CUSTOM REFORMS, INSTITUTIONAL CAPACITY AND CUSTOMS REVENUE COLLECTION AT BUSIA AND MALABA BORDER POSTS, KENYA

BY

ELVIS KIPLIMO

A PROJECT SUBMITTED TO THE SCHOOL OF BUSINESS, DEPARTMENT OF ACCOUNTING AND FINANCE IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF TAX AND CUSTOMS ADMINISTRATION

MOI UNIVERSITY

2024

DECLARATION

Declaration by Candidate

This research project is my original work that has not been presented to any other examination body. No part of this research should be reproduced without my consent or that of Moi University.

Signed:_____Date**:**_____

Elvis Kiplimo

MU/KRA/0205/2016

Declaration by Supervisors

This research project has been submitted with our approval as the appointed University supervisors.

Signed:_____ Date: **:**_____

Dr. Collins Kapkiyai
Dept. of Economics Accounting and Finance
School of Business
Moi University

Signed:_____ Date: **:**_____

Dr. Neddy Soi
Dept. of Economics Accounting and Finance
School of Business
Moi University

DEDICATION

I dedicate this project to God Almighty, my Creator and source of strength, wisdom, and knowledge. His grace has carried me through the most challenging times, making this accomplishment possible. I also want to express my heartfelt gratitude to my family for their constant support and encouragement throughout the research process.

ACKNOWLEDGEMENT

First and foremost, I thank God for granting me the strength, wisdom, and patience to pursue my studies. It was through His grace that I was able to overcome the challenges I faced along the way. I extend my deepest appreciation to my project supervisors, Dr. Collins Kapkiyai and Dr. Neddy Soi, for their continuous support and guidance throughout my research. Their vast expertise in research was invaluable, as they allowed me to take ownership of my work while guiding me in the right direction when needed. Lastly, I am truly grateful to my family for their unwavering support and encouragement throughout my academic journey.

ABSTRACT

Custom reforms are crucial for the economic health of any nation. In Kenya, despite an increase in tax revenues from Ksh 2.166 trillion in the 2022/2023 fiscal year to Ksh 2.407 trillion in 2023/2024 an increase of Ksh 240.565 billion, which includes Ksh 791.368 billion from customs taxes reflecting a growth of 4.9% the government continues to face deficit financing. This has necessitated reliance on foreign loans to bridge the revenue shortfall, raising significant tax concerns for future generations. To mitigate government debt, there is a pressing need to enhance current tax revenue. This study investigated the moderating effect of institutional capacity on the relationship between customs reforms and customs revenue collection at the Kenya Revenue Authority (KRA). The independent variables included customs automation reforms, audit-based controls, and enforcement reforms, while revenue collection served as the dependent variable, with institutional capacity acting as a moderator. The research was guided by theories such as commodity tax reforms, the unified theory of acceptance and use of technology, and public expenditure theory. Primary data was collected through a structured questionnaire featuring closed-ended questions. The target population consisted of 1,823 management and technical staff, from which a sample of 328 respondents was selected using a stratified random sampling technique. Data analysis was performed using the Statistical Package for the Social Sciences (SPSS), employing descriptive statistics (means and standard deviations) and inferential statistics (correlation and multiple regression analysis) to explore the relationships between variables. The findings from the multiple regression analysis indicated that customs automation reforms significantly and positively influenced customs revenue collection (β_1=0.187, p=0.000<0.05). Similarly, audit-based controls (β_2=0.208, p=0.000<0.05) and enforcement reforms (β_3=0.111, p=0.016<0.05) also had significant positive impacts on revenue collection. Additionally, institutional capacity was found to negatively and significantly moderate the relationship between customs automation reforms, audit-based controls, enforcement reforms, and customs revenue collection at the Busia and Malaba border posts (β_4=0.176, p=0.000<0.05). However, it positively moderated the relationship between customs automation reforms (β_5=0.067, p=0.007<0.05) and audit-based controls (β_6=0.054, p=0.026<0.05) with customs revenue collection. Furthermore, it also significantly influenced the relationship between enforcement reforms and customs revenue collection (β_7=0.456, p=0.000<0.05). The study recommends that the KRA fully implement customs reforms to strengthen customs automation, audit-based controls, and enforcement measures for enhanced revenue collection. It concludes that customs reforms have a significant positive effect on customs revenue collection at the Busia and Malaba border posts. To optimize these reforms, the KRA should harmonize their efforts, prioritize infrastructure development, and focus on implementing Information Communication Technology and automated systems.

TABLE OF CONTENTS

DECLARATION ii
DEDICATION iii
ACKNOWLEDGEMENT iv
ABSTRACT v
TABLE OF CONTENTS vi
LIST OF TABLES x
LIST OF FIGURES xi
ABBREVIATIONS AND ACRONYMS xii
OPERATIONAL DEFINITION OF KEY TERMS xiii
CHAPTER ONE 1
INTRODUCTION 1
1.0 Overview 1
1.1 Background of the Study 1
1.1.1 Customs Reforms at Kenya Revenue Authority 5
1.2 Statement of the Problem 8
1.3 Objectives of the Study 11
1.3.1 General Objective 11
1.3.2 Specific Objectives of the Study 11
1.4 Research Hypotheses 11
1.5 Significance of the Study 12
1.6 Scope of the Study 13
CHAPTER TWO 14
LITERATURE REVIEW 14
2.0 Introduction 14
2.1 Review of Concepts 14
2.1.1 Concept of Customs Revenue Collection 14
2.1.2 Concept of Customs Reforms 15
2.1.3 Concept of Audit Based Controls 17
2.1.4 Concept of Customs Automation Reforms 18
2.1.5 Concept of Enforcement Reforms 19
2.1.6 Concept of Institutional Capacity 20
2.2 Theoretical Review 22

2.2.1 The Theory of Commodity Tax Reform 22
2.2.2 Unified Theory of Acceptance and Use of Technology.....24
2.2.3 The Public Expenditures Theory.....27
2.3 Empirical Review.....28
2.3.1 Customs Automation Reforms and Revenue Collection 28
2.3.2 Enforcement Reforms and Revenue Collection.....31
2.3.3 Custom's Audit Based Controls and Revenue Collection 32
2.3.4 Moderating Effect on Institutional Capacity.....33
2.4 Research Gaps.....34
2.5 Conceptual Framework.....36
CHAPTER THREE.....38
RESEARCH METHODOLOGY 38
3.0 Introduction.....38
3.1 Research Design.....38
3.2 Study Area 38
3.3 Target Population.....39
3.4 Sampling Technique 40
3.5 Sample Size.....40
3.6 Pilot Test 41
3.7 Data Collection and Research Instruments 42
3.8 Data Collection Procedure 43
3.9 Model Specification 43
3.9.1 Direct Effects Model 43
3.9.2 Moderated Effects Model.....44
3.10 Reliability Test.....46
3.11 Validity of Data Collection Instrument.....47
3.12 Data Analysis and Presentation 48
3.13 Measurement of Study Variables.....49
3.14 Diagnostic Test 50
3.14.1 Linearity Test 50
3.14.2 Normality Test.....51
3.14.3 Multicollinearity.....52
3.14.4 Heteroscedasticity 52
3.15 Tests of Hypotheses 52

3.16 Ethical Considerations 53
CHAPTER FOUR.....54
DATA ANALYSIS, INTERPRETATION AND PRESENTATION 54
4.0 Introduction.....54
4.1 Data Processing and Screening.....54
4.2 Response Rate.....54
4.3 Missing Data 55
4.4 Analysis of Outliers 56
4.5 Demographic Information.....56
4.6 Reliability Results.....58
4.7 Descriptive Statistics.....59
4.7.1 Custom's Automation Reforms.....59
4.7.2 Audit Based Controls 61
4.7.3 Enforcement Reforms 62
4.7.4 Institutional Capacity 63
4.7.5 Customs Revenue Collection 65
4.8 Diagnostic Tests.....66
4.8.1 Test of Normality 66
4.8.2 Test of Multicollinearity 67
4.8.3 Linearity Tests.....68
4.8.4 Heteroscedasticity Tests.....69
4.9 Inferential Analysis.....70
4.9.1 Composite Variable Analysis- Correlation 71
4.10 Direct Effect Regression Analysis 72
4.10.1 Regression Analysis 72
4.10.2 Analysis of Variance 73
4.10.3 Regression Coefficients.....73
4.11 Hierarchical Model Process 75
4.12 Regression Analysis with Moderator.....76
4.13 Hypotheses.....78
4.13.1 Test of Hypotheses.....78
4.14 Discussion of the Findings.....82
4.14.1 Customs Automation Reforms and Customs Revenue Collection.....82
4.14.2 Audit Based Controls and Customs Revenue Collection.....83

4.14.3 Enforcement Reforms and Customs Revenue Collection 83
4.14.4 Cross section of Institution and customs revenue collection 84
CHAPTER FIVE 87
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS 87
5.1 Introduction.....87
5.2 Summary of Findings.....87
5.3 Conclusion 90
5.4 Recommendations.....91
5.4.1 Policy.....91
5.4.2 Managerial Practice.....91
5.5 Limitations of the Study.....92
5.6 Suggestions for Future Studies 92
REFERENCES 93
APPENDICES 95
Appendix I: Respondents Questionnaire.....95
Appendix II: Introduction Letter.....100
Appendix III: Letter of Authority.....101
Appendix IV: Plagiarism Awareness Certificate 102

LIST OF TABLES

Table 3. 1: Target Population....39
Table 3. 2: Sample Size 41
Table 4. 1: Response rate....55
Table 4. 2: Demographic on level of education....57
Table 4. 3: Work experience....57
Table 4. 4: Reliability Results....58
Table 4. 5: Descriptive Statistics on Custom's Automation Reforms 60
Table 4. 6: Descriptive Test Statistics for Audit Based Controls 62
Table 4. 7: Descriptive Test Statistics for Enforcement Reforms 63
Table 4. 8: Descriptive Test Statistics for Institutional Capacity 65
Table 4. 9: Descriptive Test Statistics for Customs Revenue Collection 66
Table 4. 10: Tests of Normality....67
Table 4. 11: Test of Multicollinearity....68
Table 4. 12: Correlation Analysis....72
Table 4. 13: Model Summary 73
Table 4. 14: ANOVA....73
Table 4. 15: Coefficients....74
Table 4. 16: Model Summary 78
Table 4. 17: Summary of Hypotheses Tests 86

LIST OF FIGURES

Figure 2. 1: The Conceptual Framework 37
Figure 3. 1: Moderated Effects Model 44
Figure 3. 2: Moderation effects 46
Figure 4. 1: Linearity tests with P-P Plot 69
Figure 4. 2: Heteroscedasticity tests with Scatter Plot 70

ABBREVIATIONS AND ACRONYMS

CAMIS	Cargo Management Information Systems
CBCS	Customs Border Control Services
CEN	Customs Enforcement Network
CFS	Container Freight Stations
CPC	Customs Procedure Code
CPS	Customs Preventive Services
DPC	Document Processing Centre
GATT	General Agreement on Tariffs and Trade
HCP	Harmonization of Customs Procedures
Icms	Integrated Customs Management System
ICT	Information & Communication Technology
IMF	International Monetary Fund
KRA	Kenya Revenue Authority
PCA	Post clearance audit
RADDEx	Revenue Authorities' Digital Data Exchange
RARMP	Revenue Administration Reform and Modernization Program
RECTS	Regional Electronic Cargo Tracking System
RKC	Revised Kyoto Convention on the Simplification and
SED	Customs Single Entry Document
SED	Single Entry Document
TFA	Trade Facilitation Agreement
UTAUT	Unified Theory of Acceptance and Use of Technology
WCO	World Customs Organization
WTO	World Trade Organization

OPERATIONAL DEFINITION OF KEY TERMS

Audit-based reform refers to the process in which customs authorities check the figures and figures' admissibility. This is done by scrutinising documents, accounting records and electronic or systemised records and commercial documents of the said traders or business entities. The structural audits of customs are carried out after the fact to check whether all the tariffs and taxes on international trade are paid properly (GFP, 2020). In the course of the Business and Trade Committee in March 2024, the ICAEW stressed the further development through balanced reforms.

Customs automation reform may be defined as processes that strive to apply information and communication technology in an attempt to improve the operations of the customs services. This includes submitting for approval as well as processing of import, export or transit declaration, determining request duties and taxes and the final step of releasing the goods from the customs jurisdiction (UN, 2020).

Enforcement reform is the efforts which are targeted towards the protection of a society, and guaranteeing proper collection of revenues by means of combating transnational crimes including commercial fraud, counterfeiting, smuggling, money laundering, and financing of terrorism (WCO, 2020).

Tax revenue is therefore the amount of money that is remitted to the government by business firms and citizen during a particular financial year in accordance with the prevailing tax legislation.

In **institutional capacity** governments' particulars or a tax agency's ability to achieve objectives is considered. This entails the capacity of the agency to accomplish its fundamental responsibilities, availability of the needed resources (human, technical and financial) and organizational frameworks (Bhagavan & Virgin, 2004).

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter discusses the background of the study, problem statement, objectives, significance and scope of the study.

1.1 Background of the Study

As it is known, in the present contract and tariff conditions of the world economy the given customs activities significantly affect the further socio-economic development of each state. Globalization can therefore be seen to have led to basic shifts in customs activities, and the performance of inspection functions. Customs affairs in all their multifaceted aspects remain an inalienable component of the supervision and management system of the international supplies of goods. Such activities are involved not only the control, prevention of violation as well as customs and tax administration but also they have other responsibilities that involve security, thus promoting trading and protecting the state’s economic interests (Adomaviciute, 2013). In today's globalized world, many countries aim to integrate with the international economy. However, they encounter major obstacles in doing so, such as the need to boost tax revenues. This makes it essential to evaluate the country's current economic conditions and identify the right combination of taxes to generate adequate revenue (Pfister, 2009). At the same time, customs administrations that are integrated with revenue administrations of most countries are also striving to collect more customs revenue while facilitating trade and protecting the society. Customs administrations carry out a wide range of essential tasks that help ensure the smooth movement of goods and services across international borders. Historically, their role was more limited, with a primary focus on collecting duties and taxes on imported items

(Peterson, 2017). Customs administration can at times impede trade. The primary goal of tax and customs compliance initiatives is to assess the adherence of businesses and individuals to regulations at border points within Kenya's business landscape. This plays a role in minimizing the costs related to administration by the government and compliance by businesses, while aligning with the policy objectives set for customs administration. These efforts aim to ensure trade regulations are enforced with minimal disruption (IMF, 2003).

For effective trade and revenue collection, a solid compliance strategy is essential. In the 1990s, trade policies in developing nations were heavily shaped by agreements with the European Union, the World Trade Organization, and the Multi-Fiber Agreement. This prompted the Customs and Indirect Taxes Administration to review its practices. Compliance with tax and customs regulations was guided by principles from the World Customs Organization, alongside technical assistance from the International Monetary Fund and bilateral partners. Key reforms targeted four main areas: streamlining procedures and applying selective controls; increasing the use of technology; better management of specialized customs procedures; and promoting transparency and collaboration with the private sector (Peterson, 2017).

The Revised Kyoto Convention on the Simplification and Harmonization of Customs Procedures signed in 1974 by the World Customs Organization gives the direction for the Tax and customs compliance campaign by the member countries. The key principles upon which the revised Kyoto Convention is based include the following: nondiscrimination, transparency, expeditious, simplified, standardized and harmonized procedures. This is done through simplification of customs formalities, including the automation of customs declaration and-clearance; applying risk

management tools for customs control distinguishing between high and low risks goods; and information sharing among the border agencies (WCO, 2020).

The WCO added security and Facilitation through the Framework of Standards to the Revised Kyoto Convention and enhanced principles. There is a particular emphasis of how SAFE seeks to consolidate the cooperation between customs authorities and focusing their efforts in identifying illicit or dangerous commodities by way of data and risk share. According to WCO's Integrated Supply Chain Management guidelines, customs administrations are supposed to have adopted mechanism for collecting, storing and analyzing data on high risk shipments. It also suggests that before the imports physically enter the risky points such as customs posts, the shippers should send electronic data of the shipments (WCO, 2020). The AEO program helps facilitate SAFE's objectives because it enables specific participants involved in trade, including importers, exporters and transporters to receive an AEO status when registered by a country's customs authority (WCO, 2020).

In recent years, the importance of mobilizing domestic revenue in developing countries has become a central policy issue. This shift is driven by the potential benefits of increased taxation for state building and reducing dependence on foreign aid. However, many developing countries, including Kenya, face significant challenges in achieving their revenue targets. There is often a mismatch between revenue collection and the growing demands on government spending, leading to substantial imbalances in public resources (Asala, 2012).

To address this issue, the Kenya Revenue Authority (KRA) has implemented a comprehensive strategy to enhance its revenue collection systems and facilitate trade. This strategy includes initiatives such as establishing One-Stop Border Posts and

implementing information communication technology (ICT) solutions. These reforms are based on the WCO's Revised Kyoto recommendations to improve efficiency and service delivery (KRA, 2018).

Modern technology and information systems are vital in improving the efficiency of government operations, including taxation. Information systems (IS) are particularly effective in environments where large amounts of data must be processed accurately for multiple stakeholders. In the public sector, especially in taxation, these systems must be reliable, user-friendly, and capable of handling data from various sources (Decman & Klun, 2015).

Scholars argue that technology and automation can significantly boost tax revenue collection. For instance, Nisar (2013) highlights the growing importance of developing internet-based tax assessment and collection systems as governments face rising financial pressures. Automated systems have been shown to bring significant efficiencies to tax processes, resulting in higher revenue collection (Zhou & Madhikeni, 2013). Muita (2011) also notes that online tax systems are increasingly replacing traditional paper-based methods, offering faster processing, lower costs, and greater efficiency.

Since the 1990s, many countries have delegated revenue collection to semi-autonomous authorities that oversee the import, export, production, and movement of specific goods (Fjeldstad & Moore, 2008). These authorities, including the Kenya Revenue Authority, which was established under Chapter 469 of Kenya's laws, have the potential to increase revenues by expanding the use of automated systems and onboarding more taxpayers (KRA, 2020).

1.1.1 Customs Reforms at Kenya Revenue Authority

One of the key responsibilities of customs is to collect import duty, excise duty, and VAT on imported goods as part of revenue generation. Historically, when dealing with the Kenya Revenue Authority (KRA) for these taxes, taxpayers had to fill out numerous paper documents, with as many as 19 required for various transactions. This led to significant duplication and wasted time due to the paperwork involved. To address this inefficiency and align with international best practices, several recommendations were made. Some countries had streamlined the process by introducing a single entry document. In 1999, KRA began implementing the Customs Single Entry Document (SED) to simplify international trade by reducing the volume of paperwork. The SED consolidated all customs entry sections and captured the necessary information, including declarations from agents, exporters, or importers. It also ensured that the details provided were accurate for each transaction. As a result, the SED helped save both time and costs by eliminating the need for multiple documents for different types of transactions.

The second category of reforms (RARMP) started in 2003. According to KRA (2008), customs relied heavily on a division that was known Customs Preventive Services (CPS) in the past. This division was central to its operations but due to various constraints, it did not receive the resources it required. The unit had a complex organization structure, which also comprised of a specialized division known as Mombasa Anti-Smuggling Team (MAST) that was responsible for the rummaging of ships. The reforms initiatives under RARMP were aimed at enhancing border checks and strengthening enforcement capacity at the airports, border crossing points and other international gateways. The initiatives entailed re-branding the border control functions from the current ‘Customs Preventive Service’ to ‘Customs Border Control

Services (CBCS), increasing its border control staff by recruiting university graduates and acquiring various modern tools for compliance and enforcement management. So far additional Customs Boarder Control Officers have been recruited and trained (KRA 2023). The primary role of Customs Services Department is collection of taxes related to international trade, although enabling genuine trade, preventing entry of illegal goods and preventing export of restricted goods are its other responsibilities.

Specifically, the RARMP reforms included the introduction of the Simba system in 2005. This system replaced BOFFIN system that was manual and hence had a lot of paperwork. The Simba system was based on web and hence it facilitates online clearance of cargo thereby shortening the cargo clearance time. The other set of reforms under RARMP includes; Security Bond Management centralization in Nairobi and replacement of the long room (manual system that was semi-automated) with Document Processing Centre (DPC) which facilitated operations on 24-hour basis. This shortened the transaction processing time. In addition, there was introduction of the online pre-clearance of cargo under the Orbus system which was also web-based. Also, there was introduction of Cargo Management Information Systems (CAMIS) which accounts for undeclared cargo intended for Container Freight Stations (CFS) and Inland Container Depots for clearance.

In addition to CAMIS, an equivalent system of accounting for wet cargo (fuel and oil) was introduced. The other important reforms falling under RARMP includes; non-intrusive methods of cargo verification by use of X-ray scanners and use of sniffer dogs (K9). Of course, policy advice that has been provided to countries, which wish to change their tax structures, has focused on the introduction of new taxes and new rates on existent bases, stricter administration measures to close loopholes that

enhance tax avoidance, and expansion of tax bases and decrease exemptions. Other measures include the provision of more budgets to the, and better remunerating revenue officers together with the application of relatively steep penalties. In general, special emphasis is also paid to the that simultaneous reduction of the rates and broadening of the base is considered as one of the most efficient solutions for a counteraction of the negative stimuli of high levels of marginal tax rates and the evasion of taxes (Asaolu, Dopemu & Monday, 2015)

Lately, KRA has adopted the integrated and comprehensive strategy focused on enhancing its systems, especially in Customs. Transformation started by guaranteeing that issues concerning processing of import & export cargo are minimized to support domestic and foreign operations (KRA, 2020).

The approach is centered on physical structures, particularly One-Stop Border Posts and Information Technology. Information technology has centered on the adoption of automated its systems for avoiding Customs issues that have previously discouraged cross-border activities. They include; Single Window Concept which is a project implemented through the Community Based System (CBS) and the Integrated Customs Management System (iCMS). KRA has also stepped up the pre-arrival programme at the port to ensure that compliant clearing agents, transporters and importers be awarded with Authorized Economic Operators (AEOs) certificates. This falls under risk profiling as supported by iCMS and seeks to achieve 70 per cent through put of cargo at the port as provided for by the Port Charter. Another automated system has that has been implemented by KRA is the Regional Electronic Cargo Tracking System (RECTS). KRA has also implemented a framework for joint

inter-agency coordination in investigation of serious security and Customs-related crimes.

These customs reforms inventions are deemed to be effective tools that comply with World Customs Organization (WCO) standards to secure and facilitate global trade, Container Security Initiatives (CSI), International Ship and Port Facility Security (ISPS) code and recommendation of WCO Kyoto Convention (KRA, 2020).

1.2 Statement of the Problem

Revenue collection for the government is part and parcel of fiscal policy and fiscal administration in any economy. This is the bread and butter of most government as it is the primary vehicle for assuring government revenues. The Kenyan government has had to incur a fiscal deficit due to failure to achieve its recurring revenue targets. All the main tax heads which include: (Pay-as-you-earn-PAYE, Value Added Tax-VAT, Excise duty, Income tax, Import duty) have been experiencing annual revenue growth in the past years, although they have not met their respective targeted revenues.

To improve on revenue compliance among the taxpayers, Kenya introduced the reforms in 1986 with the hope that this would among other things enhance revenue collection. (Moyi and Ronge, 2006). In 2004, the KRA instituted the Revenue Administration Reform and Modernization Program (RARMP) to further the use of technology and create a modern customs revenue collection for Kenya (KRA, 2015). This involved system automations and training of employees on the new technology in revenue collection.

However, though much has been done to improve customs revenue performance by KRA, Customs revenue performance statistics shows otherwise. Nyaegah (2018) opines that tax compliance by taxpayers is low while the annual revenue targets have

never been met. For instance, the 2018/2019 annual revenue performance report by KRA shows that it managed to collect only KES.409.5 billion, from customs revenue against a target of KES. 464.2 billion (KRA 2019). In 2019/2020 financial year, the revenue performance reports show that despite the increase in the overall tax revenue performance from KES. 1.580 trillion in 2018/2019 financial year to KES. 1.607 Trillion in 2019/2020 financial year, revenue collection recorded a reduction of 7.0%, from KES. 464.2 billion, in 2018/2019 to KES 380.8 billion in 2019/2020 (KRA 2020). This means that KRA missed its' revenue target by KES 54 billion. Clearly, this data shows that revenue collection, though able to help the KRA to bridge the revenue gap, is faced with many challenges leading to low collection. Helhel and Ahmed, (2014) cite tax evasion as the biggest challenge faced by tax.

Despite an increase in tax revenues from Ksh 2.166 trillion in the 2022/2023 fiscal year to Ksh 2.407 trillion in 2023/2024 an increase of Ksh 240.565 billion, which includes Ksh 791.368 billion from customs taxes reflecting a growth of 4.9% the government continues to face deficit financing. This has necessitated reliance on foreign loans to bridge the gap. Kenya's fiscal deficit has largely been attributed by the increasing and uncontrolled government expenditure which is always unmatched by available revenues. The fiscal deficit has resulted in an increase in public debt as the Kenyan Government regularly borrows funds to finance its expenditure. These impacts negatively on economic growth as the funds that would otherwise be channeled to development expenditure are used to pay public debt.

Aside revenue shortfalls, Kenya is among the most tax unfriendly countries in the world with huge tax rates and there is this belief among Kenyans that they are overtaxed which then suggest inappropriate government expenditures patterns. Despite Malaba border being the East and Central Africa's second busiest exit and

entry point after Mombasa port, Kenya Revenue Authority customs department has not been able to hit its revenue targets and instead posted a single digit growth of 3.63% to register ksh.754 billion (KRA 2023).

KRA embraced the customs reforms under modernization program known as the Revenue Administration Reform and Modernization Program (RARMP) aimed at transforming KRA into a modern agency that produces its revenue target (Asala, 2012). Such measures have also adopted the strategic and structural change that has emphasized the improvement of its systems most of which are in customs services. It started by trying to address issues that have to do with processing of import and export cargo for make domestic and foreign business operations more efficient while at the same time raising more customs duties**.**

With limited studies directly focusing on the impact of custom reforms in determining customs revenue collection in Kenya, Locally, Jemaiyo and Mutai (2016) found that customs tax compliance cost, tax knowledge, tax penalties and tax audit had significant effect on level of customs tax compliance in Kenya. The current study sought to bridge the knowledge gap, by establishing the effect of customs reforms on perceived customs revenue performance in Kenya, a case study of Customs revenue collection at Busia and Malaba border posts.

The question that arises is what is causing low compliance and revenue collection in Busia and Malaba border posts, Kenya? Were the reforms efficient enough to help KRA fulfil its mandate of revenue collection? it is against this backdrop that the present study is conducted to examine the moderating role of Institutional Capacity in the relationship between Custom Reforms and Customs Revenue Collection at the Busia and Malaba border with a view of making recommendation.

1.3 Objectives of the Study

1.3.1 General Objective

The study seeks to determine the moderating effect of Institutional Capacity on the relationship between custom reforms and customs revenue collection at Busia and Malaba border posts.

1.3.2 Specific Objectives of the Study

1. To evaluate the effect of Customs automation reforms on customs revenue collection at Busia and Malaba Border Post.
2. To determine the effect of audit based controls on customs revenue collection at Busia and Malaba Border Post.
3. To assess the effect of enforcement reforms on customs revenue collection at Busia and Malaba Border Post.

4a). To examine the moderating effect of Institutional Capacity on customs automation reforms and customs revenue collection at Busia and Malaba border post.

4b). To analyse the moderating effect of Institutional Capacity on customs audit based control and customs revenue collection at Busia and Malaba border post

4c). To evaluate the moderating effect of Institutional Capacity on Enforcement Reforms and customs revenue collection at Busia and Malaba border post.

1.4 Research Hypotheses

H_{o1}: Customs Automation reforms have no significant effect on customs revenue collection at Busia and Malaba Border Post.

H_{o2}: Audit based reform has no significant effect on customs revenue collection at Busia and Malaba Border Post.

H_{o3}: Enforcement reform has no significant effect on customs revenue collection at Busia and Malaba Border Post.

$H_{o4\ a)}$ Institutional capacity does not moderate the relationship between customs automation reforms and customs revenue collection at Busia and Malaba border post.

$H_{o4\ b)}$ Institutional capacity does not moderate the relationship between Audit based reforms and customs revenue collection at Busia and Malaba border post.

$H_{o4\ c)}$ Institutional capacity does not moderate the relationship between Enforcement reforms and customs revenue collection at Busia and Malaba border post

1.5 Significance of the Study

The study sought to determine the moderating effect of Institutional Capacity on the relationship between custom reforms and customs revenue collection at Busia and Malaba border posts.

This study is invaluable to various stakeholders. First and foremost, Kenya Revenue Authority administration can use this study as a point of reference in their decision making process in regards to custom's revenue collection and what reform methods are most effective.

Secondly, scholars will find the research findings to be useful as a basis for further research and as guide in future academic endeavors. Finally, the general public stands to benefit should the recommendations of this study be put to action resulting in increased revenue collection translating to more resources for service delivery to the public.

1.6 Scope of the Study

The study seeks to determine the moderating effect of Institutional Capacity on the relationship between custom reforms and customs revenue collection at Busia and Malaba border posts.

The research respondents were Kenya Revenue Authority customs management and technical staff working at the Malaba and Busia Border Posts. This population is targeted as they are most conversant with the customs administration systems and directly involved with the operations. The independent variables are Customs automation reforms, Audit based reforms and Enforcement reforms, with Institutional capacity being the moderator and Customs revenue collection being the dependent variable. This study adopted an explanatory research design. The study adopted Yamane (1967) sampling formula to determine the appropriate sample size which is 328 from a total population of 1823.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents a review of literature on taxation. The theories related to reforms and revenue collection will be discussed. Then a summary of the review was made where the gaps in literature to be filled by this study was identified.

2.1 Review of Concepts

2.1.1 Concept of Customs Revenue Collection

Customs revenue collection refers to the process of collecting taxes, duties, and fees imposed on imported goods and services. Tariffs are taxes imposed on imported goods. It serves both as a source of revenue and a means to protect domestic industries from foreign competition. Duties are charges imposed on goods when they cross international borders. The value of imported goods is crucial for determining the customs duties payable. Customs clearance involves the procedures and documentation required for goods to be legally imported or exported.

The Kenya Revenue Authority (KRA) recently strengthened its enforcement efforts and implemented stricter measures at different entry points to bolster revenue collection, close existing loopholes, and prevent the entry of prohibited items. These measures involve utilizing advanced technology and conducting thorough physical inspections to screen and authenticate baggage and imported goods. However, there has been public criticism regarding the perceived excessiveness of these measures, with concerns raised about potential harassment and the resulting inconvenience for individuals arriving at or departing from Kenya.

Since many developing countries rely on imports as sources of budget revenue, income growth was traditionally on top of the MOF's agenda for the Governments represented by it. Overall on average, for the sample of African countries the import duty taxes represented 29% of total taxes collected (Moore & Prichard, 2017). The pressure of tax mobilization for most developed tax administration has for a long time dominated the other aspect of tax administration. Diagnostic work was mainly directed to identifying profit leakages. This type of approach is also employed mainly by the World Bank and the IMF (Junquera-Varela, et al., 2017). There are other strategies however, which could be employed by revenue administrations to improve revenue collection.

2.1.2 Concept of Customs Reforms

The Revised Kyoto Convention (RKC) on the Simplification and Harmonization of Customs Procedures signed in 1974 by the World Customs Organization (WCO) proposing both the drivers and an action plan for customs reform necessarily for the signatory countries. The revised Kyoto Convention and its core principles, promotes transparency, simplification, standardization, and harmonization of customs procedures. This is done through integrated energy; reducing paperwork of customs; through the use of electronic filing and customs clearance; Through risk management tools for customs controls of high risk cargo from low risk cargo; Through co-ordination between the border management agencies.

To support the principles outlined in the Revised Kyoto Convention the WCO offered the SAFE Framework of Standards to Secure and Facilitate. This was evidenced by formation of shifts in supply chain management, integration of information communication technology in border control, and inclusion of authorized economic operators.

SAFE's focus on the collaboration of the customs administrations. According to the WCO's Integrated Supply Chain Management, customs administrations use Customs, intelligence info on threats and risks, and risk profiles to identify the potentially dangerous or illicit items. The SAFE Framework suggests for the customs administrations to employ Information Technology whereby individuals can collect, store, and evaluate data relating to high risk consignments, and the shippers should provide details regarding imports in electronic format before the items reach customs' control points in order for customs officers to evaluate risk.

The AEO program also assists the goals and objectives of the SAFE Framework that enables the supply chain participants such as importers, exporters, customs brokers, freight forwarders, logistics providers and transportation companies gets pre accredited from their respective country's customs authority as a safe and reliable trader. The AEO participants need to provide information about the company and the company needs to prove that it complies with the WCO measures in relation to supply chain security. For this reason, the members of the AEO have efficient interaction with customs organizations and the rapid customs clearance of their goods. The WCO also encourages its members, customs administrations to grant mutual recognition to AEO members in other countries for enhancement of importers' security and to enhance trade (WCO, 2020).

In their work, Ochieng, Wawire, Manyasa & Thuku (2014) offer evidence to suggest that the idea behind differentiate reform is to bring down major costs to trade. Among these costs some of the most important are classified not only as the trade costs but also as Non-Tariff Barriers or nontariff measures affecting trade because it involves payment. Some of them are; more time delays cut corporate profitability as the following do not always correlate with monetary payments. In as much as it has been

postulated Non TaMs make a percentage of about 70 percent towards the restrictiveness Tariffs only and the countries with lower customs barriers have even more cases of diversification in export and more re export intensity (UNECA, 2013).

2.1.3 Concept of Audit Based Controls

Customs audit based controls are administrative controls where the customs authority uses records, commercial data and systems to, inter alia, scrutinize declarations in accordance with the Revised Kyoto Convention. The seven post-clearance audit techniques enable customs and other border organizations to develop a framework of risk-based controls other than the transactional control at the import/export interface. Measures which compose the transaction control include determination of the value, the country of origin, as well as the nature of goods, checks of the certificates, licenses and permits during the crossing of the border.

Such features include post-clearance audits allowing customs to undertake only necessary control activities when the goods arrive with stringent admissibility tests. This system is also important to enhance revenue collection since it enables an onerous assessment of all relevant information for assessment duties and taxes. For instance, during the post-clearance audit from Japan, the country's revenue enhanced, which doubled in between 1999 and 2009.

Furthermore, post-clearance audits can provide proximate support to transaction-based controls through examination of commercial documents such as invoices once the goods are cleared, in order to verify the classification Valuation and country of origin among others. This makes it possible to 'unlock' the shipment upon its arrival; with the final declarations and tariffs to be paid later. The release and clearance procedures are different; this is faster the flow of trade on the borders. Even when the

goods arrive, the ICC Customs Guidelines report that contemporary customs may provide the release and clearance at the same time.

Another type of Post clearance audits are the Periodic and cyclical audits. These include cases where the customs authorities make a physical check on the premises of the importers or traders for a period. In these audits, customs examines all and any commercial record, such as bank statements or contracts to ensure that the declaration is accurate. Such post-clearance audits should combine risk-based selectivity in a similar manner to checks carried out during import-export processes (UNECE, 2020).

On the other hand, customs administrations that rely solely on border controls are forced to employ measures such as one hundred per cent physical searches, which are ineffective and which result in long time delays. The mentioned challenges have been managed by the use of Post-clearance audits by the KRA since control activities can now be centralized at the border thereby boosting the systematic approach for the calculation of duties and tax thus the improvement in the proportion of revenue collection.

A post-clearance audit has emerged as a vital tool for enabling international trade, according to the postulates of the WCO'S Revised Kyoto Convention where countries are encouraged to optimize on post-clearance audits rather than conducting real physical examination of goods. In addition, the WTO's TFA requires the use of post clearance audit to enhance trade procedures and measures.

2.1.4 Concept of Customs Automation Reforms

Automation in this case means the use of information and communication technology (ICT) in the customs business. It interfaces the different processes of customs including handling of cargo and goods import and export declaration, calculation of

the customs and other taxes where applicable and customs release for export. There are various benefits of automation to customs among which are pre-arrival processing, automated release of securities, and better risk assessment accrued from data collection for trade statistics (UNECE, 2020).

Due to the Governments strategic direction towards enhancing cross border business, taxation and implementation of the revenue increases, KRA put to practice customs automation aiming to sustain Kenya's position as the preferred cargo corridor in East Africa (Kiragu, 2016). In the same respect, challenges that KRA encountered for instance, had to do with how it handles tax losses from cargo dumping, the management of transit goods, doing away with the necessity of physical escorts for transit cargo, and the question of data accuracy and reporting as noted by Tibbs (201 5).

Computerization of custom operations due to the change in the Arusha declaration increases execusionism, fighting corruption, accountability and creating archives to check decisions of administration. Endeavoring to decrease circumstances where customs officials can use discretion informality reduces the interactions between officials and clients.

2.1.5 Concept of Enforcement Reforms

It means that Kenya customs administration is responsible for the regulation of cross-border traffic, people, goods and vehicles compliance with the customs laws and regulations. Enforcement deals with the prevention and identification of smuggling, restricted and strategic products that overall may lead to huge revenue loss.

This redress is over the effort to decrease revenue loss by intelligence, surveillance of the entry ports, and physical and search of cargo and passengers. Such changes

include: the new technology for the identification of risks and their evaluation and the legal measures to ensure compliance. Technical advancement has been relied in that the electronic scanning systems have strongly forced the traders to adhere to the customs procedures and pay the specific duties.

To empower operation, the World Customs Organization (WCO) established the Customs Enforcement Network (CEN) in 2000 relative to equip the customs authorities with the application for the collection of law enforcement information through CEN and secure communication through CENcomm during the operation. These tools improve the enforcement of regulations in and by customs within a digital setting (WCO, 2020).

There is need to adopt and implement sound compliance measures in order to enhance the efficiency of customs enforcement as well as revenue mobilization. In the 1990s, the EU bilateral agreements and WTO Uruguay round affected developing countries' trade policies compelling customs administrations to redesign some of their operations. Some of the changes undertook to give it such a face lift were to streamline process, enhanced use of technology, better customs procedures management, and to encourage transparency and public and private partnership (Peterson, 2017).

2.1.6 Concept of Institutional Capacity

In its core, institutions can be defined as the habitual and prevailing norms of social behaviors (Hamilton; Mitchell; Young, 2013) and, more professionally, as the constitutional and working regulations of various types of organizations (Parsons, 2013). Land (2000) defined capacity as the capacity of persons/libraries/ societies to establish and achieve development goals on sustainable basis.

Capacity is also considered a developmental process through which a person, a group, an institution, an organisation and societies improve upon the measures they use to address developmental issues in a sustainable manner. Capacity refers to the capability of doing work or implementing functions, of resolving issues and delivering goals as well as objectives (Fukuda & Lopes, 2013).

From these basics, it becomes clear that, capacity can be classified into two broad categories namely: Personal and or Organizational. Personal endowments interpreted as compliance with certain abilities and inclinations (often developed through training) are viewed as a condition but not a sufficient one for capacity. It is also affected by internal institutional factors and by external factors in the large 'institutional' context of the policy environment and other political, economic and cultural forces at work among staff. It may well limit or enhance the organization's ability to perform and affects aspects of organizational credibility and legitimacy (Land 2000).

In their study, Kirabo, Kasozi, and Kayise (2013) pointed out that among the goals of the decentralization is the enhancement of capacity of the local councils to plan, finance and manage the delivery of service. They however note that around the world, local governance improves the provision of goods and services. While political condition, social condition, legal condition and economic condition are important characteristic for the study of public finance problems, they particularly play significant roles in the investigation of fiscal decentralization.

High quality institutions have the element of actors harnessing available resources for revenue mobilization in the enabling environment. This research uses a definition done by Kayise et al. (2013), which defines institutional capacity as the capacity to

hold, strengthen and enhance the efficiency and effectiveness of the administration of revenue. According to Kirabo et al (2013), the institutional capacity was seen to affect positively the revenue collection at local level.

Institutional capacity focused on: Human, financial, infrastructural, revenue, collection and methods involved; tax aware and the civil responsibilities the taxpayers have and the framework they have to deal with.

2.2 Theoretical Review

2.2.1 The Theory of Commodity Tax Reform

Introduction With the recent progress of the modern theory of Public economics, it can be said that the optimal taxation theory, which goes back to the works of Ramsey (1927), Samuelson (1951), and Diamond and Mirrlees (1971), has now reached a good level of maturity. However, Slemrod (1990), having observed the almost total absence of any consideration of a theoretical nature even in the most recent debates on the reforms of commodity taxes, reaches the conclusion that the traditional restrictions on the aims of the optimal taxation theory have led to an "incomplete" theory as a guide to solutions of current fiscal problems.

Slemrod (1990) underlines the need to move on to a new theory of "optimal tax systems", which also takes into consideration the resource costs of implementing alternative tax systems. Feldstein (1976) however, from a different point of view, pointed out that the aim of designing an optimal tax was already too ambitious given the concrete problems of fiscal policy. In fact, the optimal taxation theory implicitly assumes that the tax laws are written out de novo on "a clean sheet of paper", to use the words of Woodrow Wilson quoted by Feldstein. In reality, only small and piecemeal changes in the existing tax structure are generally feasible: the problem

does not lie so much in designing a new tax, as verifying the opportunity to change its existing structure. So the suggestion is to move on from the second-best "maximizing" logic of the optimal taxation theory which, as is known, looks for the conditions for the existence of a commodity tax structure which maximizes a social welfare function subject to technological and government budget constraint, to the second best improving logic of the tax reform theory which, instead, referring to a given initial position, looks for the conditions for the existence of the directions of feasible and Pareto improving or welfare-improving tax changes. In this less ambitious logic, we can expect the results of the research to really help us to clarify the terms of the debate about the possibility of improving the actual commodity tax structures. Of course there is a connection between the commodity tax reform theory and optimal taxation theory. When Pareto-improving or welfare-improving changes in the structure of tax rates do not exist, then we can conclude that this structure is already a second best optimum.

But, apart from this particular case, the logic of the theory of marginal commodity tax reforms requires the determination of the conditions for the existence of directions of the marginal reforms (small changes close to the initial equilibrium) which are feasible and Pareto-improving or welfare-improving. The general second best theorem of Upsey and Lancaster (1956) warns us against the temptation of giving hasty answers to these problems, even if intuitively plausible. The reduction of distortion caused by a tax in one market, given the existing distortions in other markets, doesn't guarantee in fact, as is already known, a Pareto-improvement or a welfare improvement. Neither is a simultaneous reduction of the existing distortions in all markets able to provide such a guarantee. As Dixit reveals (1975) changes which appear to be steps in right direction, but stop short of attaining the full optimum, can

actually reduce welfare". But the theory of marginal reforms of commodity taxes has not only served to clarify some erroneous convictions of the past. With this survey I will try to summarize the most interesting conclusions reached by research in this field.

2.2.2 Unified Theory of Acceptance and Use of Technology

Shaupp et al. (2010) provide an insight into the association between revenue generation and public's usage of electronic tax systems using the UTAUT which was developed by Venkatesh et al. in 2003. This model brings out the perceived behavioral control aspects that influence the uptake of electronic systems; performance expectancy, effort expectancy, social influence, and facilitating conditions.

According to Veras and Preziosi (2011), performance expectancy is a measure of the access and quality of the technological resources like internet that is considered important to support the use of technologies. They also define that effort expectancy is the level of perceived how easy it is to use the system. Besides, social influence is defined in terms of age and gender and facilitating conditions refer to properly incentives or support meant to help users adopt the system.

In a detailed analysis of the UTAUT model, Lai (2017) identifies five essential attributes of performance expectancy. These include the perceived usefulness of the technology, its alignment with job requirements (job-fit), the relative advantages of using the system, the extrinsic motivations linked to technology use, and the anticipated outcomes from utilizing the system.

The UTAUT model outlines four key constructs. Performance expectancy describes how much users believe that a new technology will enhance their work efficiency,

paralleling the concept of perceived usefulness in the Technology Acceptance Model (TAM). Effort expectancy addresses the user's perception of how easy the system is to use, which also includes elements from TAM. Social influence refers to the extent to which individuals feel that significant others believe they should adopt the system, drawing from subjective norms in TAM. Finally, facilitating conditions pertain to the users' beliefs about the adequacy of resources and infrastructure for effective system use, incorporating concepts from perceived behavioral control and TAM.

This model known as UTAUT has been used in other research works, in order to explore technology acceptance in diverse settings. For instance, Robinson (2006) adopted the UTAUT model to study penetration of technology among students that are in the field of marketing. The versatility of this model shows applicability in different fields to explain the factors that influence and/or constrain the acceptance of new technological solutions. Moreover, several authors have also carried out studies to confirm the new constructs of UTAUT model on Internet technologies and virtual community (Park et al., 2007; Pappas and Volk, 2007; Loke 2008; Lin and Lee, 2006; Hennington and Janz, 2007; Debuse et al., 2008; Chieh-Peng and Anol, 2008

Moreover, by applying the UTAUT model, Koivumaki, Ristola, and Kesti (2008) extended the analysis of technology adoption with respect to mobile technology. Consequently, through the study of mobile technology, this study contributed to the existing literature. Subsequent research incorporated more.

Despite its versatility that was evident from the details mentioned above whether in studies involving a broad range of technologies or narrow ranging from communicating, educating, computing, and consuming with technology to fashion and telecare technologies, the UTAUT was enriched with more dimensions by subsequent

research. For example, Wang, Wu & Wang (2009) did a research study with another level of self-regulation and perceived playfulness as the two independent variables featuring age and gender as moderating factors. This paper focused on age and gender influence on the Mobile Learning Technology adoption.

However, the adoption of the UTAUT model for integrating into research projects to examine the acceptance of technology is somewhat restricted in that it does not incorporate the TTF. This Venkatesh et al. (2003) found out that this was not captured in the UTAUT model and thus opened up for more research. In other words, the theoretical frameworks on which the UTAUT model is based do not encompass task constructs. In general, users plan to use information technology if the technology matches the task in question. Dishaw, Strong, and Bandy (2004) extended this effort to include TTF constructs proposed to the UTAUT to assess their enhancement on the model as was described by Dishaw and Strong (1999). In their study, they got new model integrating the innovation theory of TTF and the user acceptance model of UTAUT.

In relation to this study, this theory was of importance as it guided the framework of the construction and utilization of electronic tax systems and technology acceptance. It suggested that for tax authorities to obtain the desired enhanced revenues, they had to adopt easy to operate, less costly, friendly systems that do not add to the existing hierarchy of the tax system and systems that do not add a layer of bureaucracy to the process of tax administration. Furthermore, the authorities had to carry out the basic premise of having supporting structures in place including internet connectivity, as this would make it easier and faster to compile with the set tax laws.

2.2.3 The Public Expenditures Theory

Extracted and refined here Public Expenditure theory was developed (Peacock and Wiseman, 1961). This was mainly built on the pillars of political theory of public expenditure determination as regards the notion that the government would wish to spend more money, the citizens on the other hand, would not wish to pay more taxes and the consideration of the wishes and aspirations of the people. The theory also provides a comprehensive description of the cyclical process of the government expenditure during its development projects hence becoming a limitation to the taxable capacity of the citizens (Kanyi 2014).

This theory provides direction as to a standard of a benchmark on expenditure which ought to be incurred by the government and could therefore potentially assist in reducing the level of strategic behaviour of the stakeholders in the process of the preparation of the government's budget. The public expenditures theory extends the argument further by noting that government spending is influenced mainly by government receipts and taxes. According to the theorists, as the both economy and income gets bigger, automatically the tax revenues would soar. This therefore makes it possible for the government expenditure to increase parallel to Gross National Product (GNP). There is an impression that the level of taxation that is considered as a limitation is bearable. Furthermore, it is argued that there could exist a gap between an optimal level of taxation and expenditure by the government (Baghebo, 2012).

In their cross-sectional study, Zungu, Greyling and Sekome (2020) assessed non-linear relationship between government spending and economic growth. A non-linear relationship between the government expenditure and economic growth was established. Therefore, with an increase in government expenditure at the first economy, the economic growth of that economy is negatively affected. In relation to

this study of customs reforms, what can be used is the theory of public expenditure as it will explain the correlation between the government efforts to increase the custom revenue from its border points towards the achievement of its development agenda, and the ability of raising the desired tax revenue.

2.3 Empirical Review

Empirical review involves looking at other related studies of the influence of customs reforms and customs revenue collection. Several works are reviewed concerning custom reforms and the impact on the revenue collection as per the parameters outlined in this study.

2.3.1 Customs Automation Reforms and Revenue Collection

This study was carried out with an intention to know about the impact of customs reform and modernization program on the Customs Service Department of KRA Asala J., (2012). R squared of the regression results negated any impact of the reforms on performance of the customs department and out of the three reforms, the research discovered the following; the most implemented reform was the customs automation reform followed by structural reforms least implemented reform was the enforcement reform. In light with these developments we deduce that the study is able to conclude that the reform measures undertaken have not enhanced on the customs services department of the KRA. The study however challenges the Kenyan Revenue Authority to rethink of the circumstances that require it to implement several reforms with a view of enhancing on performance.

In his study on the effects of system automation on revenue collection of Kenya revenue authority, Gitaru (2017) pointed out that he noted that after automation the revenue collection of the simba system improved. Consequently, a research study

emerged on the compliance level of the KRA on the problems faced during the implementation of CRM as discussed in a research done by Ondiek (2013). They also concluded that KRA experienced key threats to change like resistance by the organization, inadequate skills by staff, inadequate resources, and a poor telecommunication network. In order to meet these challenges the Authority embarked on implementation of training and awareness activities of staff and other stakeholders. In addition, they compensated for other prevalent talent gaps by hiring employees with such skills. Political support on the other hand and the management operations was also instrumental in the accomplishment of CRM initiatives.

Wambua (2008) also found out the effect of reform programs on staff morale in the case of KRA. They pointed out that such reforms are meant to foster the organisation's development agenda as well as facilitate effective business planning that would facilitate service delivery to meet customer expectations. It was against this background that this paper sought to evaluate the impact of reform programs on the morale of KRA employees. The findings showed that these reforms produced highly positive effects on staff morale for they attributed the changes to further enhancement in the ways they worked on their tasks thus improving their level of job satisfaction.

Nassika & Keshika (2017), did a study on best practices in digital customs in East and Southern Africa: This paper evaluates a case of the Customs of the Mauritius Revenue Authority (MRA). The paper looked at different steps, which MRA Customs took to get to its realization of the use of digitalization. These milestones were brought under to analysis when compared with the World Customs Organization blueprints centering on digital Customs, the global Revised Kyoto Convention (RKC) and the WTO Trade Facilitation Agreement (WTO TFA), the Mercator programme, the IMF and others.

From this paper it has become clear that the MRA Customs Department has successfully counter such key challenges that were on course of digitalization such as paperless customs, trade facilitation and optimum collection of customs duties and taxes.

Teera (2002) reviewed the Ugandan tax policy and determined the challenges that affect receipt of taxes. He then employed time series data from 1970-2000 to develop one model. Based on the results analyzed it was clear that elements such as the share of agriculture to GDP, population density, and tax evasion influenced all the taxes in scrutiny. Unexpectedly, GDP per capita was within the first group with negative coefficient. Acknowledging the channels through which tax evasion and economic openness affected the Ugandan tax receipts, the remaining analysis relies on import ratio numbers that substantially dampened the tax yields, while foreign aid had a positive impact on tax revenues in that aid in Uganda ordinarily underpinned the importation of manufactured goods, especially raw materials.

Muthama (October 2013) researched the change management practices implemented by the Kenya Revenue Authority (KRA) during its reform and modernization efforts. This case study aimed to identify the specific practices adopted by KRA. The findings showed that significant changes had been made, including the creation of new departments, the merging of others, and the splitting of some to improve service delivery. Like in many organizations, resistance to change occurred, but KRA's management effectively managed this resistance, preventing the preservation of the status quo.

Osoro (1993) analyzed effectiveness of reform measures in Tanzania related to taxes in generating revenues, by estimating tax buoyancy by means of a double log form

equation and using the proportionate adjustment method for estimating tax revenue elasticity. The study reveals that, Realizations did not improve with tax reforms during the analysed period evidenced by the elasticity of 0.76 and buoyancy of 1.06. This case blamed it on tax exemptions and a poor tax administration.

In the same way Chipeta (1998) analyzed the impact of tax reforms on the revenues in Malawi in the period of 1970/ 1994. The study claimed that the tax buoyancy was at 0.95 while elasticity was 0.6; that bases for tax in Malawi were not growing as fast as the GDP of the country.

2.3.2 Enforcement Reforms and Revenue Collection

Another important function of the customs administration is to make sure that the travelers, cargo and carriage passing the frontiers meet the provisions of the customs legislation in order to perform the function of the enforcement of the laws. It aims to fight the unauthorized importation, exportation or transport of restricted, prohibited or controlled goods that cause a lot of customs revenue foregone.

To avert or reduce such cases, reforms in customs enforcement have been begun. These reforms concern enhanced intelligence, performance of information, added border post and customs accredited place patrol, land and aerial observation, cargo examination, passenger and baggage check, covert operations, and immigration services (Bruce, 2000).

The reforms provide customs administration with exclusive authorities over goods in the international supply chain, scrutinize transactions, recompute revenues, and detain or interrogate persons – core dynamics of customs enforcement. New skills and procedures are part of the enforcement information exchange mechanism and to identify non-compliance by the trader and his associates. These reforms are

complemented by legal statutes that grant customs the ability of exercise control, conduct investigations and information sharing.

Automation has also played an increasing role in enforcement, allowing customs to access information from various sources for risk assessment. The use of electronic scanning technology for all cargo ensures compliance, particularly in terms of customs revenue payments. These enforcement reforms are designed to ensure minimal loss of customs revenue.

2.3.3 Custom's Audit Based Controls and Revenue Collection

Alade and Oshode (2013) suggest that, similar to financial audits, tax audits involve gathering and analyzing information to assess an organization's compliance with local tax laws. For the audit to be effective, the auditor must plan and execute the work in a way that ensures thorough and efficient completion.

Hyvärinen et al. (2017) describe taxes as "money paid to the government to fund public services." They define an audit as "an official review of financial and business records to verify their accuracy."

Ladi and Henry (2015) conducted a study to explore the impact of increasing tax evasion on actual tax revenue collected but not fully remitted to the Nigerian government. According to them, many Nigerians lack trust in the government and are reluctant to hand over their money, making taxes a low priority obligation to both state and local governments. Their research examined how tax auditing affects revenue collection by the Federal Inland Revenue Service (FIRS), using data from FIRS employees in Abuja and applying the Taro Yamane sampling technique.

In practice, the random audit program is only able to audit about two-thirds of the selected cases, according to Knechel and Salterio (2016). This is primarily due to the high workload faced by auditing compliance teams. Although compliance officers are informed that random audits are a high priority, the volume of cases often exceeds what they can handle, and some cases are left unattended, although random audits are generally more successful than targeted ones.

Aamir et al. (2011) highlighted tax system restructuring as a key factor in improving revenue collection in economies. At the federal level, tax reforms were a crucial part of broader economic reforms. In Pakistan, direct tax reforms were essential to fiscal and economic restructuring. Similarly, in India, tax reforms were aimed at addressing fiscal imbalances (Panday, 2006). One of the most significant recent developments in taxation worldwide is the rise of value-added tax (VAT), which has several advantages, including preventing tax cascading, allowing zero-rating for exports, and being difficult to evade. A variation of VAT, the General Sales Tax (GST), was introduced in Pakistan as part of the 1991 tax reforms.

Kusi (1998) examined tax reforms and revenue productivity in Ghana from 1970 to 1993. The study showed a tax buoyancy of 0.72 and elasticity of 0.71 during the pre-reform period from 1970 to 1982. Post-reform data from 1983 to 1993 showed increased buoyancy (1.29) and elasticity (1.22), concluding that the reforms significantly enhanced tax revenue productivity during that period.

2.3.4 Moderating Effect on Institutional Capacity

Institutional capacity refers to the ability of a customs authority to effectively manage and regulate cross-border trade and goods. This includes the ability to enforce laws, collect tariffs and ensure compliance with regulations. The components of

institutional capacity include human resources, Technology, legal framework, infrastructure, interagency coordination and training and development.

Institutional capacity can be understood in different ways, depending on the user and the context in which it is applied. In general, capacity building refers to both the training and development of employees and the improvement of infrastructure. According to Groot and Molen (2000), capacity building involves enhancing the knowledge, skills, and attitudes of individuals or specific groups, enabling them to effectively design, develop, manage, and maintain locally important institutional infrastructures and processes. In customs, strong institutional capacity helps ensure effective trade facilitation, efficient revenue collection, and the enforcement of tax laws. Collins, Smith, and Hannon (2006) describe institutional capacity building as efforts to cultivate knowledge, skills, and expertise aimed at boosting analytical abilities that are essential for increasing organizational productivity and sustainability. Based on these definitions, the researcher suggests that institutional capacity, when used as a moderator between customs automation reforms, audit-based controls, and enforcement reforms, can enhance the positive impact of these reforms on customs revenue collection.

2.4 Research Gaps

The Kenya Revenue Authority (KRA) has introduced several reforms to enhance the efficiency and effectiveness of its revenue collection and accounting processes. These changes have led to better service delivery and an increase in revenue collection. The evolving economic, technological, and operational landscape has driven the need for these reforms. As a result, KRA, particularly within the customs administration, has adopted new strategies like automation and technological integration, which have introduced challenges during implementation.

The studies illustrating the impact of trade liberalization on Customs revenues are many starting from those done in developed economies (Arezki, Dama & Rota-Graziosi, 2021; Hisali, 2012)) and developed economies (Gnangnon and Brun, 2019). The studies used varied methodologies and the findings are dissimilar to Gnangnon and Brun (2019); Hisali (2012); Epaphra & Massawe (2017); Shinyekwa &. Othieno (2016); Moller (2016) and Gaalya (2015) reported negative impacts while Arezki, Dama and Rota-Graziosi (2021). The studies in the sub-Saharan context have been mainly done in Uganda, Tanzania and Rwanda (Gaalya, 2015; Hisali, 2012; Shinyekwa &. Othieno, 2016). Due to the divergence in the findings, this study examines the impact of customs reforms on customs revenue collection at the Busia and Malaba borders in Kenya.

The studies linking customs reforms on tax revenue have examined the impact of trade reforms in both developing countries (Gnangnon, 2019; Loganathan, Ahmad & Subramaniam; 2020; Gaalya, Edward & Eria, 2017; Gupta, 2017; Egwakhe, Akinlabi and Odunsi, 2018) and developed countries (Khattry & Rao 2015). The finding showed that trade reforms has a positive effect (Gnangnon, 2019; Gaalya, Edward & Eria, 2017; Baunsgaard & Keen, 2015; Gupta, 2017) and negative effect (Shrestha, Kotani and Kakinaka, 2021; Khattry and Rao, 2015). The studies have used several methodologies that included panel regression models, ARDL and cointegration technique. The studies in sub-Saharan Africa in East African Countries (Gaalya, Edward & Eria, 2017) and Nigeria (Egwakhe, Akinlabi and Odunsi, 2018).

Although many studies have focused on customs reforms, new trends continue to emerge in the sector. This study aims to address the existing gap by exploring these evolving trends.

2.5 Conceptual Framework

Cooper and Schindler (2014) describe a conceptual framework as a graphical or written representation of the main thing under study in research. The components of a conceptual framework are research variables that indicate the concepts and postulated connections between the concepts (Cooper & Schindler, 2014). Moreover, Kothari (2006) explain that conceptual framework is developed by using a number of broad theories and ideas that can help any researcher to precisely define the problem they wish to solve and then formulate it in relation to the research questions that will enable them to find the solutions to the problem (Kothari, 2006). The dependent variable is revenue collection of Customs Service Department of KRA, while the independent variables are Customs automation reforms, audit based controls and enforcement reforms and moderated with institutional capacity.

The conceptual framework for the study is shown below in figure 2.1.

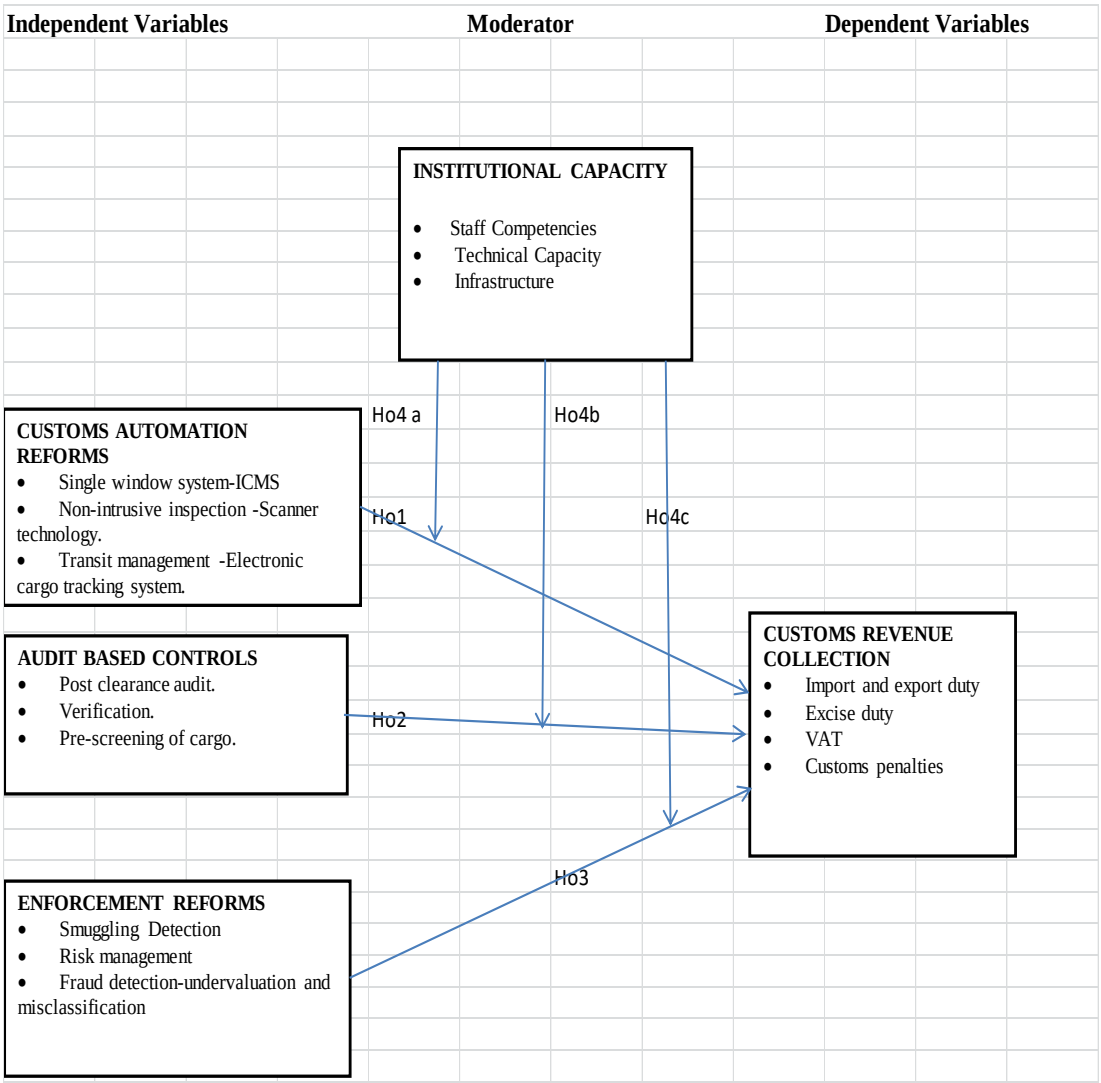

Figure 2. 1: The Conceptual Framework

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter is created in order to provide the reader with the information about the research design and methodology to be employed in the frame of the given study. It outlines the study design, population, sampling strategy and method, data collection tool, methods of data collection and analysis. It also describes different scientific approaches that were used to fulfil the goals of the study.

3.1 Research Design

Research design concerns data collection, data measurement and data analysis. Cooper and Schindler (2008) define it as the blue print for how an inquiry into a research question would be conducted. Hence, this research will employ explanatory research design. Explanatory research design according to Mugenda and Mugenda (2003) is a method used to obtain data to explain questions on the status of the subjects under study. Such an endeavour is helpful in establishment of the fact that a phenomenon happened by figuring out the casual relationships. But it can be relevant at the identification of the concerns that are still not critically analysed in depth and of the explicate factors of study. This research adopted this design to analyse the moderating effect of institutional capacity on the relationship between customs reforms and customs revenue collection at the Busia and Malaba border points**.**

3.2 Study Area

The study was conducted at Busia and Malaba border posts. The two border posts are geographically positioned in the Western region of Kenya. It is located in Busia County; it borders Lake Victoria to the South West, the Republic of Uganda to the West, North and North East, and the following Counties; Bungoma and Kakamega to

the East, and Siaya to the South East and South. The one stop border posts was chosen because of its position as a vibrant, progressive and porous border post with a lot of cross border activities between Kenya and Uganda. Through strategic planning, partnership with stakeholders, and effective implementation of development programs, Busia and Malaba border posts are steadily progressing in effective trade facilitation, implementation of customs reforms and collection of revenue.

3.3 Target Population

Cooper & Schindler (2006) defines a population as a well-defined population of individuals, occurrences or records that contain the necessary information to respond to the measurement question. A target population is the total identifiable and relevant subpopulation pertinent to a given research study (Zikmund, 2003). Target population or sampling unit is 1,823 respondents composed of managerial and technical staff practicing in KRA Custom's and Border Control Department of Busia and Malaba. The managers from the technical field maintain the connection of forming and implementing the organization's vision at the top and the lower levels. It is their work behavior that is critical for the achievement for the vision as pointed out by Mollick et al (2011) & Balegun (2003).

Table 3. 1: Target Population

Item	Busia	Malaba	Total
KRA management staff (Customs)	20	33	53
KRA technical staff(Customs)	803	967	1770
Grand Total			**1,823**

Source: KRA - 8th Corporate Plan (2021-2024)

3.4 Sampling Technique

According to Kothari (2009), sampling means choosing a handful of individuals, objects or events with the view of drawing inference from them about population from which they were drawn. A sample is the method of selecting a number of items in a population with an aim of forming an understanding of the total population. According to Kothari (2009), an ideal sample is that sample which is efficient, representative, reliable and flexible. The sampling technique employed in this study is the stratified sampling with a proportional allocation. This method is a type or random sampling technique and it involves a more detailed study of subgroups known as strata (Marshall, 1996).

3.5 Sample Size

The study adopts Yamane (1967) sampling formula to determine the appropriate sample size as follows:

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

In the formula, n stands for the sample size that was taken, N stands for the total of the top level and middle level management that the study was focused on and e referred to the error or significance level. As usual, a conservative significance level of five percent was adopted in order to counter act between committing of Type I and Type II' errors. The population was 1,823, and a significance level of 0.05 the sample size was computed based on the following computation;

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

N-Total population

n -number of samples

e -margin error (0.05)

n =1823 / [1+ (1823x 0.0025)]

= 1823/5.5575

n = 328

Therefore three hundred and twenty eight (328) managers and technical staff were proportionately chosen from Kenya Revenue Authority Busia and Malaba border posts. The questionnaire was thereafter administered to the respondents personally by the researcher.

Table 3. 2: Sample Size

Item	Total Population	Proportion	Sample Size
KRA management staff (Customs)	53	0.029	10
KRA technical staff(Customs)	1770	0.971	318
Total	**1,823**		**328**

Source: Author 2024

3.6 Pilot Test

To identify and clarify any ambiguities in the items and improve unclear questions, a pre-test was carried out, as suggested by Blanche et al. (2006). A pre-test is a small-scale trial of research methods, such as protocols, data collection tools, and sampling strategies, conducted before a larger study (Hassan, 2006). In this case, the pilot test was performed at the Namanga one-stop border post. Its purpose was to assess the costs, risks, and feasibility of the research project. For this study, the pilot involved 32 participants, which represented 10% of the planned sample size of 328 respondents. Importantly, those selected for the pilot were not part of the main study, which was conducted at the Busia and Malaba border posts. The data from the pilot test were

analyzed using descriptive and inferential statistical methods. Any unclear questions were refined accordingly. The purpose of the pilot test was to ensure that respondents could easily understand the questions and provide reliable and valid information for the study.

3.7 Data Collection and Research Instruments

The main data type was the primary sources of data collection. Specifically, questionnaire was used in the study to collect data from the sampled respondents. Data collection was done through instruments developed by the researcher through the supervisor's instruction. The choice of data collection instrument is often decisive to the success of the research, and thus, when determining an appropriate data collection method, a researcher has to take into account the complexity of the topic, response rate, time and the targeted population (Mwangi, 2015). A questionnaire was used for data collection as it gives an opportunity for the researcher to stimulate response to a greater extent given that the target respondent comprised of the personnel who are well versed with KRA Customs reforms and revenue collection. It gives a lot of good qualitative data and greater depth of response. According to Kombo and Tromp (2019), a questionnaire is a research instrument that gathers data from a large sample. Most questionnaires are designed to gather already structured data and so include a set of answers that the respondent can choose from, although some may include more open-ended questions that allow the respondent to answer the questions in their own way; others give a provision where all the participants are asked the same questions in the same order and using the same wording and have the same set of answers to choose from (Matthews & Ross 2020).

According to Kothari (2020), questionnaires are usually free from interview bias as the answers are in the respondent's own words. Respondents will have adequate time

to give well-thought-out answers. Orodho (2019) also argues that a questionnaire is an efficient research tool that when used will enable the researcher to obtain personal ideas from a respondent. It had the advantage of obtaining standard responses to items, making it possible to compare between sets of data. It will also allow the participants to give their own opinion on the issue at stake. The instruments were personally administered and comprised a drop and pick method. This generated a quantitative data which was used to uncover and understand what lies behind the phenomenon under study.

3.8 Data Collection Procedure

The researcher got an introduction letters from the Moi University and Kenya School of Revenue Administration (KESRA) as well as a research permit from the National Commission for Science, Technology and Innovation (NACOSTI). A letter of introduction was made to the entities to seek their permission to get information from the respondents.

3.9 Model Specification

3.9.1 Direct Effects Model

The overall direct model equation took the form of

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e \ldots\ldots\ldots\ldots\ (i)}$$

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 W + e \ldots\ldots\ldots\ldots\ (ii)}$$

Where

Y= Customs Revenue Collection (dependent variable).

$\boldsymbol{\beta_0}$= Constant which defines Revenue Collection without inclusion of independent variables

$\beta_{1,2,3}$ = Coefficient of X_1, X_2, and X_3

$X_{1\text{-}K}$ = Independent variables are,

X_1 = Custom's Automation Reforms

X_2 = Audit Based Controls

X_3 = Enforcement Reforms

3.9.2 Moderated Effects Model

The moderator variable influences how strong or weak the relationship is between a predictor and an outcome. It can amplify, diminish, or alter the effect of the predictor (Fairchild & Mackinnon, 2009). In this study, a moderated model was used where the moderator, M, impacts the relationship between X and Y, as illustrated in Figure 3.1 below.

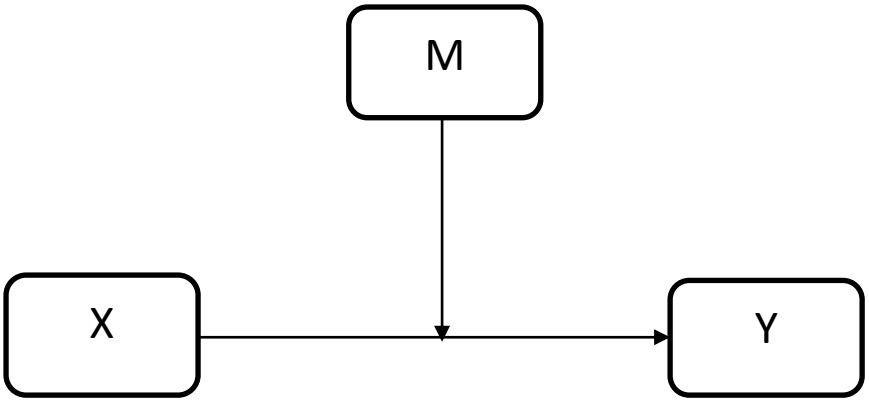

Figure 3. 1: Moderated Effects Model

Source: Fairchild & Mackinnon, (2009)

The use of moderated effects model of institutional capacity is based on the fact that institutional capacity is an enabler in the cross border operations and therefore its effects can only be considered to be indirect.

The impact of moderation is usually conceptualized as an interaction between factors or variables, whereby the impact of one variable depends on the level of the other variable in the analysis as prescribed in the equation below.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 W + \beta_5 X_1 * W + e \quad \text{..... (iii)}$$

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 W + \beta_5 X_1{*}W + \beta_6 X_2{*}W} + e \ldots\ldots \text{(iv)}$$

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 W + \beta_5 X_1{*}W + \beta_6 X_2{*}W + \beta_7 X_3{*}W} + e \ldots\ldots \text{(v)}$$

Where **Y**= Customs Revenue Collection (dependent variable).

$\boldsymbol{\beta_0}$= Constant which defines Revenue Collection without inclusion of independent variables

$\boldsymbol{\beta_{1,2,3,}}$ = Coefficient of X_1, X_2, and X_3

$\mathbf{X_{1\text{-}K}}$ = Independent variables are,

$\mathbf{X_1}$ = Custom's Automation Reforms

$\mathbf{X_2}$ = Audit Based Controls

$\mathbf{X_3}$ = Enforcement Reforms

W= Institutional Capacity (Moderating variable)

$\mathbf{X_1{*}W}$= Custom's Automation Reforms * Institutional Capacity

$\mathbf{X_2{*}W}$= Audit Based Controls * Institutional Capacity

$\mathbf{X_3{*}W}$= Enforcement Reforms * Institutional Capacity

e = Error Term, representing independent factors that may have been omitted in this study.

The indirect effect represents how one variable (X) influences another variable (Y) through a mediating process. When this effect depends on a moderator, it means that the strength of the relationship between X and Y varies as the moderator changes. Including both the moderator (Z) and the interaction term (XZ) in the model helps adjust the direct effect of X on Y, but it doesn't alter how the indirect effect of X is determined (Fairchild & Mackinnon, 2009).

Where X = the independent variable, Y = the dependent variable, Z= the moderator variable, XZ = the product of X and the moderator variable, β1 = the effect of X on Y, β2 = the effect of Z on Y, and β3 = the effect of XZ on Y.

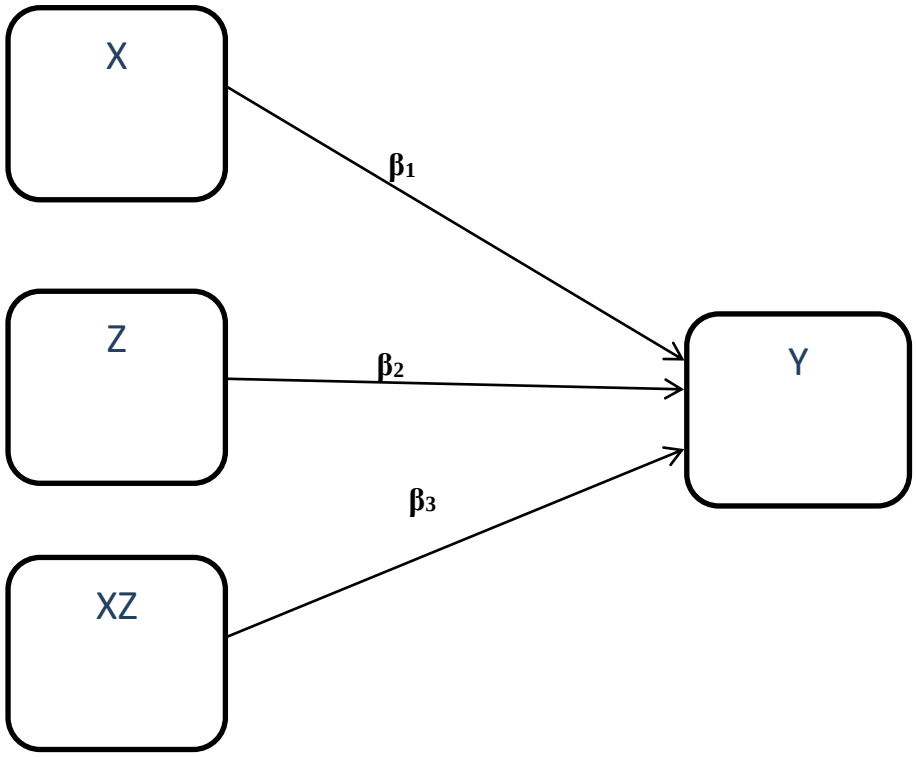

Figure 3. 2: Moderation effects

Source: Fairchild & Mackinnon, (2009)

3.10 Reliability Test

Reliability refers to how accurately a test measures what it is intended to, and the extent to which the results are free from errors. Ensuring the reliability of data collected in research is vital, which is why the instruments used must undergo a reliability test. As stated by Field (2009), the reliability of an instrument is confirmed when the questionnaire consistently represents the construct it aims to measure, regardless of when it is applied. Reliability can be improved by including multiple similar items in a test, selecting a varied group of individuals, and maintaining

standardized testing conditions. In this study, Cronbach's alpha coefficient was calculated to assess reliability. The Cronbach alpha scale ranges from 0 to 1, with values between 0 and 0.6 indicating low reliability and values of 0.7 and higher signifying high internal consistency and reliability.

3.11 Validity of Data Collection Instrument

Validity means the extent to which the set of test items samples the content which the test intends to measure. It means real measure of how well the results of a particular study are simply an accurate reflection of what the study aims to measure (AndySauro, 2014). Although it may be impossible to attain absolute level of validity, attempting validity in a developing measurement tool is relevant in human research studies (Bowling, 1997).

Validity is truthfulness and is a measure of how well a conceptualized idea about reality matches the actual reality (Bolarinwa, 2015). Validity was used to validate the quantitative instrument (questionnaire). Content validity, according to Bolarinwa (2015), is the judgment made based on a scientific approach on whether the indicator used measures the required construct. Content validity is the degree to which the instrument measures the required construct (Sangoseni, Hellman & Hill, 2021). Sabgoseni et al., (2021) contend that an instrument can only achieve content validity if it undergoes a rational analysis by raters (experts) who have familiarity with the Thus, both construct validity and content validity were used in this study. In the case of construct validity, the questionnaire that was used in the study was subdivided into sections such that each section reflected information that was significant to the objectives of the research and which corresponds to the identified conceptual framework. While concerning the content validity it was examined to what extent the test items reflect a broader construct of characteristic or property under examination.

To ensure content validity, the questionnaire underwent a detailed review by two independent experts randomly selected from managers at the Kenya Revenue Authority. These experts were tasked with assessing the relevance of the statements in the questionnaire and determining whether the questions were clear and meaningful in addressing the research inquiries. Based on their feedback, the instrument was modified accordingly before the final data collection took place. Their suggestions contributed significantly to enhancing content validity. Additionally, the project supervisors reviewed the questionnaires for both content and construct validity. Correlations of 0.8 between the four variables of the independent variable and the dependent variable provided strong evidence of the validity of the measurement instrument used in the study. Correlation coefficients indicated the strength and direction of the linear relationship between two variables. In this context, high correlation coefficients of 0.8 between the independent variables and the dependent variable signify that the measurement items designed to assess the independent variables are closely related to the changes observed in the dependent variable. When correlations are consistently high, such as at the 0.8 level, it suggests that the measurement items effectively capture the underlying constructs they intend to measure. A strong positive correlation of 0.8 implies that as values on the independent variables increase, there is a consistent and substantial increase in the values on the dependent variable. This alignment between the measurement items and the variables they are meant to assess indicates a high level of construct validity.

3.12 Data Analysis and Presentation

Data analysis means the manipulation of the raw data with an intention of making the statistical result more meaningful in a way that facilitates presenting it in an analytical published article. Information collected from the primary sources was conveniently

sorted in a suitable manner to facilitate analysis. Descriptive analysis was conducted on the data collected from the primary source using measures of central tendency which included the frequency table test, means, an standard deviation tests which were done using the statistical package for social science SPSS. On the other hand, inferential statistics utilised SPSS to carry out Correlation and Multiple Linear Regression tests in order to identify the value of the independent variable for the dependent variable. In order to present the findings, the Tables and Charts were employed.

3.13 Measurement of Study Variables

To measure the research variables, the study established the indicators of each variable and then employed Likert scale to measure the variables as summarized in Table 3.2. The scale comprised of an interval scale of 1-5; where 1= Strongly Disagree, 2= Disagree, 3=Undecided, 4=Agree and 5= Strongly Agree. The respondents were requested to answer the questionnaire using the five-point scale.

Table 3.3: Measurement of Variables

Variables	Operational indicators	Data collection and measurement	Tools of analysis	Sources
Independent Variable				
Customs Automation reforms	Single window system Non-intrusive inspection, Transit management	5 point likert scale	Regression and correlation analysis	Aamir et al 2011
Audit based controls	Post clearance audit Verification Pre-screening of cargo	5 point likert scale	Regression and correlation analysis	Alade and Oshode 2013
Enforcement reforms	Smuggling Detection Risk Management Fraud detection	5 point likert scale	Regression and correlation analysis	Bruce 2000
Moderator				
Institutional capacity	Staff Competencies Technical Capacity Infrastructure	5 point likert scale	Regression and correlation analysis	Groot and Molen 2000
Dependent Variable				
Customs revenue collection	Import & Exercise duty Exercise duty VAT Customs penalties	5 point likert scale	Regression and correlation analysis	KRA, 2020

3.14 Diagnostic Test

This research applied regression method and therefore called for checking seven assumptions namely normality, linearity, multicollinearity, homoscedasticity and independence of errors (Field, 2009).

3.14.1 Linearity Test

A linear relationship exists between variables when the average of the outcome variable changes consistently with increases in the predictor variable, forming a

straight line. Linear regression requires this relationship to be linear between the independent and dependent variables. It's crucial to identify outliers, as linear regression can be affected significantly by them (Creswell & Plano-Clark, 2006). The assumption of linearity can be effectively assessed using scatter plots. In this analysis, a scatter plot was created using the residuals and the y-values, where y-values are represented on the vertical axis and standardized residuals on the horizontal axis. If the scatter plot displays a linear trend rather than a curvilinear one, the linearity assumption holds. The residual plots indicated a random distribution of both positive and negative values across the range of variables on the x-axis. According to Lind, Marchal, and Wathen (2012), the linearity assumption is satisfied if the residual points are dispersed without any discernible pattern. Additionally, linear regression analysis assumes that there is minimal or no autocorrelation present in the data.

3.14.2 Normality Test

The assumption made in the classical linear regression model is that of normality, homoscedasticity: the error terms (residuals) are normally distributed with a mean of zero and variance of μ $(0, \sigma^2)$. This one was designed to act as the control variable for all other variables that may influence the dependent variable and yet are not included in the model above. It is believed that these omitted factors have only a negligible and mainly random effect (Gujarati, 2004). In this study the use of histograms and normal probability plot was used to test whether the residuals meet the normal distribution. Similarly if the residuals are normally distributed, all the points plotted for the residuals on the normal probability curve should be a straight line from the lower left hand corner of the graph to the upper right hand corner of the graph (Lind, Marchal & Wathen, 2012).

3.14.3 Multicollinearity

Multicollinearity is characterized by high correlation between the independent variables (Kothari, 2004). This is realised when such variables are related and this vitiates the accuracy of multiple regression analysis. Consequently, multicollinearity was tested using the variance inflation factor (VIF) in this study. A VIF > 10 means that multicollinearity exists while a VIF < 10 means that there is no multicollinearity.

3.14.4 Heteroscedasticity

Heteroscedasticity is a term that describes a situation where the variability of residuals in the model is unpredictable. It is an idea that is unbalanced scatter of the distances in the residuals. It is specifically used in context with regression analysis, and in particular, in regard to the variability of residuals or error terms. Since, heteroscedasticity means systematic changes in variability of residuals depending on observed values, fluctuations may be systematic. This is a problem since standard OLS regression requires that the residuals come from a population with equal variance, denoted by homoscedasticity. Thus, it is important that the residuals should be homogeneous in order to validate the regression assumption and findings. The Breusch-Pagan-Godfrey tests (B-P-G Test) are used frequently as a technique in identification of heteroscedasticity.

3.15 Tests of Hypotheses

Hypothesis testing is used to draw a conclusion or result of hypothesis that has been conducted on sample data from a whole population. Descriptive inferential statistics was used in this study in order to determine the nature of the relationship between the variables and to test the hypothesized relationships.

3.16 Ethical Considerations

Ethical considerations that were adhered to while conducting this research include obtaining authorization, permitting voluntary involvement, protecting the safety of participants, ensuring anonymity and confidentiality, avoiding deceit, analysing and reporting the results. In order to gain access to the selected respondents, a letter of introduction was secured from Moi University and the Kenya School of Revenue Administration (KESRA) to introduce me, the researcher, to the participants and respondents. Additionally, a permit from NACOSTI was obtained. Throughout the study, the anonymity of the respondents was preserved, and the results were intended solely for academic use. The dignity and confidentiality of all research participants were rigorously upheld during the entire research process. Respondents were informed about the study's purpose, ensuring they provided informed consent. Their willingness to take the time to complete the questionnaires was greatly appreciated. All significant statements in the study are properly cited to prevent plagiarism.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND PRESENTATION

4.0 Introduction

This section of the report presents an analysis of the results gathered from the questionnaire participants, linking them to both the specific and general objectives of the research. It encompasses both descriptive and inferential statistics regarding the respondents' perspectives on customs automation reforms, audit-based controls, enforcement reforms, institutional capacity, and the collection of customs revenue.

4.1 Data Processing and Screening

Data processing entailed cleaning and converting the collected data (Silverman, 2018). According to a scholarly proposal (Tabachnick & Fidell, 2013), data quality and integrity were maintained by filtering survey data for a variety of potential issues connected to missing data. Following receipt of completed questionnaires, data was categorized and analyzed in SPSS. All received questionnaires were number-tagged for simple follow-up (Dennis, 2020). To ensure accuracy and completeness, data submission was subjected to careful and detailed verification for inconsistencies, missing retorts, and other errors. Double-checking ensured that blank questionnaires or those with missing data were removed, resulting in more robust analysis (Kupzyk & Cohen, 2015; Chu, Ilysa, Krishnan & Wang, 2016).

4.2 Response Rate

There were two categories of respondents. These were the managers and the technical staff. Out of Three hundred and twenty-eight (328) questionnaire scripts, two hundred and forty eight (248) were dully filled while eighty (80) were not returned. The two hundred and forty-eight yielded a response rate of 75.61%. The response rate of 75.61% falls within an acceptable range, aligning with Babbie’s (2007) observation

that social research literature indicates a minimum response rate of 50% is sufficient for analysis and reporting. Additionally, Fowler (2002) noted that there is no universally accepted minimum response rate. A higher number of responses increase the likelihood of drawing statistically reliable conclusions about the target population.

Table 4. 1: Response rate

Questionnaires	Frequency	Percentage (%)
Returned	248	75.61
Not Returned	80	24.39
Totals	**328**	**100**

Source: Research Data (2024)

4.3 Missing Data

Missing data is a typical problem in questionnaire-based investigations. (Tsiampalis & Panagiotakos, 2020). Missing data poses the challenge of reducing the statistical power of the sample size, increasing the risk of biased results and overestimating or underestimating standard errors (Curley, Krause, Feiock & Hawkins, 2019), biasing inferences about the reference population (Tsiampalis & Panagiotakos, 2020). Researchers recommend strategies to manage missing data and minimize their direct negative impact on practice (Curley et al., 2019).

To avoid having to replace missing data fields, the researcher/research assistant focused on omitted items by asking respondents to properly complete the questionnaire (Bonds, 2017). Additionally, only complete surveys with observed values were subjected to additional rigorous analysis (Kalkan, Yusuf, & Kelecioğlu, 2018). Here, descriptive analytics checked for possible data entry errors, allowing for immediate correction. Through this, checking for consistency and handling missing data ensures that this does not significantly affect the results of data analysis.

4.4 Analysis of Outliers

Multiple regression is very sensitive to suspicious observations with high or low scores (Filzmoser, Ruiz-Gazen, & Thomas-Agnan, 2014). These observations or measures are significantly lower or greater than the vast majority of observations, which contradicts the premise of normalcy (Ude, 2015). Diagnosing outliers is a critical step in multivariate data analysis (Abonazel, 2019) since failing to do so alters the statistical analysis and produce conclusions that do not generalize to the sample.

In this project, there were no outlines found.

4.5 Demographic Information

The research also obtained the demography of the respondents and this includes the Level of Education and Years of work experience. All these were relevant in developing the scope of how personal profile may help determine organizational culture. These were descriptively analyzed using percentages, as presented and analyzed in tables 4.2 and 4.3 below.

To provide a broad background on education attainment by the respondents who participated in the study in their chosen areas, the respondents were asked to indicate their highest level of education achieved. Therefore, from the findings 41% had achieved the Undergraduate degree level, 35% at Masters level, 15% College Diploma and 9% PhD.

Table 4. 2: Demographic on level of education

Level	Frequency	Percentage (%)
Bachelor Degrees	102	41
Masters Degrees	87	35
Diplomas	37	15
Doctorate	22	9
Totals	**248**	**100**

Source: Research Data (2024).

According to the study objectives it became necessary for the study to ascertain the work experience of the respondents. This was to make sure that the responses received were informed. In terms of working experience the respondents were grouped as follows: 44% of the respondents had worked for 16-25years, 24% for 6-15 years, 18% for 26-35 years, 10% more than 35 years and 4% for less than 5 years. Analyzing the collected data the authors of the study revealed that the distribution of work experience was rather skewed. The study also confirmed that 44% of the respondents have worked for 16-25years hence their response was considered informed based on adequate work experience and exposures. As this shows the respondents were actually selected from the population and were in a position to adequately self-assess themselves in relation to their relationship with the current employer.

Table 4. 3: Work experience

Years	Frequency	Percentage (%)
16 – 25 Years	109	44
6 – 15 Years	59	24
26 – 35 Years	45	18
36 Years and above	25	10
5 Years and below	10	4
Totals	**248**	**100**

Source: Research Data (2024).

According to the study objectives it became necessary for the study to ascertain the work experience of the respondents. This was to make sure that the response received was informed. In terms of working experience the respondents were grouped as follows: 44% of the respondents had worked for 16-25years, 24% for 6-15 years, 18% for 26-35 years, 10% more than 35 years and 4% for less than 5 years. Analyzing the collected data the authors of the study revealed that the distribution of work experience was rather skewed. The study also confirmed that 44% of the respondents have worked for 16-25years hence their response was considered informed based on adequate work experience and exposures. As this shows the respondents were actually selected from the population and were in a position to adequately self-assess themselves in relation to their relationship with the current employer.

4.6 Reliability Results

The internal consistency coefficients of each of the studies were established using Cronbach's Alpha, which examines whether particular items within a scale are measuring the same construct. Frankfort-Nachmias and Nachmias (2012) point out that a cut-off point of 0.7 was adopted for this research. Therefore, Cronbach Alpha was estimated for the objectives enumerated as presented in the table below.

Table 4. 4: Reliability Results

Variable	Cronbach's Alpha	No. of Items
Customs automation reforms	0.761	5
Audit based controls	0.898	5
Enforcement reform	0.784	5
Institutional Capacity	0.777	5
Customs revenue collection	0.717	5

Source: Research Data (2024)

Crucle's α in table 4.4, proved reliability of the measures for three iv and the moderator, as evidenced by: Customs automation reforms α = 0.761, audit-based controls α = 0.898, Enforcement reforms α =0.784, institutional capacity α =0.777 and customs revenue collection α =0.717. This tells us that the Alpha value threshold was above 0.7, which is essential for using this method for developing a global land-cover classification system. This went a long way in showing that all the four variables were reliable since their reliability estimates were above the minimum acceptable standard of 0.7.

4.7 Descriptive Statistics

In as much as the data was concerned the type of analysis used was descriptive statistics. The work involves; it involves putting the data into categories and then presenting the information in a simple manner. Some of the studies on the probability distribution include; It uses mean and standard deviation among other techniques. The mean was used to give the value on the average direction of the answer and the standard deviation gave the average of far or near the mean was. The results of the descriptive statistics were as follows:

4.7.1 Custom's Automation Reforms

This paper sought to assess the effect of customs automation reforms on customs revenue collection at Busia and Malaba border posts. Therefore, respondents had to express their attitude towards the following statements in Likert scale of 1=Strong disapproval 2=Disapproval 3=Neutral 4=Approval 5=Strong approval. Particularly, the statements under the Custom Automation Reforms was calculated and then converted into the mean score meant. To detract from the statements that were dissented on, a mean score of 0 to 2.5 was used to get at the statements that were agreed to by the majority; a mean score of 2.6 to 5.0 was used.

Out of the finding, majority of the respondents agreed that the implementation of Integrated Customs Management System (ICMS) has improved customs revenue collection. (($\bar{x}$=4.06). Many concurred that; Adoption of cargo Tracking systems has independently eradicated diversion of transit goods thus stopping customs revenue leakages ($\bar{x}$=3.17); l Electronic Seal has enhanced security of the cargo which was often times compromised during changeover of seal at border points thus ensuring customs revenues ($\bar{x}$=4.25); There adoption of Single Window clearing system by customs has enhanced collection of customs revenues. ($\bar{x}$=3); It can be deduced from the foregoing findings that majority of the respondents agreed with the statements that suggest the influence of customs automation reforms on customs revenue collection at Busia and Malaba border posts as indicated by an overall mean of 3.8 and a standard deviation of 0.99. Table 4.5 presents the descriptive test statistics for Custom's Automation Reforms.

Table 4. 5: Descriptive Statistics on Custom's Automation Reforms

	N	Mean	Std. Deviation
KRA has implemented customs reforms as part of its modernization effort to achieve its goals and objectives. Adoption of Integrated Customs Management System (ICMS) has enhanced customs revenue collection.	248	4.06	1.226
Adoption of Cargo Tracking Systems has completely eliminated diversion of Transit goods eliminating customs revenue leakages.	248	3.17	1.013
Electronic Seal has improved cargo security previously compromised during changeover of seals at border points thus securing customs revenues.	248	4.25	.856
There adoption of Single Window clearing system by customs has enhanced collection of customs revenues.	248	3.17	1.013
Installation of CCTV's has curbed smuggling of goods safeguarding customs revenues.	248	4.30	.850
Mean = 3.8			**StD = 0.99**

Source: Research Data (2024).

4.7.2 Audit Based Controls

The study sought to establish the effectiveness of audit based controls in customs revenue collection in Busia and Malaba border posts. Some questions focused on topical issues required the participants to respond on a five-point Likert scale, where 1 refers to “Strongly Disagree,” 2 “Disagree,” 3 “Neutral,” 4 “Agree,” and 5 means “Strongly Agree.” The mean scores of 0 to 2.5 were rated as Disagree and general score of 2.6 to 5.0 is agree. The level of consensus or discord is well exhibited by the mean score value of the item specific ratings.

Majority of the respondents highly agreed that post clearance audit adopted by customs had improved collection of customs revenue (mean=4.57). In more detail, pre-screening of cargo has improved on the traceability of cargo hence protecting customs revenue mean=4.17; the use of scanner technology has helped in the detecting of concealment of goods thus improving on the issue of customs revenue mean=3.75; Adopting good customs audit policies has played a lot in the collection of the customs revenue mean=4.37; Sound customs laws has been developed to facilitate audit based controls From the above findings, one may infer that majority of the respondents agreed with the statements that indicate the effects of audit based controls on the Customs revenue at Busia and Malaba border posts with a mean of 4.226, SD=0.84. Audit Based Controls are presented in the next table, table 4.6 part B, where we present the Descriptive test statistics.

Table 4. 6: Descriptive Test Statistics for Audit Based Controls

	N	Mean	Std. Deviation
The adoption of post clearance audit by customs has enhanced customs revenue collection	248	4.57	.599
Prescreening of cargo has enhanced traceability of cargo safeguarding customs revenue.	248	4.17	1.094
The adoption of scanner technology has detected mis-declaration of goods enhancing customs revenue collection.	248	3.75	.879
The adoption of effective customs audit policies has aided the collection of customs revenue.	248	4.37	.568
Sound customs laws have been enacted to facilitate audit based controls thus safeguarding customs revenue.	248	4.27	1.066
Mean = 4.226			**StD = 0.84**

Source: Research Data (2024).

4.7.3 Enforcement Reforms

The study aimed to evaluate how enforcement reforms impact Customs revenue collection at the Busia and Malaba border posts. Respondents were asked to express their level of agreement with relevant statements using a five-point Likert scale, where 1 signifies "Strongly Disagree," 2 means "Disagree," 3 indicates "Neutral," 4 represents "Agree," and 5 stands for "Strongly Agree." Mean scores ranging from 0 to 2.5 indicate that most respondents disagreed with the statements, while scores from 2.6 to 5.0 reflect a general agreement. The degree of disagreement or agreement is represented by the corresponding strength of the mean scores.

A majority of respondents affirmed that Customs department has improved detection of smuggled goods safeguarding customs revenue ($\bar{x}$=3.81). More specifically, a majority highly affirmed that Risk management strategies have been adopted by customs leading to an increase in the collection of customs revenues ($\bar{x}$=4.62); KRA has improved the detection of fraud, undervalued and misclassified goods enhancing

customs revenue collection ($\overline{x}$=4.06); The adoption of enforcement framework by KRA has improved customs revenue collection. ($\overline{x}$=4.59); KRA has pushed for sound legislation to facilitate customs enforcement leading to an increase in the customs revenue collection ($\overline{x}$=3.36);

It can be deduced from the foregoing findings that majority of the respondents agreed with the statements that suggest the influence of enforcement reforms on Customs revenue collection at Busia and Malaba border posts as indicated by an overall mean of 4.088 and a standard deviation of 0.9328. Table 4.7 presents the descriptive test statistics for enforcement reforms.

Table 4. 7: Descriptive Test Statistics for Enforcement Reforms

	N	Mean	Std. Deviation
The customs department has improved detection of smuggled goods safeguarding customs revenue.	248	3.81	.932
Risk management strategies have been adopted by customs leading to an increase in the collection of customs revenues.	248	4.62	.485
KRA has improved the detection of fraud, undervalued and misclassified goods enhancing customs revenue collection.	248	4.06	1.226
The adoption of enforcement framework by KRA has improved customs revenue collection.	248	4.59	.597
KRA has pushed for sound legislation to facilitate customs enforcement leading to an increase in the customs revenue collection.	248	3.36	1.424
Mean = 4.088	**StD = 0.9328**		

Source: Research Data (2024).

4.7.4 Institutional Capacity

The study aimed to evaluate how Institutional Capacity influences customs revenue collection at the Busia and Malaba border posts. Respondents were asked to express their level of agreement with relevant statements using a five-point Likert scale,

where 1 indicates "Strongly Disagree," 2 means "Disagree," 3 represents "Neutral," 4 signifies "Agree," and 5 stands for "Strongly Agree." Mean scores ranging from 0 to 2.5 reflect statements that were largely dis-agreed upon by respondents, while scores between 2.6 and 5.0 indicate statements that garnered general agreement. The degree of disagreement or agreement is represented by the strength of the respective mean scores.

A majority of respondents affirmed that the customs department provides adequate training to its staff on various aspects of revenue collection, including tariff classification, valuation, and risk management ($\bar{x}$=3.51). Majority of respondents agreed with the statement that the customs department provides sufficient support and resources to its frontline officers to carry out effective customs revenue collection activities leading to an increase in the collection of customs revenues ($\bar{x}$=4.12); Majority of respondents affirmed that the customs department collaborates effectively with other government agencies and international organizations to enhance customs revenue collection capabilities ($\bar{x}$=4.28); The customs department utilizes advanced technological systems and tools to facilitate efficient customs revenue collection. ($\bar{x}$=4.49); the customs department employs transparent and fair procedures for customs valuation to ensure accurate revenue collection ($\bar{x}$=3.56);

It can be deduced from the foregoing findings that that majority of the respondents agreed with the statements that suggest the influence of institutional capacity on Customs revenue collection at Busia and Malaba border posts as indicated by an overall mean of 3.992 and a standard deviation of 0.88. Table 4.8 presents the descriptive test statistics for institutional capacity.

Table 4. 8: Descriptive Test Statistics for Institutional Capacity

	N	Mean	Std. Deviation
The customs department provides adequate training to its staff on various aspects of revenue collection, including tariff classification, valuation, and risk management.	248	3.51	1.226
The customs department provides sufficient support and resources to its frontline officers to carry out effective customs revenue collection activities.	248	4.12	1.094
The customs department collaborates effectively with other government agencies and international organizations to enhance customs revenue collection capabilities.	248	4.28	.913
The customs department utilizes advanced technological systems and tools to facilitate efficient customs revenue collection.	248	4.49	.568
The customs department employs transparent and fair procedures for customs valuation to ensure accurate revenue collection.	248	3.56	.599
Mean = 3.992	**StD = 0.9328**		

Source: Research Data (2024).

4.7.5 Customs Revenue Collection

Customs Revenue Collection constituted the dependent variable in the research under investigation. Sample statements that represent Custom Revenue Collection were calculated in arriving at the following mean. The respondents were asked to express their agreements with the following statements on Likert scale with option of 1 being Strongly Disagree, 2 being Disagree, 3 being Not Sure, 4 being Agree and 5 being Strongly Agree.

Respondents' high consensus: The overall increase in the collection of import duty; In relation to Excise Duty; The general increase in the collection of VAT; On the specifics of a general increase in the collection of anti-dumping and countervailing duties; On the increase in customs penalties.

From the above analysis it can be deduced that the respondents had an agreement with the statements that point to an increase in Customs revenue collection at Busia and

Malaba border posts with overall mean of 4.094 and standard deviation of 0.8926. Table 4.5 gives the control test results of Customs Revenue Collection.

Table 4. 9: Descriptive Test Statistics for Customs Revenue Collection

	N	Mean	Std. Deviation
There has been an increase in the collection of import duty	248	4.36	.933
There has been an increase in the collection of Excise Duty	248	4.48	.794
There has been an increase in the collection of VAT	248	4.06	1.226
There has been an increase in the collection of anti-dumping and countervailing duties	248	4.59	.597
There has been an increase in the collection of customs penalties	248	2.98	.913
Mean = 4.094 StD = 0.8926			

Source: Research Data (2024).

4.8 Diagnostic Tests

The diagnostic test is concerned with reviewing the seven potential sources of bias that can occur in research aimed at accuracy. A prerequisite to performing inferential analysis was the diagnosis of the variables for their suitability for such statistical treatments. Hypotheses related to assumptions of normality of residuals, linearity, homoscedasticity and multicollinearity were checked to see if the model with the data conformed to these. The results emanating from these tests were used in the subsequent analysis of associations as well as in predictions.

4.8.1 Test of Normality

The normality test aims at establishing whether a given sample data was derived from a normal population. In the current case, the normality of data was tested using the Shapiro-Wilk test. Skewness or kurtosis or both can be identified through this test,

thus determining the extent to which it is normal. P the value in Shapiro-Wilks test which greater than 0.05 indicates normal distributed data. The P value from the Shapiro- Wilk analysis was above 0.05 (P > 0.05) implying that the data of sample Typical and Residuals Standardized and Unstandardized were normally distributed. This normality assumption means that the distribution of μ x – is normal, and hence there is no evidence that the assumption of normal distribution has been violated.

Table 4. 10: Tests of Normality

	Statistic	Shapiro-Wilk	Sig.
Standardized Residual	.984	248	.180
Unstandardized Residual	.984	248	.180

Source: Research Data (2024)

4.8.2 Test of Multicollinearity

The issue that occurs with a high degree of correlation of independent variables in the multiple regression model is known as multicollinearity. When the predictor variables yield high coefficients of interdependence the process of making right and accurate conclusions in terms of relative contribution of each to the dependent variable is almost impractical as hinted by Creswell (2014). The disadvantages of multicollinearity are the increased standard errors of the coefficients (Betas), these are less accurate and give confusing values.

Hence in effort to regress multicollinearity to the study, a test was done to determine whether any of the independent variables in the study have issues with others. On the level of correlation between the predictor variables and to predict the increased variances due to multicollinearity on other explanatory variables the Variable Inflation Factor (VIF) was used. This was established through the VIF and its equivalent measurement in this analysis, Tolerance. This is especially so if there is a

high inter-relationship between coefficients of predictors which is above 0.8 in regression model and this prevails improper impact on the abilities of such predictors in identifying the dependent variable (Cooper & Korzmc, 2003).

In this study, the tolerance values were bearing average of 0.549 to 0.699 consequently producing VIF values of 1.43 and 1.822 of which attained upper limit was acceptable. In case of VIF there is a common practice that if its value is 10 or above then the issue of multicollinearity is really high and may even pose serious threats to the actual results. Moreover, if the tolerance value is less than 0.2 any person may consider the presence of collinearity (Ary et al., 2015). From the results, no multicollinearity problem was observed as the value of VIF was between 1.43 and 1.822 and the mean was 1.68 which is far from the recommended value of 10. As a result, the assumption of multicollinearity was justified.

Table 4. 11: Test of Multicollinearity

Variable		Tolerance (1/VIF)	VIF
	Customs Automation Reforms	.699	1.430
	Audit Based Controls	.559	1.788
	Enforcement Reforms	.549	1.822
	Mean VIF		**1.68**

Source: Research Data (2024).

4.8.3 Linearity Tests

Linearity as used in regression is in reference to the status of the dependent variable and the independent variable. It implies that the expected value of the dependent variable can embody a linear combination of each independent variable with conditioning on the others. To measure the degree and direction of the linear relationship among the variables, a linearity test was employed and is depicted by the straight line.

In testing the model for linearity standard P-P plot method was used. From the following P-P plot there is a clear indication of linearity in the variables because the points lie on the straight line. This finding ensures that the assumption of linearity of price is also valid. Figure 4.1 shows the percentage scores in the linearity test.

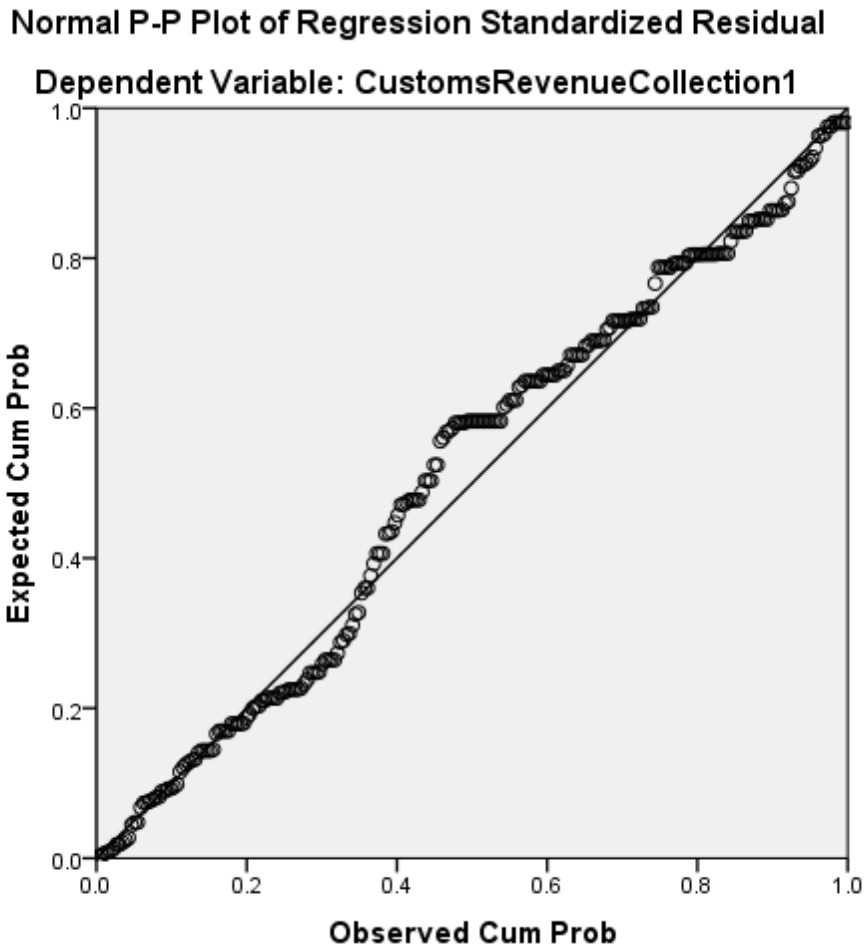

Figure 4. 1: Linearity tests with P-P Plot

4.8.4 Heteroscedasticity Tests

Heteroscedasticity can therefore be defined as one scenario whereby and the variance of an error term is not fixed but varies. This usually happens where the observations in the variates greatly differ in size. For testing heteroscedasticity, residuals were analyzed by fitted value plots where the test was done while visualizing the scatter plot.

The scores of dependent variable are equally varied in the scatter plot presented here which shows no particular sign of variability around the line of regression. Outliers can be described as observations with the standardized residual larger than 3.3 or less than -3.3. Thus the assumption of heteroscedasticity is maintained. The findings are summarized in figure 4.2 below.

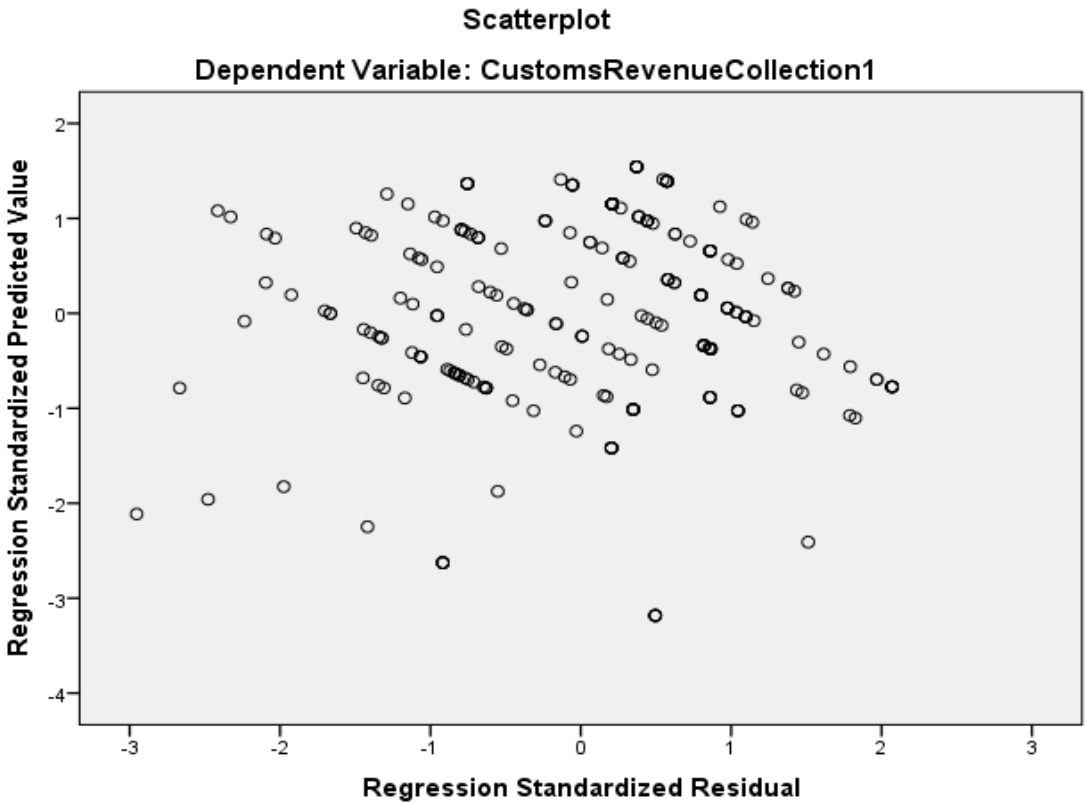

Figure 4. 2: Heteroscedasticity tests with Scatter Plot

4.9 Inferential Analysis

The central research question for this study is how and on what basis the institutional capacity influences the relations between the reforming customs and customs' revenue collection in Busia and Malaba border posts. To this broad goal, three objectives were developed and the testable hypotheses that were earlier noted at the start of this work include a moderator variable. To test the hypothesized relationships and to realise all the above mentioned objectives, several inferential statistical tools

like correlation and multiple regressions have been employed in the present investigation. Descriptive disclosures and tests of hypotheses were conducted at p 0.05 levels of significance using the Statistics Package for Social Science (SPSS).

4.9.1 Composite Variable Analysis- Correlation

Second, in a view to ascertain the type and level of relationship between the dependent and independent variables, a Pearson's co-efficient was calculated. This type kind of correlation analysis provides the Pearson correlation coefficient together with an associated probability value to determine the strength and significance of the relations established.

The results in detail revealed that the extent of significant relationship between every pair of the independent variables and between the independent and the dependent variables was positive and significant. The measure of the degree of positive and significant relationship between Customs Revenue Collection and the independent variables was analysed using correlation coefficients as follows; Customs Automation Reforms correlation coefficient ($r= .703$, $p < 0.05$), Audit-Based Controls correlation coefficient ($r= 0.638$, $p < 0.05$) and Enforcement Reforms ($r= 0.632$, $p < 0.05$).

These outcomes imply that there is a direct linear relationship between Customs Revenue Collection and each of the three indicants tested. This is an indication that increase of one in any of the independent variables will significantly influence Customs Revenue Collection hence the correlation coefficients as depicted below. Hence, to improve the Customs revenue collection especially at Busia and Malaba border posts; it is necessary to increase investment on Customs Automation Reforms, Audit-Based Controls, and Enforcement Reforms. The results of the correlation analysis are summarized in Table 4.12.

Table 4. 12: Correlation Analysis

		Customs Revenue Collection	Business Automation Reforms	Audit Based Control	Enforcement Reforms	Institutional Capacity
Customs Revenue Collection	Pearson correlation	1				
Business Automation Reforms	Pearson correlation	.703**	1			
Audit Based Controls	Pearson correlation	.638**	.488**	1		
Enforcement Reforms	Pearson correlation	.632**	.503**	.634**	1	
Institutional Capacity	Pearson correlation	.633**	.201**	.307**	.135**	1

**. Correlation is significant at the 0.01 level (2-tailed).
Source: Research Data (2024).

4.10 Direct Effect Regression Analysis

4.10.1 Regression Analysis

Pearson correlation was used to determine the kind of relationship (positive, negative or no relationship) between the independent and the dependent variables.

From the tests done in Table 4.13 involving Enforcement Reforms, Customs Automation Reforms and Audit Based Controls, revealed a fairly strong positive relationship, such that Customs Revenue Collection was explained by 79.9% or (R= 0.799). The Enforcement Reforms, Customs Automation Reforms, Audit Based Controls have subjected Customs Revenue Collection variation of 63.4% or (R^2=0.638 and adjusted R^2 =0.634). Consequently, Enforcement Reforms, Customs Automation Reforms and Audit Based Controls represent 63.4% total variation in Customs Revenue Collection. This means that other factors not accounted for in the

model, was responsible for the remaining 36.6% of the change. Table 4.13 presents the model summary of the study.

Table 4. 13: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.799	.638	.634	.29444

a. Predictors: (Constant), Enforcement Reforms, Customs Automation Reforms, Audit Based Controls.

Source: Research Data (2024)

4.10.2 Analysis of Variance

The model used in this study was checked for fitness using analysis of variance (ANOVA) as shown in table 4.13. In the following ANOVA table, F-calculated ($F=143.444$, $p=0.000 < 0.05$) was much higher than the F-critical. This means that whatever model was used was significant and in fact had a good fit.

Table 4. 14: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	37.307	3	12.436	143.444	.000
	Residual	21.153	245	.087		
	Total	58.460	248			

a. Dependent Variable: Customs Revenue Collection

b. Predictors: (Constant), Enforcement Reforms, Customs Automation Reforms, Audit Based Controls

Source: Research Data (2024)

4.10.3 Regression Coefficients

Necessary evidence for this research hypothesis can also be found in Table 4.15 that the coefficients connected to Customs Automation Reforms ($\beta_1=0.454$, $p=0.000<0.05$) have positive and significant impact on Customs Revenue Collection.

This is expressed to mean that, holding all else constant, an increase in Customs Automation Reforms by one unit will lead to 0.454 unit increase in Customs Revenue Collection for Busia and Malaba border posts.

They also recommend that Audit Based Controls (β_2=0.268; p=0.000<0.05) had Positive and Significant Impact to Customs Revenue Collection. From the results, it is interpreted to mean that holding all other independent variables constant, one unit change in Audit Based Controls will cause an increase of 0.268 in Customs Revenue Collection at Busia and Malaba border posts.

The study also found that Enforcement Reforms had a composite coefficient of (β_3=0.233, p=0.000<0.05) on Customs Revenue Collection. This is in the context that a unit change in Enforcement Reforms at Busia and Malaba border posts by increased collection of Customs Revenue Collection by 0.233 when all the other independent variables are controlled.

Table 4. 15: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.707	.171		4.135	.000
	Customs Automation Reforms	.381	.039	.454	9.864	.000
	Audit Based Controls	.260	.050	.268	5.213	.000
	Enforcement Reforms	.205	.046	.233	4.490	.000

a. Dependent Variable: Customs Revenue Collection

Source: Research Data (2024).

Thus, the regression equation formulated from the table 4.15 is as follows:

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e}$$

$$\mathbf{Y = 0.707 + 0.454 X_1 + 0.268 X_2 + 0.233 X_3 + e}$$

Where **Y**= Customs Revenue Collection (dependent variable).

β_0=0.707

β_1 = 0.454

β_2= 0.268

β_3 = 0.233

X_1 = Custom's Automation Reforms, X_2 = Audit Based Controls, X_3 = Enforcement Reforms**.**

e = Error Term

4.11 Hierarchical Model Process

The study employed the moderated hierarchical regression method, in which a moderator variable is calculated as the product of two variables, i.e., a moderator variable and an independent variable (Aiken and West, 1991). Hayes (2013), on the other hand, outlined the conditions that must be met for moderation:

i. The quantity of variance accounted for by the variables with the interaction must be significantly greater than the variance accounted for without the interaction.
ii. The coefficient for interaction terms must be greater than zero.
iii. The global models with and without interaction should be statistically significant.
iv. The p-value should be less than 0.05.

The hierarchical Model Process is used according to (Baron & Kenny 1986) three distinctive steps are followed in the process of moderation**.**

The initial step is to establish whether there is a relationship between independent variable and the dependent variable without considering the moderating variable.

The second step adds the moderator to the regression model and test whether there is a significant effect on efficiency of customs revenue collection at the Busia and Malaba borders.

The third step will involve creating interaction terms by getting the product of each of the independent variable and the moderator (Customs Automation Reforms * Institutional Capacity) (Audit Based Controls * Institutional Capacity) and (Enforcement Reforms * Institutional Capacity) after which the effect of the interaction terms are tested by regressing each interaction term hierarchically from the first to the last and testing where there is a significant effect.

Lastly a conclusion of the regression model with all the interactions is tested to determine the significance of the interaction terms, if p-values<0.05 there is significant moderating effect.

At this level, the study introduced institutional capacity in the model which was the moderating variable. Table 4.16 gives the results of the model summary.

4.12 Regression Analysis with Moderator

The regression analysis beta coefficients results together with the significance are presented as shown below in Table 4.16.

This study aimed at establishing the moderating role of institutional capacity in the relationship between institutional capacity, customs reforms and collections in customs revenues at Busia and Malaba border post, which was however statistically significant. The regression analysis was carried out and overall regression analysis concluded with the following regression equations;

$$RC = 0.707 + 0.454AR + 0.268AC + 0.233ER \quad \text{(i)}$$

RC = 0.121 + 0.286AR + 0.352AC + 0.145ER + 0.276IC…….(ii)

RC = 0.234 + 0.023AR + 0.002AC + 0.439ER + 0.336IC + 0.204AR*IC……...(iii)

RC = 0.699 + 0.242AR + 0.372AC + 0.263ER + 0.175IC + 0.212AR*IC + 0.246AC*IC……(iv)

RC =0.186 + 0.187AR + 0.208AC + 0.111ER + 0.176IC + 0.067AR*IC + 0.054AC*IC +0.456ER*IC…… (v)

From the estimates presented in table 4.16, we see that at a constant of 0.707, one unit rise in customs automation reforms leads to 0.187 rise in customs revenue collection. This research established that a unit change in audit based controls enhances collection of customs revenue by 0.208. Where a unit changes in enforcement reforms occurs, customs revenue collection increases by 0.111 units. One unit change in institutional capacity leads to the improvement of 0.176 in customs revenue collection. The research evidence reveals that a unit change in customs automation reforms moderated by institutional capacity (I*AR1) leads to 0.067 improvement in collected customs revenues. This evidence shows that a one unit change in audit based controls, with moderating effect of institutional capacity, results in 0.054 incremental in customs revenue collection. Finally a unit change in enforcement reforms when moderated by institutional capacity results to 0.456 increase in customs revenue collection.

This study found that institutional capacity played a moderating role in the relationship between customs automation reforms, audit based controls, enforcement reforms and customs revenue collection at the Busia and Malaba border posts at $p<0.05$.

Table 4. 16: Model Summary

Variables	Model 1	Model 2	Model 3	Model 4	Model 5
Constant	(.171) **	(0.039) **	(0.192) **	(0.197) **	(0.037) **
AR	0.454(.039) **	0.286(.063) **	0.023(.010) **	0.242(.067) **	0.187(.053) **
AC	0.268(.050) **	0.352(.064) **	0.002(.014)**	0.372(.053) **	0.208(.052) **
ER	0.233(.046) **	0.145(.058) **	0.439(.073) **	0.263(.054) **	0.111(.045) **
IC		0.276(.039) **	0.336(.073) **	0.175(.051) **	0.176(.034) **
AR*IC			0.204(.066)**	0.212(.038) **	0.067(.024) **
AC*IC				0.246(.042) **	0.054(.025) **
ER*IC					0.456(.055) **
R-Square	0.638	0.649	0.672	0.676	0.689
Δ in R^2	-	0.011	0.023	0.004	0.013
F statistic	143.444	262.534	267.343	269.216	278.321
F-Sig	0.000	0.000	0.000	0.000	0.000

4.13 Hypotheses

Regression analysis serves as a valuable tool for evaluating a hypothesis by identifying the independent variables that significantly influence the model's ability to account for the variability seen in the dependent variable. In this study, the independent variables under investigation included customs automation reforms, audit-based controls, and enforcement reforms, alongside a moderating variable known as institutional capacity. These variables were selected as the basis for testing the hypothesis.

4.13.1 Test of Hypotheses

This is the general questions to be answered by the research: The research seeks to find out in what ways does Institutional Capacity affect the correlation between customs reforms and customs revenue collection at the Busia and Malaba border posts.

The first research hypothesis was stated as H_{01}: Customs automation reforms do not have any meaningful impact on customs revenue collection at the Busia and Malaba border posts. Indeed, as depicted in the following Table 4.17, at 0.05 confidence level and other variables held constant, there was indication of a positive and significant relationship between customs automation reforms and customs revenue collection (β_1= 0.187, p= 0.000<0.05, t = 3.539> 2.000). This was arrived at after observing that the p-value was less than 0.05 and also the calculated t-value was greater than 2.000. Therefore the null hypothesis was rejected and much to the support of the alt hypothesis (H_1) indicating that the customs automation reforms have a significant impact on the collection of customs revenues at these border posts.

Secondly, the control that was analysed in the study relates to the aspect of audit-based controls on the collection of the customs revenue, which acts as the second null hypothesis in the study.

The second hypothesis that was tested was H_{02} – Audit based controls have no significant impact on collection of customs revenue at Busia and Malaba border posts. As indicated in table 4.17 at 0.05 confidence level, and controlling other independent variables, audit based controls have a positive and significant effect on customs revenue collection equation (β_2= 0.208, p=0.000<0.05, t=3.991>2.0). This interpretation was arrived at basing on the criteria that p<0.05 and t>2.000. Consequently, using a lesser stringency of criteria, the null hypothesis was turned down in favour of the formulated or proposed hypothesis (H_2) that holds that audit-based controls have an influence on customs revenue collection at these border posts.

The research also aimed to evaluate the effect of enforcement reforms on customs revenue collection, which led to the third null hypothesis.

The third hypothesis tested was H_{03}, which proposed that enforcement reforms do not significantly affect customs revenue collection at Busia and Malaba border posts. Table 4.17 indicates that at a 0.05 confidence level, and controlling for other variables, enforcement reforms had a positive and significant effect on customs revenue collection (β_3=0.111, p=0.016<0.05, t=2.425>2.000). The conclusion was based on the p-value being less than 0.05 and the t-value exceeding 2.000. As a result, the null hypothesis was rejected in favor of the alternative hypothesis (H_3), affirming that enforcement reforms significantly influence customs revenue collection at these border posts.

The study further explored the moderating role of Institutional Capacity on the relationship between customs automation reforms and customs revenue collection, leading to the fourth null hypothesis.

The fourth hypothesis tested was $H_{04\ a)}$, which stated that institutional capacity does not moderate the relationship between customs automation reforms and customs revenue collection at the Busia and Malaba border posts. Table 4.17 shows that at a 0.05 confidence level, controlling for other factors, the moderating effect of institutional capacity positively and significantly influenced the relationship between customs automation reforms and customs revenue collection (β_5=0.067, p=0.007<0.05, t=2.698>2.000). This conclusion was derived from the p-value being less than 0.05 and the t-value exceeding 2.000. Therefore, the null hypothesis was rejected, and the alternative hypothesis (H_{4a}) was accepted, indicating that institutional capacity significantly moderates the relationship between customs automation reforms and customs revenue collection at the Busia and Malaba border posts.

The researcher also sought to determine whether institutional capacity acts as a mediator between the audit-based reforms and customs revenue collection, hence the fifth hypothesis.

The fifth hypothesis, which was postulated and tested was $H_{04\ b}$), thus; Institutional capacity does not mediate the Audit-based controls and customs revenue collection at Busia and Malaba border posts. From Table 4.17, therefore, it was confirmed that at 0.05 confidence level, other things held constant, the moderating effect of institutional capacity exerted a positive and significant influence on the audit based controls and customs revenue collection equation (β_6=0.054, p=0.026<0.05, t=2.243>2.000). This was done in compliance with the common understanding that p<0.05 and t>2.00 are acceptable criterion for rejection of null hypothesis. Therefore, the following null hypothesis was rejected while the research accepted the associated alternative hypothesis (H_{4b}), which posited that institutional capacity has a significant moderating effect on customs revenue collections at these border posts.

Therefore, the study explored the role of institutional capacity in mediating the link between enforcement reforms and customs revenue collection and the sixth hypothesis.

The last hypothesis evaluated was the last part of $H_{04\ c}$), which postulated that institutional capacity does not moderate the relationship between enforcement reforms and the customs revenue collection at Busia and Malaba border posts. Reference to Table 4.17 the following were established at 0.05 confidence level, controlling other factors A value of institutional capacity exerted a moderation positive and significant on the relationship between enforcement reforms customs and revenue collection (β_7=0.456, p=0.000<0.05: t=8.351>2.000). This conclusion was arrived at on the basis

of $p<0.05$ alongside a $t>2.000$. Therefore, the null hypothesis was rejected, and the alternative hypothesis (H_{4c}) supported as such the moderating effect of institutional capacity was found to have a significant impact on customs revenue collection at the Busia and Malaba border posts.

4.14 Discussion of the Findings

This section presents objective discussion of the findings and links them to other studies.

4.14.1 Customs Automation Reforms and Customs Revenue Collection

By use of the Correlation analysis, it was possible to realize that Customs Automation Reforms has the highest positive and significant coefficient with Customs Revenue Collection.

This means that, a unit increase in Customs Automation Reforms has an impact on Customs Revenue Collection. Consequently, to increase Customs Revenue Collection at Busia and Malaba border posts, there is need to improve on Customs Automation Reforms.

According to the result in the multiple regression, Customs Automation Reforms was revealed to have had significant positive relationship with Customs Revenue Collection ($\beta_1=0.187$, $p=0.000<0.05$). By so stating, the estimated model implies that all other independent variables held constant, a unit change in Customs Automation Reforms results in 0.187 change in Customs Revenue Collection at Busia and Malaba border posts.

4.14.2 Audit Based Controls and Customs Revenue Collection

Based on the Correlation analysis of this study, Audit Based controls were found to have a strong positive and significant correlation to Customs Revenue Collection.

This indicates that there is relationship between Audit Based Controls and Customs Revenue Collection such that a unit worth of change in the former will have an impact on the later. Consequently, it is our view that, in order to increase revenue collection at Busia and Malaba border posts, there is need to consider strengthening on Audit Based Controls.

Based on the results of multiple regression analysis it was ascertained that Audit Based Controls have a positive and significant relationship with Customs Revenue Collection; β_2=0.208; p=.000<0.05. This is in fact construed to imply that when all other independent variables are held constant, one unit change in Audit Based Controls will lead to a 0.208 increase in Customs Revenue Collection at Busia and Malaba border posts.

4.14.3 Enforcement Reforms and Customs Revenue Collection

As a result of the findings from the Correlation analysis; Enforcement Reforms correlated positively and significantly to Customs Revenue Collection. This means that increase in Enforcement Reforms will have an impact on Customs Revenue Collection in the proportionate to the unit of increase of Enforcement Reforms as shown in the model above. In light of the above, to increase the levels of Customs Revenue Collection at Busia and Malaba border Posts, then the Enforcement Reforms should be boosted.

After using multiple regression hypothesis test, results implies that Enforcement Reforms post a positive and significant impact to Customs Revenue Collection where β_3=0111, p=0.016<0.05, t=2.425>2.000. This is interpreted to mean that, holding constant all the other independent variables, a unit change in Enforcement Reforms will lead to a 0.233 change in Customs Revenue Collection at Busia and Malaba border posts.

4.14.4 Cross section of Institution and customs revenue collection

According to the findings of the Correlation analysis, the highest positive and significant relation with Customs Revenue Collection in the generalized model was found in the variable; Customs Automation Reforms.

In other words, the current value added level of institutional human capital foreseen to affect Customs Revenue Collection or CRC. It follows therefore that in order to increase the Customs Revenue Collection at Busia and Malaba Border posts, institutional capacity should be built.

Since from multiple regression analysis which is actually a unit change in the institutional capacity gives a raise in collection of customs revenue by 0.176. This research also revealed that one unit change in customs automation reforms with moderating effect of institutional capacity (I*AR1) results into 0.067 customs revenue collection. The possibility to audit based controls with a moderation on the Institutional capacity increases customs revenue by 0.054 when there is unit change on the audit based controls. Finally, first a unit change in enforcement reforms with the moderating influence of an institution capacity is expected to result in 0.456 percent increase in collection of customs revenue. Institutional capacity, was found to

partially mediate the relationship between CARS, ABC, ERs and CRC at Busia and Malaba border posts ($p < 0.05$).

The conclusions of this research are also similar to the conclusions made by Aamir, et al., (2011) whereby the author seen restructuring of the tax system as a significant factor that influences revenue collection.

These findings of this study are in agreement with Gitaru, (2017) who postulated that there was a huge boost on the amount of revenues collected after the automation to the simba system.

The findings of this research [(This is akin to Nassika & Keshika's 2017 study on best practices in digital customs in East and Southern Africa)] have established that through its drive of digitalization, the MRA Customs Department has effectively overcome some landmark hurdles for example on paperless customs, trade facilitation and the efficient collection of customs duties and taxes.

Table 4. 17: Summary of Hypotheses Tests

Hypothesis	t-value	p-value	Verdict
H_{o1}: Custom's automation reform has no effect on customs revenue collection at Busia and Malaba border posts.	3.539	.000	Reject
H_{o2}: Audit based reform has no effect on customs revenue collection at Busia and Malaba border posts.	3.991	.000	Reject
H_{o3}: Enforcement reform has no effect on customs revenue collection at Busia and Malaba border posts.	2.425	.016	Reject
H_{o4a}: Institutional capacity does not moderate the relationship between customs automation reforms and customs revenue collection at Busia and Malaba border posts.	2.698	.007	Reject
H_{o4b}: Institutional capacity does not moderate the relationship between Audit based reforms and customs revenue collection at Busia and Malaba border posts.	2.243	.026	Reject
H_{o4C}: Institutional capacity does not moderate the relationship between Enforcement reforms and customs revenue collection at Busia and Malaba border posts.	8.351	.000	Reject

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the analysis of findings, conclusion and recommendations, policy implication, limitation of the study and direction for future research.

5.2 Summary of Findings

The first research question sought to assess the impact of customs automation reforms at the Busia and Malaba border posts. Descriptive statistics for the respondents showing their perception of customs automation reforms and how it has affected collection of customs revenue at these border posts is also summarized in table IV above. Here, the Mean score recorded is 3.8 and standard deviation of 0.99 meaning most of the respondents agreed with the statement. It is therefore as Fig 4 also shows in table V, that has the highest degree of positive and significant relationship with customs revenue collection at Busia and Malaba border posts. This leads to the conclusion that as the Customs Automation Reforms (CAR) rises, so does the Customs Revenue Collection (CRC) as was projected under the model. Alternatively, to enhance more efficiency and effectiveness in revenue collection at these posts, more improvements in customs automation reforms are recommended. Still, the results from multiple regression analysis showed that the results of customs automation reforms affecting revenue collection positively and highly significant (β_1=0.187, $p<0.05$). This suggests, ceteris paribus, a unit increase in customs automation reforms leads to an equivalent of 0.187 increase in actual revenue mobilization at these border posts.

The second research question sought to establish the effect of audit based controls on customs revenue collection at the two borders, Busia and Malaba. Analyzing the descriptive statistics the current study found out that majority of the respondents agreed that audit based controls had positive impact on the revenue collection as captured by a mean of ($\bar{x}$=4.226) and standard deviation of 0.84. In a similar manner, the correlation between audit-based controls and revenue collection gave a correlation coefficient of =.638, =0.000. It was established that, one unit of audit-based controls enhances revenue collection. Therefore, the enhancement of audit based controls could improve the customs revenues at Busia & Malaba. The multiple regression analysis provided the similar evidence in favor of the positive and significant effect of audit-based controls for customs revenue collection (Standard coefficient β_2 =0.208; $p<0.05$). This means that when all other variables are held fixed one unit increment in audit-based controls increases customs revenue collection by 0.208.

The third research question sought to establish the effect of enforcement reforms on customs revenue collection at Busia and Malaba. The means and standard deviations of the respondent's views on enforcement reforms on revenue collection where revealed by Descriptive statistics to be 4.088, 0.9328 correspondingly, where the respondent agreed with all the statements. Consequently, the correlation coefficients between enforcement reforms and revenue collection reached r =0.632, p=0.000. This means that with the enhancement of enforcement reforms, the customs revenue collection increases. Thus, customs revenue improvement requires bettering of enforcement reforms to boost the revenue collected from these border posts. The results of F-test (F=3.39, p=0.004) and multiple regression analysis showed that enforcement reforms were positively associated to revenue collection (β_3 =0.111, p

=0.016). This implies that, ceteris paribus, each incremental improvement in enforcement reforms leads to a 0.111 incremental gain in revenue mobilization.

The fourth research question focused on understanding how institutional capacity gets to mediate the effect of customs automation reforms and customs revenue collection in Busia and Malaba. The findings on this hypothesis provided a fairly good indication that institutional capacity impacts on revenue collection at these border posts with the average mean of 3.992 with standard deviation of 0.88. In the correlation analysis, institutional capacity emerged as having the strongest positive correlation and statistically significant with the revenue collection (r =.633, p=0.000). This implies that improvement in the institutional capacity would positively affect the customs revenue mobilization. Employing the results of multiple regression analysis, it was ascertained that with the 1 unit increase in institutional capacity the customs revenue collection would increase by 0.176. The study also established that the first hypothesis, with the moderating influence of institutional capacity, would imply that customs automation reforms by 1 unit would increase collection by 0.067 whilst the second, audit-based controls increasing collection by 0.054. Also, as enforcement reforms increases by one unit and institution capacity as a moderator, the customs revenue collection increases by 0.456. In sum, institutional capacity was found to have a moderating influence on the extent to which the customs automation reforms, the audit based controls, the enforcement reforms and customs revenue collection in Busia and Malaba ($p < 0.05$).

These results are in consonance with the work of Aamir et al., (2011) Work that showed that tax structure reforms have a significant impact on revenues. The conclusions are also similar to those found in Nassika and Keshika (2017) who

discussed most promising strategies in the digital customs in east and south divisions of Africa. They observed that the accomplishment of reforms which include paper less customs and trade facilitation has led to enhancement of customs duties and taxes in the region.

5.3 Conclusion

The first research question was therefore to assess the impact of customs automation reforms on customs revenue collection in Busia and Malaba border posts. From the analyses, a positive and significant relationship was established between Customs Automation Reforms and Customs Revenue Collection. The second research question was: How does Audit based reforms influence customs revenue collection at Busia and Malaba border posts? As derived from the findings, Audit Based reforms was revealed to exert a positive and significant correlated relationship with Customs Revenue Collection. The third aim of the research was to analyse the impact of enforcement reforms to customs revenue collection at Busia and Malaba border posts. From the findings, therefore, Enforcement Reforms was seen to have a significantly positive impact on Customs Revenue Collection.

It is therefore important that Kenya Revenue Authority target infrastructure as well as the deployment of Information Communication Technology. This in return would enhance productivity, enhance service to the public and allow ease of transactions thus lead to higher revenue collection at the customs, particularly border control points. Technological advancement in automated system shall leading to integration of enormous efficiency to business processes that will enhance on revenue collections.

5.4 Recommendations

The recommendations derived from this study aim to guide stakeholders and policymakers toward actionable steps that can lead to a more efficient and facilitative border-crossing experience and also useful for managerial practice. Ultimately, the success of such endeavors not only benefits local economies but also contributes to the broader goals of regional.

5.4.1 Policy

Based on the findings of the study, the study recommends that KRA should fully implement customs reforms by strengthening Custom Automation Reforms, Audit Based Controls and Enforcement Reforms in order to get additional customs revenue collection.

Adoption of modern technology and information systems will enable the e-government processes to run more effectively and efficiently. The implementation process should be flexible enough to adjust to volatile context of reforms and carefully enable monitoring of their progress and custom performance.

5.4.2 Managerial Practice

Based on the findings of the study, the study recommends that stakeholders that work and rely on Customs should take advantage of the reforms especially customs automation reforms to improve their performance.

Automation should be anchored through personnel and the use of information technology for management purposes and to fight fraud and corruption.

Customs should take advantage of new technologies, provided they are well integrated in the business processes to facilitate on the revenue collection.

Ensure Functionality of Scanners and address the issue of non-functional scanners by providing an alternate mobile scanner that is in good working condition. Reliable scanning technology is crucial for accurate inspections and timely clearance of goods, contributing to an overall improvement in border efficiency.

5.5 Limitations of the Study

The study had limitations that affected the accuracy and the process of the study findings. The study was limited to Busia and Malaba borders this thus made the study geographical scope not to include other border points. However, Busia and Malaba borders are porous and among the busiest border points.

Other limitations that were experienced included some of the respondents being reluctant in filling or completing the questionnaires fearing victimization or some issues being misunderstood. To address the issue of respondents reluctant to provide information, the researcher assured confidentiality and anonymity, emphasized the academic nature of the study, and used introduction letters from the university and NACOSTI to build trust and encourage participation. Despite the limitations, the data collection was successfully executed.

5.6 Suggestions for Future Studies

This paper was designed to establish the role played by institutional capacity in the customs revenue collection function of the Kenya Government arising from reforms in the customs posts at Busia and Malaba. This study focused on the impact of institutional capacity, Customs Automation Reforms Audit Based Controls and Enforcement Reforms on Customs revenue collection at Busia and Malaba border posts in Kenya. It is therefore recommended that further research can assess the effect of custom reforms on customs revenue collection at other border posts and KRA.

REFERENCES

Asala, J. (2012). Impact of Reforms And Modernization Programs On The Performance Of Customs Services Department: A Quantitative Study On Kenya Revenue Authority. Unpublished MBA Thesis at Kenyatta University.

Asala, J. U. (2009). Impact of reforms and modernization programs on the performance of customs services department: a quantitative study on Kenya revenue authority. *Kenyatta University*.

Cooper, D. R., & Schindler, P. S. (2006). *Business Research Methods.* Irwin: McGraw-Hill.

Cooper, D. R., & Schindler, P. S. (2018). *Business research methods* (13 th ed.). McGraw-Hill/ Irwin

Cooper, R.D, & Schindler, S. P. (2011). *Business Research Methods* (11th ed.). New York: McGraw Hill Publishers.

Creswell, J. W. (2013). *Research Design Qualitative, Quantitative, and Mixed Methods Approaches.* California: SAGE Publications, Inc.

Creswell, J. W. (2014). *A Concise Introduction to Mixed Methods Research*. New Delhi: Sage Productions.

Decman, M., & Klun, M. (2015). The Impact of Information Systems on Taxation: A Case of Users' Experience With an e-Recovery Information System. *The Electronic Journal of e-Government Volume 13 Issue 2*, 110-93.

Fjeldstad, O., & Moore, M. (2008). Revenue Authorities and State Capacity in Anglophone Africa, CMI: Bergen. *Bergen: Chr. Michelsen Institute (CMI0*, 13. Retrieved from https://www.cmi.no/publications/2952-revenue-authorities-and-state-capacity.

Gitaru, K. (2017, Munich Personal RePEc Archive 5th June, 2018). *The Impact Of System Automation On Revenue Collection in Kenya Revenue Authority. (A Case Study of SIMBA).* Retrieved from: https://mpra.ub.unimuenchen.de/80343/1/MPRA_paper_80343.pdf.

Hassan, Z. A. (2006). Doing a Pilot Study: Why is it Esential?. *Malays Farm Physician*, 70-73.

Kenya Revenue Authority (2024). *Revenue administration reforms in Kenya: Experience and lessons*, Nairobi: Kenya Revenue Authority.

Kothari, C. R. (2009). *Research Methodology; Methods and Techniques. New Delhi: New Age International Publishers.* New Delhi: New Age International Publishers.

KRA. (2018, June 13). *KRA Reforms Aimed at Enhanced Trade Facilitation*. Retrieved from https://www.kra.go.ke: https://www.kra.go.ke/en/media-center/blog/38-kra-reforms-aimed-at-enhanced-trade-facilitation.

KRA. (2023). *Annual Revenue Performance Report 2022/23.* Nairobi: Kenya Revenue Authority.

KRA. (2024). *Annual Revenue Performance Report 2023/24.* Nairobi: Kenya Revenue Authority.

Marshall, M. N. (1996). *Sampling for qualitative research.* Great Britain: Oxford University Press.

Mugenda, O. M., & Mugenda, A. G. (2003). *Research methods: Quantitative and qualitative Approaches.* Nairobi: African Centre for Technology Studies.

Nassika, S. A., & Keshika, O. G. (2017). Best practices in digital customs in east and southern Africa: a case study of the Mauritius Revenue Authority (MRA) customs. *2nd WCO ESA Regional Research Conference.*

Nisar, M. (2013, 2 13). *Assessment of E-Tax payment on Revenue Generation Efficiency in Nigeria: Case Study of Lagos State Board of Internal Revenue and Nigerian Taxpayers*. Retrieved from: http://nairaproject.com:http://nairaproject.com/projects/2571.html.

Ochieng, A. O., Gathiaka, D. K., & Sule, D. O. (2011). The effect of real exchange rate depreciation on Import Tax Revenue in Kenya, 1970-2009.

Ondiek, J. (2013). Responses by Kenya Revenue Authority (KRA) to the Challenges in the Implementation of the Customs' Reforms and Modernization (CRM). *Unpublished Master of Business Administration (MBA) Thesis at University of Nairobi.*

Pfister, M. (2009). *Taxation for Investment and Development: An overview of policy challenges in Africa (Rep.).* Ministerial meeting and Expert Roundtable of the NEPAD-OECD Africa investment Initiative.

Sauro, J. (2014). *Assessing the Validity of your Research.* Colorado: University of Denver.

Standard Media. (2020, February 18). *KRA falls short of half year revenue target by sh88b*. Retrieved from https://www.standardmedia.co.ke/business/article/2001356803/kra-falls-short-of-hal.

UN, (2024). *Customs automation*. Retrieved from http://tfig.unece.org/contents/customs-automation.htm.

Venkatesh, V., Morris, M., Davis, G., & Davi. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425-478.

Wambua, D. (2008). The effects of reform programmes on staff morale in the Kenya revenue authority (KRA). Unpublished MBA thesis at University of Nairobi. *Unpublished MBA thesis at University of Nairobi.*

Zhou, G., & Madhikeni, A. (2013). Systems, Processes and Challenges of Public Revenue Collection in Zimbabwe. *American International Journal of Contemporary Research, 3*, 49-60.

APPENDICES

Appendix I: Respondents Questionnaire

Kindly answer the following questions as honestly and accurately as possible. The information given will be treated with a lot of confidentiality and response in this survey will purely be used for academic purpose only.

SECTION A: DEMOGRAPHIC INFORMATION

1. Level of education

College Diploma [ ] Bachelor‘s Degree [ ]

Master’s Degree [ ] PhD [ ]

2. Years of work experience

Less than 5 Years [ ] 6-15 years [ ]

16-25 years [ ] 26-35years [ ] More than 35 years [ ]

SECTION B: CUSTOM’S AUTOMATION REFORMS

Please indicate the extent to which you agree or disagree with the following statements on Customs Automation Reforms.

Where: 1= strongly disagree, 2= disagree, 3= Neutral, 4= Agree and 5= Strongly Agree

.**Statement**	**1**	**2**	**3**	**4**	**5**
Adoption of Integrated Customs Management System (ICMS) has enhanced customs revenue collection.					
Adoption of Cargo Tracking Systems has completely eliminated diversion of Transit goods eliminating customs revenue leakages.					
Electronic Seal has improved cargo security previously compromised during changeover of seals at border points thus securing customs revenues.					
There adoption of Single Window clearing system by customs has enhanced collection of customs revenues.					
Installation of CCTV’s has curbed smuggling of goods safeguarding customs revenues.					

SECTION B: AUDIT BASED CONTROLS

Please indicate the extent to which you agree or disagree with the following statements on Audit Based Controls.

Where: 1= strongly disagree, 2= disagree, 3= Neutral, 4= Agree and 5= Strongly Agree

Statement	**1**	**2**	**3**	**4**	**5**
The adoption of post clearance audit by customs has enhanced customs revenue collection					
Prescreening of cargo has enhanced traceability of cargo safeguarding customs revenue.					
The adoption of scanner technology has detected miss-declaration of goods enhancing customs revenue collection.					
The adoption of effective customs audit policies has aided the collection of customs revenue.					
Sound customs laws have been enacted to facilitate audit based controls thus safeguarding customs revenue.					

SECTION C: ENFORCEMENT REFORMS

Please indicate the extent to which you agree or disagree with the following statements on Enforcement Reforms.

Where: 1= strongly disagree, 2= disagree, 3= Neutral, 4= Agree and 5= Strongly Agree

Statement	**1**	**2**	**3**	**4**	**5**
The customs department has improved detection of smuggled goods safeguarding customs revenue.					
Risk management strategies have been adopted by customs leading to an increase in the collection of customs revenues.					
KRA has improved the detection of fraud, undervalued and misclassified goods enhancing customs revenue collection.					
The adoption of enforcement framework by KRA has improved customs revenue collection.					
KRA has pushed for sound legislation to facilitate customs enforcement leading to an increase in the customs revenue collection.					

SECTION D: INSTITUTIONAL CAPACITY

Please indicate the extent to which you agree or disagree with the following statements on Institutional Capacity.

Where: 1= strongly disagree, 2= disagree, 3= Neutral, 4= Agree and 5= Strongly Agree

Statement	**1**	**2**	**3**	**4**	**5**
The customs department provides adequate training to its staff on various aspects of revenue collection, including tariff classification, valuation, and risk management.					
The customs department provides sufficient support and resources to its frontline officers to carry out effective customs revenue collection activities.					
The customs department collaborates effectively with other government agencies and international organizations to enhance customs revenue collection capabilities.					
The customs department utilizes advanced technological systems and tools to facilitate efficient customs revenue collection.					
The customs department employs transparent and fair procedures for customs valuation to ensure accurate revenue collection.					

SECTION E: CUSTOMS REVENUE COLLECTION

Please indicate the extent to which you agree or disagree with the following statements on Customs Revenue Collection.

Where: 1= strongly disagree, 2= disagree, 3= Neutral, 4= Agree and 5= Strongly Agree

Statement	**1**	**2**	**3**	**4**	**5**
There has been an increase in the collection of import duty					
There has been an increase in the collection of Excise Duty					
There has been an increase in the collection of VAT					
There has been an increase in the collection of anti-dumping and countervailing duties					
There has been an increase in the collection of customs penalties					

Appendix II: Introduction Letter

ELVIS KIPLIMO,
P.O BOX 9278-30100,
ELDORET.
24th June 2024

Dear Respondents,

RE: DATA COLLECTION

My name is Elvis Kiplimo a Masters student at Moi University. As part of the partial fulfillment of the academic exercise for the award of Master of Tax and Customs Administration, I am carrying out an academic research dubbed **Customs Reforms, Institutional Capacity and Customs Revenue Collection at Busia and Malaba Border Posts, Kenya.**

This letter is a formal appeal to you to take time and answer the question in the attached questionnaire to support this research to be successful. This is an academic exercise and your identity will remain anonymous, besides, your identity will not be revealed in anyway.

I appreciate it in advance for your kind response and giving your genuine support to this research work.

Yours faithfully,

Elvis Kiplimo.

Appendix III: Letter of Authority

KENYA REVENUE AUTHORITY

ISO 9001:2015 CERTIFIED

PUBLIC

KENYA SCHOOL OF REVENUE ADMINISTRATION

REF: KESRA/NBI/036

18th June 2024

TO: WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: REQUEST FOR ASSISTANCE TO ELVIS KIPLIMO OF REGISTRATION NO.: KESRA105/0205/2016 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: **"Custom reforms, institutional capacity and customs revenue collection at Busia and Malaba border posts, Kenya."**

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.

KENYA SCHOOL OF REVENUE ADMINISTRATION

18 JUN

Damacrine Masira
Manager Academic Research,
KESRA

Tulipe Ushuru, Tujitegemee!

Appendix IV: Plagiarism Awareness Certificate

SR712

ISO 9001:2019 Certified Institution

THESIS WRITING COURSE

PLAGIARISM AWARENESS CERTIFICATE

This certificate is awarded to

ELVIS KIPLIMO

MU/KESRA/0205/2016

In recognition for passing the University's plagiarism

Awareness test for Thesis **entitled: CUSTOM REFORMS, INSTITUTIONAL CAPACITY AND CUSTOMS REVENUE COLLECTION AT BUSIA AND MALABA BORDER POSTS, KENYA** with similarity index of 10% and striving to maintain academic integrity.

Word count: 22070

Awarded by

Prof. Anne Syomwene Kisilu
CERM-ESA Project Leader Date: 26/09/2024