.105	2.200	0.039000
	taxpayer Awareness	0.373	0.111	0.397	3.360	0.002017
	ICMS*taxpayer Awareness	0.140	0.003	0.003	46.667	0.000000
	transaction Cost*taxpayer Awareness	0.292	0.003	0.011	97.333	0.002000
5	(Constant)	0.749	0.283		2.647	0.008845
	ICMS	0.271	0.135	0.282	2.007	0.039144
	transaction cost	-0.344	0.066	-0.207	-5.212	0.000000
	infrastructure	0.079	0.010	0.084	7.900	0.000000
	taxpayer Awareness	0.370	0.112	0.395	3.304	0.00207
	ICMS*taxpayer Awareness	0.173	0.005	0.004	34.600	0.000000
	transaction Cost*taxpayer Awareness	0.294	0.004	0.011	73.500	0.000000
	Infrastructure*taxpayer Awareness	0.039	0.005	0.001	7.800	0.000000

a. Dependent Variable: _Customs Duty Performance

(Source: Research 2024)

Table 4.22 Shows the hierarchical model and model 5 shows the overall addition of the interaction terms, model 5 shows that a unit change in ICMS causes a 0.271 increase in customs duty performance. Further investigation showed that unit change in transaction cost causes a -0.344 decrease in customs duty performance. A unit change in infrastructure causes a 0.079 increase in customs duty performance. The changes caused by factors on customs duty performance, are statistically significant $p < 0.05$. A unit change in taxpayer awareness causes a 0.370 increase in customs duty performance. Model 5 further shows that taxpayer awareness moderates the relationship

between Integrated Customs Management System on customs duty performance $\beta = 0.173$ p-value $= 0.000 < 0.05$. The model further shows that taxpayer awareness moderates the relationship between transaction cost on customs duty performance $\beta = 0.294$ p-value $= 0.000 < 0.05$. Lastly the study found that that taxpayer awareness moderates the relationship between infrastructure on customs duty performance $\beta = 0.039$ p-value $= 0.000 < 0.05$. The types of moderation observed in this study were primarily characterized as enhancing moderation effects, where the presence of taxpayer awareness amplified the positive impact of each independent variable on customs duty performance. Specifically, the moderation effects for each hypothesis indicated that taxpayer awareness strengthened the positive relationships between the Integrated Customs Management System, transaction cost, infrastructure, and customs duty performance. This form of interaction suggests that taxpayer awareness serves as a facilitator, intensifying the beneficial effects of the independent variables on customs duty performance. The consistent significance of taxpayer awareness across all models indicates a uniform enhancing moderation, underscoring its critical role in improving the effectiveness of customs-related interventions in Nairobi County, Kenya.

4.11 Hypotheses Tests

The Hypotheses were tested and summarized on table 4.23

The first null hypothesis H_{01} was Integrated Customs Management System has no significant effect on customs duty performance in Nairobi County, Kenya. The study found that Integrated Customs Management System has a significant effect on customs duty performance $\beta = 0.271$ p-value $= 0.039144 < 0.05$, the null hypothesis is rejected.

The second null hypothesis H_{02} was that Transaction Cost has no significant effect on customs duty performance in Nairobi County, Kenya. The study found that Transaction

Cost has a significant effect on customs duty performance $\beta = -0.344$, p-value $= 0.000000 < 0.05$, the null hypothesis is rejected.

The third null hypothesis H_{03} was that Infrastructure has no significant effect on customs duty performance in Nairobi County, Kenya. The study found that Infrastructure has a significant effect on customs duty performance $\beta = 0.079$, p-value $= 0.0000 < 0.05$, the null hypothesis is rejected.

The fourth null hypothesis H_{04} was that there is no significant moderating effect of taxpayer awareness on the relationship between Integrated Customs Management System, transaction cost and infrastructure on customs duty performance in Nairobi County, Kenya. The hypotheses were split as follow:

- a. H_{04a} : Taxpayer awareness has no significant moderating effect on the relationship between Integrated Customs Management System on customs duty performance in Nairobi County, Kenya. The study found that Taxpayer awareness has a significant moderating effect on the relationship between Integrated Customs Management System on customs duty performance $\beta = 0.173$, p-value $= 0.0000 < 0.05$. Suggesting that higher levels of taxpayer awareness strengthen the positive impact of the Integrated Customs Management System on customs duty performance.
- b. H_{04b} : Taxpayer awareness has no significant moderating effect on the relationship between transaction cost on customs duty performance in Nairobi County, Kenya. The study found that Taxpayer awareness has a significant moderating effect on the relationship between Taxpayer awareness on customs duty performance $\beta = 0.294$, p-value $= 0.0000 < 0.05$. Indicating that the impact of transaction cost on customs duty performance becomes more pronounced with increased taxpayer awareness.

- c. H_{04c}: Taxpayer awareness has no significant moderating effect on the relationship between infrastructure on customs duty performance in Nairobi County, Kenya. The study found that Taxpayer awareness has a significant moderating effect on the relationship between infrastructure on customs duty performance $\beta = 0.039$, $p\text{-value} = 0.0000 < 0.05$. Suggesting that the role of infrastructure in enhancing customs duty performance is strengthened by taxpayer awareness.

In all cases, the p-values were well below the 0.05 threshold, leading to the rejection of each null hypothesis and affirming that taxpayer awareness plays a significant moderating role across these relationships.

Table 4.23: Summary of Hypotheses Testing

Study Hypotheses	P-Value	Verdict
H ₀₁ Integrated Customs Management System has no significant effect on customs duty performance in Nairobi County, Kenya.	0.039144<0.05	Reject H ₀₁
H ₀₂ Transaction Cost has no significant effect on customs duty performance in Nairobi County, Kenya	0.000000<0.05	Reject H ₀₂
H ₀₃ Infrastructure has no significant effect on customs duty performance in Nairobi County, Kenya	0.000000<0.05	Reject H ₀₃
H _{04a} Taxpayer awareness has no significant moderating effect on the relationship between Integrated Customs Management System on customs duty performance in Nairobi County, Kenya	0.000000<0.05	Reject H _{04a}
H _{04b} Taxpayer awareness has no significant moderating effect on the relationship between transaction cost on customs duty performance in Nairobi County, Kenya.	0.000000<0.05	Reject H _{04b}
H _{04c} Taxpayer awareness has no significant moderating effect on the relationship between infrastructure on customs duty performance in Nairobi County, Kenya	0.000000<0.05	Reject H _{04c}

(Source: Research 2024)

4.12 Modi Graphs moderation Analysis

Miocevic, (2020). stated that Moderation occurs when one construct affects the strength or even the direction of a relationship between two other constructs. As such, moderation accounts for heterogeneity in the data. The modi graph visually represents the effects of the moderator on the direction of the relationship between the independent variables and custom duty performance.

4.12.1 Modi Graphs ICMS and Taxpayer awareness

The modi graphs on figure 4.2 shows that taxpayer awareness significantly moderates the relationship between ICMS and custom duty performance, the slop shows that high levels of taxpayer awareness improve the relationship between ICMS and custom duty performance

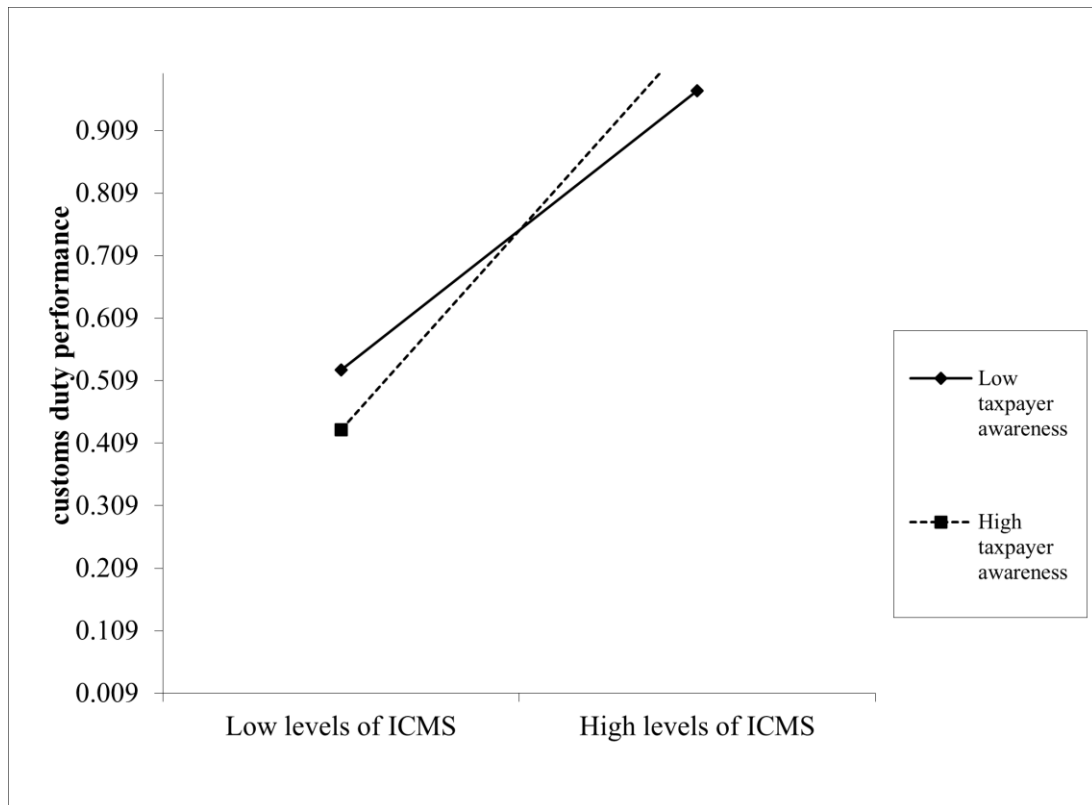


Figure 4.2: Modi Graphs ICMS and Taxpayer awareness

(Source: Research 2024)

4.12.2 Modi Graphs Transaction Cost and Taxpayer Awareness

The modi graphs on figure 4.3 shows that taxpayer awareness significantly moderates the relationship between transaction cost and custom duty performance, the slope shows that high levels of taxpayer awareness improve the relationship between transaction costs and custom duty performance, the transaction costs negative impacts on custom duty performance are lowered as awareness increases.

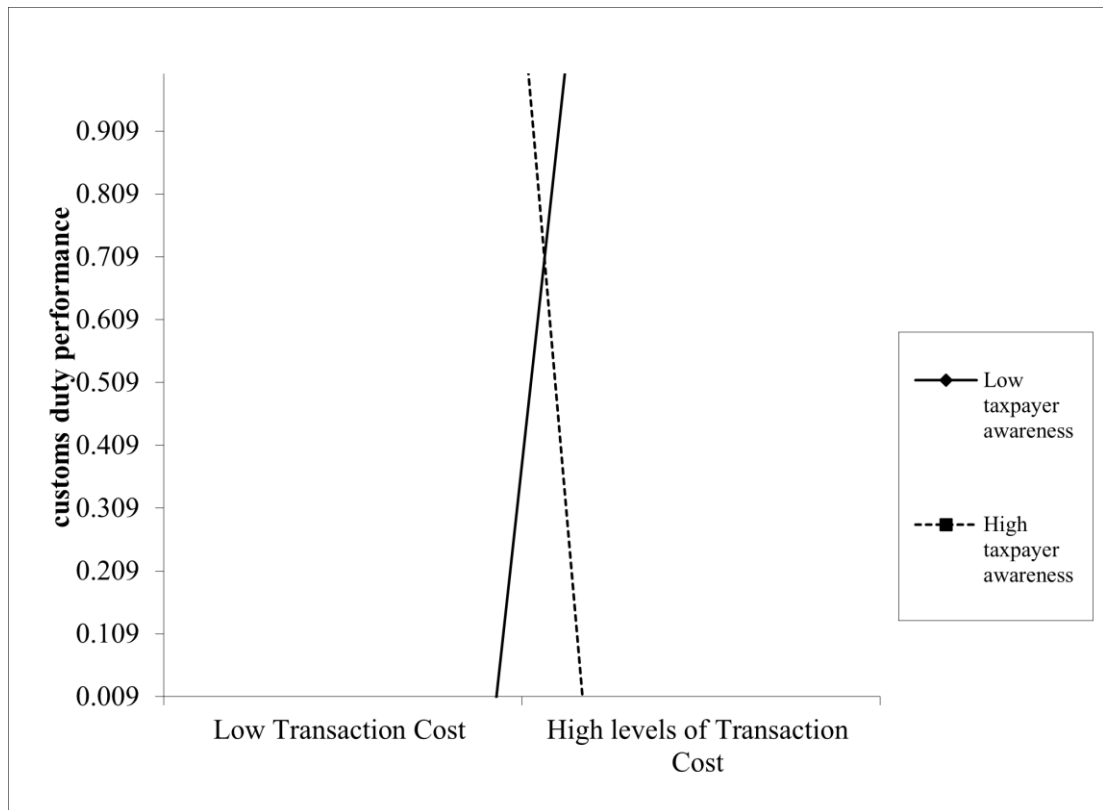


Figure 4.3: Modi Graphs transaction cost and Taxpayer awareness

(Source: Research 2024)

4.12.3 Modi Graphs infrastructure and Taxpayer Awareness

The modi graphs on figure 4.4 shows that taxpayer awareness significantly moderates the relationship between infrastructure and custom duty performance, the slope shows that high levels of taxpayer awareness improve the relationship between infrastructure and custom duty performance, The positive effects of infrastructure on custom duty performance are improved by adding awareness to the taxpayers.

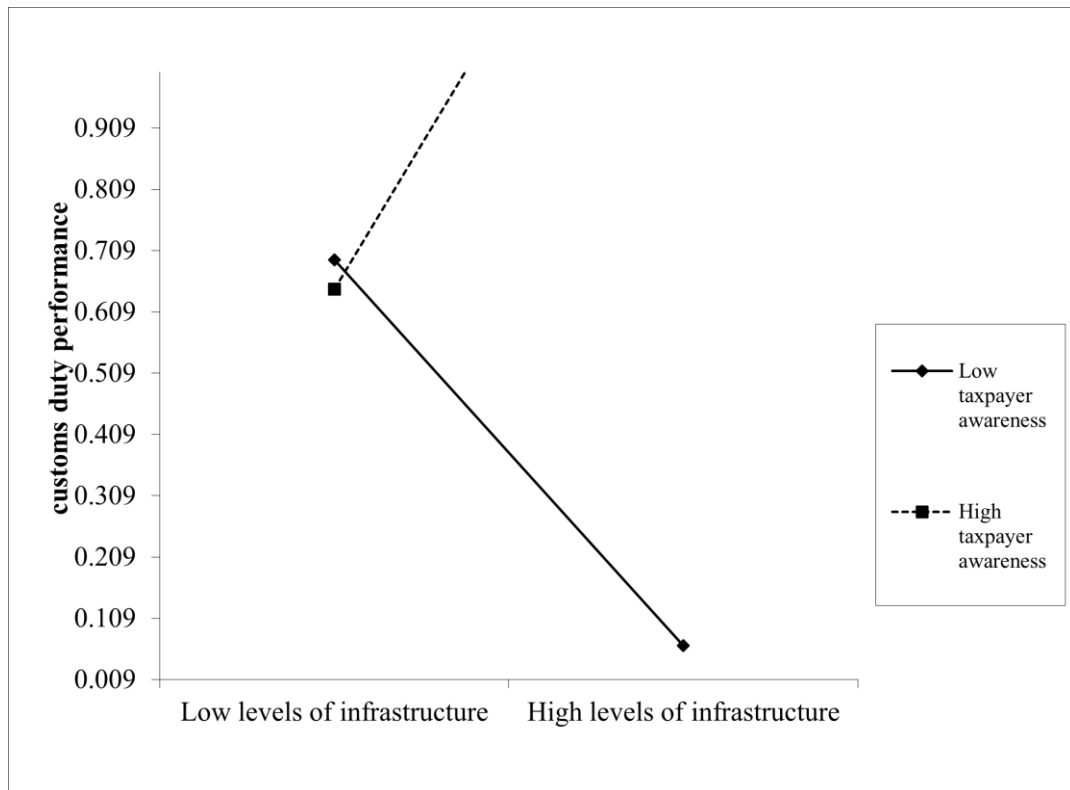


Figure 4.4: Modi Graphs infrastructure and Taxpayer awareness

(Source: Research 2024)

4.13 Discussion of Findings

This segment contains discussion of findings.

4.13.1 Integrated Customs Management System (ICMS) and customs duty performance

The first objective was to establish the effect of Integrated Customs Management System (ICMS) on customs duty performance in Nairobi County, Kenya. The correlation matrix ascertained that ICMS has a positive and significant correlation with customs duty performance at 64.1% $p\text{-value} = 0.000 < 0.05$. This suggests that the mechanisms that enhance ICMS are also beneficial to customs duty performance. The coefficient study showed that a unit change in ICMS increases customs duty performance significantly $\beta = 0.271$ $p\text{-value} = 0.039144 < 0.05$. This implies that if ICMS are improved by a certain amount, customs duty performance is expected to improve

by a corresponding amount which reinforces the statement that changes in ICMS can meaningfully affect customs duty outcomes. The study concurs with According to Ward and Dietmar (2020) who stated that automation brings about benefits such as faster release of cargo passing through customs clearance; simpler procedures and documents, based on international standards; reduced physical examination of goods; separation of payment of duties and taxes from physical clearance of goods and faster electronic lodgement of customs declarations, using Direct Trader Input or other on-line connections. The study also concurred with Mwonge, (2011) who conducted a study that sought to find out the influence of electronic tax filing on customs tax collection in Uganda. The study found out that with the commencement of an e-filing system (e Tax) in June 2009, at least US\$ 7 trillion worth of revenue resulting from 1.4 million payments has been receipted through electronic tax payments.

4.13.2 Transaction Cost and Customs Duty Performance

The second objective was to determine the effect of transaction cost on customs duty performance in Nairobi County Kenya. The correlation matrix showed that transaction cost has a negative and significant correlation with customs duty performance at -83.3% $p\text{-value} = 0.000 < 0.05$. This suggests that as transaction costs increase, the performance of customs duty decreases. The coefficient study showed that a unit change in transaction costs decreases customs duty performance significantly $\beta = -0.344$ $p\text{-value} = 0.000 < 0.05$. Reducing transaction costs is crucial for enhancing customs duty performance. This relationship underscores the importance of efficient customs operations and streamlined processes in boosting economic performance and competitiveness in international trade.

4.13.3 Infrastructure and Customs Duty Performance

The third objective was to determine the effect of infrastructure on customs duty performance in Nairobi County, Kenya. The correlation matrix showed that infrastructure has a positive and significant correlation with customs duty performance at 58.7% $p\text{-value} = 0.000 < 0.05$. The coefficient study showed that a unit change in infrastructure increases customs duty performance significantly $\beta = 0.079$ $p\text{-value} = 0.000 < 0.05$. The findings highlight the critical role that infrastructure plays in facilitating trade and economic growth. Investing in infrastructure not only boosts customs efficiency but also has broader economic and social benefits. The study concurs with Omondi (2019) whose study assessed the role of road customs infrastructure in enhancing regional integration: the case study of Kenya's. The study found that, improved customs infrastructure hugely contributes to regional integration and hence enhances economic growth and development. The study also concurs with Kosgei (2017), who using Granger causality test found a positive link between infrastructural development and the growth of tax revenue in Kenya particularly the ad-valorem and excise duty tax.

4.13.4 Taxpayer Awareness ICMS, Transaction Cost Infrastructure and Customs Duty performance

The last objective was to find out the moderating effect of taxpayer awareness on the relationship between Integrated Customs Management System, transaction cost and infrastructure on customs duty performance in Nairobi County, Kenya. The study found that taxpayer awareness had a positive and significant correlation with customs duty performance at 61.2% $p\text{-value} = 0.000 < 0.05$. This means that when taxpayers are more aware of customs duties, regulations, and their responsibilities, the performance of customs duty collection and compliance significantly improves. The study further

found that taxpayer awareness improves customs duty performance significantly $\beta = 0.370$ p-value $= 0.00207 < 0.05$. This means that as taxpayers become more aware and knowledgeable about customs duties, the performance of customs duties improves. The study further found that taxpayer awareness moderates the relationship between Integrated Customs Management System on customs duty performance $\beta = 0.173$ p-value $= 0.000 < 0.05$. This implies that the impact of the ICMS on customs duty performance is not uniform across different levels of taxpayer awareness. The study also shows that taxpayer awareness moderates the relationship between transaction cost on customs duty performance $\beta = 0.294$ p-value $= 0.000 < 0.05$. This implies that when taxpayers are well-informed, they may be better equipped to navigate and mitigate the effects of transaction costs on customs duty performance. Lastly the study found that that taxpayer awareness moderates the relationship between infrastructure on customs duty performance $\beta = 0.039$ p-value $= 0.000 < 0.05$. This implies that If taxpayers are well-informed, they may be more likely to cooperate with customs authorities, comply with regulations, and provide accurate information. The study concurs with Oladipupo and Obazee (2016) who in their investigation on the impacts of tax payers' Awareness and penalties on tax compliance amongst small and medium enterprises in Nigeria using a survey research design. Thus, the study shows that tax awareness has a higher tendency to promote tax compliance Small and medium scale business owners should also seek to advance their tax awareness for the mutual benefits of the governments and taxpayers. The study also agreed with (Chan et. al. 2020). Chan et. al. who also suggested that those with a higher education level are more likely to have a higher level of moral development and higher level attitudes toward compliance and thus tend to comply more.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The section offers a brief review of the research findings, abridged study conclusions that are in line with the research objectives, and provides recommendations to stakeholders, and suggestions for future research.

5.2 Summary of Findings

5.2.1 Integrated Customs Management System (ICMS) and Customs Duty Performance

The first objective was to establish the effect of Integrated Customs Management System (ICMS) on customs duty performance in Nairobi County, Kenya. $\beta = 0.271$ p-value $= 0.039144 < 0.05$. The study found a positive and significant correlation between the Integrated Customs Management System (ICMS) and customs duty performance in Nairobi County, Kenya. $r = 0.641$ p-value $= 0.000 < 0.05$. Improvements in ICMS significantly enhance customs duty performance, indicating that advancements in ICMS can lead to better outcomes in customs duty administration.

5.2.2 Transaction Cost and Customs Duty Performance

The second objective was to determine the effect of transaction cost on customs duty performance in Nairobi County, Kenya. Transaction costs have a negative and significant impact on customs duty performance. $\beta = -0.344$ p-value $= 0.000 < 0.05$ and $r = -0.833$ p-value $= 0.000 < 0.05$. Higher transaction costs are associated with poorer customs duty performance.

5.2.3 Infrastructure and Customs Duty Performance

The third objective was to determine the effect of infrastructure on customs duty performance in Nairobi County, Kenya. The study found that there is a positive and significant relationship between infrastructure and customs duty performance. $\beta = 0.079$ p-value $= 0.000 < 0.05$. and $r = 0.587$ p-value $= 0.000 < 0.05$. Better infrastructure contributes to improved customs duty performance, emphasizing the role of infrastructure investments in facilitating trade and promoting economic growth.

5.2.4 Taxpayer Awareness and Its Moderating Effects

The fourth objective sought to find out the moderating effect of taxpayer awareness on the relationship between Integrated Customs Management System, transaction cost and infrastructure on customs duty performance in Nairobi County, Kenya. The study asserted that Taxpayer awareness positively and significantly influences customs duty performance $r = 0.612$ p-value $= 0.000 < 0.05$. Well-informed taxpayers contribute to better compliance and efficiency in customs duty collection. Additionally, taxpayer awareness moderates the relationship between ICMS $\beta = 0.173$ p-value $= 0.000 < 0.05$, transaction costs $\beta = 0.294$ p-value $= 0.000 < 0.05$., and infrastructure $\beta = 0.039$ p-value $= 0.000 < 0.05$ on customs duty performance. This means that the benefits of ICMS, lower transaction costs, and improved infrastructure are more pronounced when taxpayers are knowledgeable about customs regulations and procedures.

5.3 Conclusion

The study sought to establish the moderating effect of taxpayer awareness on factors affecting customs duty performance in Nairobi County, Kenya. Integrated Customs The first specific objective was to establish the effect of Integrated Customs Management System (ICMS) on customs duty performance in Nairobi County, Kenya. The study H01 hypothesis was rejected, since the study found that Integrated Customs

Management System had a positive and significant effect on customs duty performance in Nairobi County, Kenya.

The study concludes that the Integrated Customs Management System (ICMS) plays a crucial role in enhancing customs duty performance in Nairobi County, Kenya. The significant positive correlation indicates that improvements in ICMS directly contribute to better customs duty outcomes. This relationship underscores the importance of continuous advancements in technology and system integration to streamline customs processes, reduce manual errors, and enhance the efficiency and accuracy of customs operations. The findings suggest that policymakers and customs authorities should prioritize investments in ICMS to foster a more efficient and effective customs environment, ultimately benefiting the broader economic framework.

In a quest to determine the effect of transaction cost on customs duty performance in Nairobi County, Kenya. The negative and significant correlation between transaction costs and customs duty performance highlights the detrimental impact of high transaction costs on customs efficiency. The study H02 hypothesis was rejected, since the study found transaction cost had a negative and significant effect on customs duty performance in Nairobi County, Kenya. The study concludes that reducing transaction costs is essential for improving customs duty performance. High transaction costs can create barriers to trade, increase the likelihood of non-compliance, and reduce overall economic competitiveness. Therefore, there is a critical need for strategies aimed at simplifying customs procedures, enhancing transparency, and minimizing costs associated with customs transactions. These strategies should include the adoption of modern technologies, process re-engineering, and policy reforms that focus on cost efficiency and trade facilitation.

Further the study sought to determine the effect of infrastructure on customs duty performance in Nairobi County, Kenya. The positive and significant relationship between infrastructure and customs duty performance emphasizes the pivotal role that robust infrastructure plays in facilitating efficient customs operations. The study H03 hypothesis was rejected, since the study found infrastructure had a positive and significant effect on customs duty performance in Nairobi County, Kenya. The study concludes that investments in infrastructure, such as transportation networks, ports, and customs facilities, are vital for enhancing customs duty performance. Good infrastructure reduces delays, improves the movement of goods, and supports efficient customs clearance processes. This, in turn, can lead to increased trade volumes, higher revenue collection, and greater economic growth. The findings suggest that governments and stakeholders should prioritize infrastructure development and maintenance as a key component of economic and trade policy.

Lastly the study sought to find out the moderating effect of taxpayer awareness on the relationship between Integrated Customs Management System, transaction cost and infrastructure on customs duty performance in Nairobi County, Kenya. H04a, H04b and H04c was rejected because the study found Taxpayer awareness has no significant moderating effect on the relationship between Integrated Customs Management System, transaction cost and infrastructure on customs duty performance in Nairobi County, Kenya

The study highlights the significant impact of taxpayer awareness on customs duty performance, demonstrating that well-informed taxpayers contribute to better compliance and more effective customs operations. The conclusion is that taxpayer education and engagement are crucial for optimizing customs duty performance. Additionally, the moderating effect of taxpayer awareness on the relationships between

ICMS, transaction costs, and infrastructure underscores the complexity of customs operations. When taxpayers are knowledgeable, the positive effects of ICMS, lower transaction costs, and improved infrastructure are magnified. This suggests that comprehensive awareness campaigns, training programs, and transparent communication strategies are essential for enhancing taxpayer understanding and cooperation. By fostering a well-informed taxpayer base, customs authorities can achieve higher levels of compliance, efficiency, and overall performance. The types of moderation observed in this study were primarily characterized as enhancing moderation effects, where the presence of taxpayer awareness amplified the positive impact of each independent variable on customs duty performance. Specifically, the moderation effects for each hypothesis indicated that taxpayer awareness strengthened the positive relationships between the Integrated Customs Management System, transaction cost, infrastructure, and customs duty performance. This form of interaction suggests that taxpayer awareness serves as a facilitator, intensifying the beneficial effects of the independent variables on customs duty performance. The consistent significance of taxpayer awareness across all models indicates a uniform enhancing moderation, underscoring its critical role in improving the effectiveness of customs-related interventions in Nairobi County, Kenya.

5.4 Recommendations

5.4.1 Policy Implications for Government

The government should continue investing in and enhancing the ICMS, as it significantly improves customs duty performance.

Since higher transaction costs negatively impact customs duty performance policymakers should implement strategies to reduce these costs. This may involve

simplifying procedures, reducing bureaucratic hurdles, or offering incentives to encourage compliance.

Government policies should focus on developing and maintaining transport, communication, and logistical infrastructure to facilitate smoother and more efficient customs processes.

Government policy should include measures to enhance taxpayer awareness, as well-informed taxpayers contribute to better compliance and customs duty performance.

5.4.2 Practical Implications for Practice by Management, KRA, and Taxpayers

Customs management should ensure full utilization of the ICMS by training customs officials and stakeholders, given its positive impact on duty performance.

Management practices should aim to reduce transaction costs by streamlining customs processes, minimizing paperwork, and using technology for efficient data management and processing.

KRA should advocate for improved infrastructure to enhance duty performance. This could involve collaborations with other government agencies and private entities.

KRA should intensify taxpayer education initiatives to enhance awareness, which moderates the benefits of ICMS, reduced transaction costs, and better infrastructure.

Taxpayers should seek to stay informed about customs regulations and procedures, which will help improve compliance and customs duty performance.

Taxpayers and businesses can actively participate in policy discussions and advocate for policies that reduce transaction costs and improve infrastructure, enhancing overall customs efficiency.

5.4.3 Theoretical Implications

This study makes a meaningful contribution to the theoretical framework of customs and trade efficiency by integrating economic-based theory, technological determinism theory, and the comparative theory of international trade. The findings affirm the economic-based theory by illustrating that improved infrastructure an essential economic factor can significantly enhance customs duty performance. This supports the theory's view that economic factors, such as infrastructure investments, are fundamental drivers of trade performance and economic growth, showing that when infrastructure is optimized, customs processes become more efficient and effective, directly benefiting trade outcomes.

The positive impact of the Integrated Customs Management System (ICMS) on customs duty performance provides empirical support for the technological determinism theory. This theory posits that technological advancements shape and improve organizational outcomes, and this study adds weight to that perspective by demonstrating how the ICMS, as a technological innovation, boosts customs efficiency. The study adds new insights by highlighting that technology's role in customs operations is not only a factor for streamlining processes but a critical driver of performance improvements, underscoring the importance of investing in digital tools for trade facilitation and customs modernization.

Furthermore, the study's findings reinforce the comparative theory of international trade by showing that lowering transaction costs and enhancing infrastructure are critical to facilitating trade and improving economic outcomes. By reducing barriers and operational costs, efficient customs systems can enhance a country's competitiveness in the global market, supporting the notion that streamlined customs processes contribute to a nation's comparative advantage in international trade. The

findings here extend the comparative theory by empirically validating the relationship between efficient customs processes and international trade competitiveness, demonstrating that customs infrastructure and technology directly affect a country's trade positioning.

This study addressed a notable gap in the literature by focusing on the combined effects of taxpayer awareness, transaction costs, infrastructure, and technology on customs duty performance, particularly in the context of Nairobi County, Kenya. Previous studies in customs performance largely examined these factors in isolation or within different geographical contexts, leaving a gap in understanding how these elements interact in a developing country's customs system. By addressing this gap, the study offers a more holistic view of the factors that drive customs duty performance, providing a comprehensive understanding that can inform policy and operational improvements in similar contexts. This research expands the body of knowledge by showing how economic, technological, and awareness-related factors collectively influence customs performance, paving the way for future studies to explore these interactions in greater depth and across various regions.

5.4.4 Recommendations for Future Research

The purpose of the section was to guide future investigations by identifying areas where current studies may have limitations or gaps, and suggesting specific topics or questions that remain unexplored. This section aims to provide a pathway for continuing academic inquiry and practical application, encouraging researchers to build on existing knowledge and explore new dimensions that could enrich the understanding of the topic. By highlighting areas that need further exploration, this section helps to refine theoretical frameworks, enhance the depth of knowledge, and offer more robust solutions to practical problems.

In this study, while significant progress was made in understanding the moderating role of taxpayer awareness and the impact of infrastructure, transaction costs, and technology on customs duty performance, there are several aspects that were not fully addressed. One key gap is the limited exploration of political factors such as government stability, corruption, and policy changes, which may also significantly influence customs performance. Future research could investigate how political dynamics and governance affect the efficiency and effectiveness of customs systems, particularly in countries with developing economies where these factors often play a crucial role in shaping trade policies and customs operations.

Another area for further exploration is the role of other technological advancements, such as blockchain or artificial intelligence, in enhancing customs efficiency. While the study focused on the Integrated Customs Management System (ICMS), there is potential for future research to examine how emerging technologies might complement or even surpass existing systems in improving customs processes. Investigating the integration of AI and blockchain could provide valuable insights into the next generation of customs systems, particularly in enhancing security, transparency, and speed of customs operations.

Moreover, the study did not fully explore the individual differences in taxpayer awareness across different industries or sectors. Future research could delve deeper into how taxpayer awareness varies by industry or the size of businesses and examine how these differences influence customs duty performance. Understanding sector-specific challenges could lead to more tailored strategies to improve compliance and performance in customs operations.

Lastly, while the study focused on Nairobi County, Kenya, future studies could expand the geographical scope to compare customs performance in other regions or countries, particularly those with similar economic or technological profiles. This would help identify whether the relationships observed in this study hold true across different contexts and contribute to the generalizability of the findings.

These gaps in the literature present opportunities for future research to explore the multifaceted dimensions of customs performance and deepen the understanding of how various factors, including political, technological, and industry-specific elements, interact to shape customs operations in different settings.

Further studies could also examine the transformative role of digital innovations, such as artificial intelligence (AI) and blockchain technology, in advancing customs efficiency. AI applications in customs could assist in fraud detection, risk analysis, and automated decision-making, significantly reducing processing times and improving accuracy. Blockchain, on the other hand, offers secure and transparent transaction records, which could enhance trust among trading partners and simplify document verification processes. By investigating these technological advancements, future research can provide insights into how digital transformation may optimize customs operations, reduce costs, and improve overall customs duty performance, particularly in developing economies.

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APPENDICES

Appendix I: Letter of Introduction

Dear respondent,

I am a student of the Kenya School of Revenue Administration doing research on:
**MODERATING EFFECT OF TAXPAYER AWARENESS ON FACTORS
AFFECTING CUSTOMS DUTY PERFORMANCE IN NAIROBI COUNTRY,
KENYA.**

The purpose of this letter is therefore to request you to fill the attached questionnaire. Confidentiality of the information provided will be strictly observed and your name will not appear anywhere in the report. Kindly spare some time to complete the questionnaire attached.

Thank you in advance,

Yours sincerely,

Francis A. Mwosero

Appendix II: Questionnaire

This research is meant for academic purpose. Kindly provide answers to the following questions precisely and honestly as possible. The responses will be treated as confidential. Please tick (✓) where appropriate or fill in the information required on the space provided.

SECTION A: BACKGROUND INFORMATION.

1. Gender

Male () Female ()

2. Age: Below 30 yrs. () 30-40 yrs. () 41-50yrs () above 50 yrs. ()

3. What is your level of education?

(a) Primary education []

(b) Secondary education []

(c) Technical level []

(d) Undergraduate []

(e) Post graduate []

SECTION B:**INTEGRATED CUSTOMS MANAGEMENT SYSTEM**

Using the following scale, state your opinion by ticking on the space

On a scale of 1-5 where 1=strongly disagree, 2= disagree, 3= Neutral, 4= agree and 5=strongly agree

	1	2	3	4	5
The transmission of declarations electronically to customs services is fast					
The electronic lodging of entries against the manifest registered electronically is efficient					
ICMS is critical in streamlining customs procedures.					
ICMS Training is available to all stakeholders.					
Using ICMS decentralizes customs operations affecting time costs.					

TRANSACTION COST

Using the following scale, state your opinion by ticking on the space

On a scale of 1-5 where 1=strongly disagree, 2= disagree, 3= Neutral, 4= agree and 5=strongly agree

	1	2	3	4	5
Government imposed trade procedures in customs and border control department add to transaction costs and affect customs duty performance					
Longer clearance times increase total import/export costs and affect customs duty performance					
Government imposed trade procedures are a cost and affect custom's role in protecting the society					
Government-imposed trade procedures are a cost and affect trade facilitation					
The cost of hiring a tax agent is high					

INFRASTRUCTURE

Using the following scale, state your opinion by ticking on the space

On a scale of 1-5 where 1=strongly disagree, 2= disagree, 3= Neutral, 4= agree and 5=strongly agree

	1	2	3	4	5
Construction of modern halls has enhanced clearance of goods which takes reasonably less time					
The expansion of roads in Nairobi has led to smooth flow of traffic hence saving transaction cost of importers and exporters					
Modern facilities such as gantries and weighbridge has reduced traffic flow in Nairobi					
There is enough parking space for vehicles waiting clearance					
There is sharing of equipment's and facilities among EAC partner states customs authorities stationed in Nairobi.					

TAXPAYER AWARENESS

Using the following scale, state your opinion by ticking on the space

On a scale of 1-5 where 1=strongly disagree, 2= disagree, 3= Neutral, 4= agree and 5=strongly agree

	1	2	3	4	5
I'm aware how to declare actual income received from all sources to the tax authority					
I have interacted with Kenya Revenue Authority officials during one of the workshops organized for tax training and awareness					
I am aware of the implications of non-compliance					
I am aware that I need to file my taxes monthly					
I understand that I should pay taxes due within the prescribed period from the date of issue of the Notice of Assessment or within the stipulated period					

CUSTOMS DUTY PERFORMANCE

Using the following scale, state your opinion by ticking on the space

On a scale of 1-5 where 1=strongly disagree, 2= disagree, 3= Neutral, 4= agree and 5=strongly agree

	1	2	3	4	5
I always make correct customs duty declaration					
I always file return on time and as required by law					
I file customs duty returns voluntarily because it's an obligation					
I pay the tax liability that arise from my customs duty obligation without failure					
I pay tax by the due date					

Appendix III: Customs Clearing Agents 2024

No	COMPANY NAME	No	COMPANY NAME	No	COMPANY NAME
1	ACCELER GLOBAL LOGISTICS LIMITED	41	RISING FREIGHT LIMITED	81	LOGISTICS LINK LIMITED
2	AGILITY LOGISTICS LIMITED	42	SEACON (K) LIMITED	82	LOW SEA INTERNATIONAL AGENCIES LIMITED
3	ARAMEX KENYA LIMITED	43	SMART CHOICE SERVICES LIMITED	83	LPC GLOBAL LOGISTICS LIMITED
4	BAHARI FORWARDERS LIMITED	44	SPEDEX LOGISTICS LIMITED	84	M.J CLARKE LIMITED
5	BIMA CLEARING & FORWARDING LIMITED	45	TRANSFREIGHT LOGISTICS LIMITED	85	MAERSK LOGISTICS AND SERVICES KENYA LIMITED
6	CAR & GENERAL (KENYA) PLC	46	UFANISI FREIGHTERS (K) LTD	86	MARKS ENTERPRISES LIMITED
7	CARGILL KENYA LIMITED	47	UMOJA SHOE COMPANY LIMITED	87	MAYA DUTY FREE LIMITED
8	CEVA INTERFREIGHT KENYA LIMITED	48	UNION LOGISTICS LIMITED	88	MID AFRICA SERVICES LIMITED
9	CHAI TRADING COMPANY LIMITED	49	UNITED CLEARING COMPANY LIMITED	89	MURANGA FORWARDERS LIMITED
10	CONVENTIONAL CARGO CONVEYORS LIMITED	50	URGENT CARGO HANDLING LIMITED	90	NAJMI CLEARING AND FORWARDING LIMITED
11	CORNERSTONE LIMITED	51	VINEP FORWARDERS LIMITED	91	OCEANSKY CLEARING AGENTS LIMITED
12	CORRUGATED SHEET LIMITED	52	VISION ENTERPRISES LIMITED	92	P.N. MASHRU LIMITED
13	DAVIS & SHIRTLIFF LIMITED	53	AFRIQ FREIGHT SERVICES LIMITED	93	RAPID KATE SERVICES LIMITED
14	DECCAN FREIGHT LOGISTICS LIMITED	54	AGL KENYA LIMITED	94	RAY CARGO SERVICES LIMITED
15	DELMONTE KENYA LIMITED	55	AIRFLO LIMITED	95	RIPE FREIGHT SERVICES LIMITED
16	DHL GLOBAL FORWARDING K LIMITED	56	ALL PORTS KENYA LIMITED	96	ROLLING CARGO LIMITED
17	DHL WORLDWIDE EXPRESS KENYA LIMITED	57	CARGOMASTERS (E.A) LIMITED	97	SCHENKER LIMITED
18	ESL FORWARDERS LIMITED	58	CARIET KENYA LIMITED	98	SIGINON GROUP LIMITED
19	EXPOLANKA FREIGHT LIMITED	59	CARMEL MOUNT FREIGHT LOGISTICS K LIMITED	99	SKYLIFT CARGO LIMITED
20	FOX INTERNATIONAL LOGISTICS LIMITED	60	CONTINENTAL LOGISTICS NETWORK LIMITED	100	SOTE FORWARDERS LIMITED
21	FREIGHT FORWARDERS KENYA LIMITED	61	COUNTY CLEARANCE & FORWARDING LIMITED	101	STARWAY INTERNATIONAL FREIGHT & FORWARDERS LIMITED
22	FREIGHT IN TIME LIMITED	62	EAST GLOBAL LOGISTICS KENYA LIMITED	102	STEEL STRUCTURES LIMITED
23	GENERAL CARGO SERVICES LIMITED	63	ECHKEN AGENCIES LIMITED	103	SUPER FIRST FORWARDERS LIMITED
24	GLOBAL FREIGHT LOGISTICS LIMITED	64	ECU WORLDWIDE (KENYA) LIMITED	104	SUPER QUICK FREIGHTERS LIMITED
25	GLOBAL TEA & COMMODITIES (KENYA) LIMITED	65	EXCELLENT SERVICE FREIGHTERS LIMITED	105	SUPERSONIC FREIGHTERS (K) LIMITED
26	INDUS LOGISTICS LIMITED	66	GATLINK INVESTMENTS LIMITED	106	THE NAIROBI CLEARING HOUSE (E.A) LIMITED
27	JAMES FINLAY MOMBASA LIMITED	67	GOLDFIELDS LOGISTICS LIMITED	107	TOP-LINK LOGISTICS SERVICES LIMITED
28	KATE FREIGHT AND TRAVEL LIMITED	68	IMAAAN LOGISTICS LIMITED	108	UNECCO PAPER PRODUCTS LIMITED
29	KAWAISON INTERNATIONAL LIMITED	69	INDEX CARGO LOGISTICS LIMITED	109	VEROM CLEARING & FORWARDING COMPANY LIMITED
30	KENFREIGHT EA LIMITED	70	INSTA PRODUCTS (EPZ) LIMITED	110	WESTON LOGISTICS LIMITED
31	KENYA AIRWAYS PLC	71	INTERNATIONAL COMMITTEE OF THE RED CROSS	111	WICKHAM BROS CO. LIMITED
32	KUEHNE +NAGEL LIMITED	72	INTRASPEED ARCPRO (KENYA) LIMITED	112	WIGGLESWORTH EXPORTERS LIMITED
33	LOGISTICS THREE SIX FIVE LIMITED	73	IRIS PORT CONVEYORS (K) LIMITED	113	ABBAS TRADERS LIMITED
34	LOGWIN AIR AND OCEAN KENYA LTD	74	JIHAN FREIGHTERS LIMITED	114	ABERPAUL LIMITED
35	MAKIWAN LOGISTICS LIMITED	75	KENAFRIC INDUSTRIES LIMITED	115	ABSOLUTE FREIGHT SERVICES AND LOGISTICS LIMITED
36	MITCHELL COTTS FREIGHT (K) LIMITED	76	KENSCO BUSINESS SOLUTIONS LIMITED	116	ABSS WAREHOUSES LTD
37	OCEAN - LINE FREIGHT FORWARDERS LIMITED	77	KENYA WINE AGENCIES LIMITED	117	ABZAMEYA LOGISTICS LIMITED
38	ONE TO ONE LOGISTICS KENYA LIMITED	78	LABORATORY AND ALLIED LIMITED	118	ACCESS AFRICA LOGISTICS LIMITED
39	PRECISE LOGISTICS LIMITED	79	LAND BRIDGE FREIGHTERS LIMITED	119	ADAIR FREIGHT SERVICES LIMITED
40	REGIONAL ENTREPRENEURS KENYA LIMITED	80	LANDMARK FREIGHT SERVICES LIMITED	120	ADAMANT LOGISTICS SOLUTIONS LIMITED

Appendix IV: NACOSTI-Research License

 REPUBLIC OF KENYA RefNo: 471387	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION Date of Issue: 01/August/2024
RESEARCH LICENSE	
	
This is to Certify that Mr.. FRANCIS APELLI MWOSERO of Kenya School of Revenue Administration, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: MODERATING EFFECT OF TAXPAYER AWARENESS ON FACTORS AFFECTING CUSTOMS DUTY PERFORMANCE IN NAIROBI COUNTY NAIROBI, KENYA for the period ending : 01/August/2025.	
License No: NACOSTI/P/24/38592	
Applicant Identification Number 471387	
Director General NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION	
Verification QR Code	
	
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See overleaf for conditions	

Appendix V: Ethical Clearance Letter from KESRA**KENYA REVENUE
AUTHORITY**

ISO 9001:2015 CERTIFIED

PUBLIC

KENYA SCHOOL OF REVENUE ADMINISTRATION

REF: KESRA/NBI/036

25th July 2024

TO: WHOM IT MAY CONCERN

Dear Sir/Madam,

**RE: REQUEST FOR ASSISTANCE TO FRANCIS APELLI MWOSERO OF
REGISTRATION NO.: KESRA105/0035/2021 UNDERTAKING MASTERS AT
KESRA**

This is to confirm that the above named is a student at Kenya School of Revenue Administration (KESRA) Nairobi Campus pursuing Masters in Tax and Customs Administration.

The named student is undertaking Research on TOPIC: **"Moderating effect of taxpayer awareness on factors affecting customs duty performance in Nairobi county."**

The purpose of this letter is to request for your kind facilitation in enabling the student progress in his research project by allowing access to any relevant information and/or conduct interviews, which are relevant to the project.

Your support to the student in this regard will be highly appreciated.

Thank you.

**Damacrine Masira
Manager Academic Research
KESRA**



Appendix VI: Plagiarism Awareness Certificate



SR696

ISO 9001:2019 Certified Institution

THESIS WRITING COURSE

PLAGIARISM AWARENESS CERTIFICATE

This certificate is awarded to

FRANCIS APELLI MWOSERO

KESRA105/0035/2021

In recognition for passing the University's plagiarism

Awareness test for Thesis entitled: **MODERATING EFFECT OF TAXPAYER AWARENESS ON FACTORS AFFECTING CUSTOMS DUTY PERFORMANCE IN NAIROBI COUNTRY, KENYA**
similarity index of 8% and striving to maintain academic integrity.

Word count:20738

Awarded by

Prof. Anne Syomwene Kisilu
CERM-ESA Project Leader Date: 19/09//2024