EFFECT OF CUSTOMS OPERATIONS ON THE GROWTH OF CROSS-BORDER TRADE IN KENYA

BY

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DECLARATION

Declaration by Candidate

This research project is my original work and has not been presented for a degree in any other University or institution of Higher Learning. No part of this research project may be reproduced without the prior written permission of the author and/or Moi University.

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This project has been submitted with our approval as the university supervisors.

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DEDICATION

I humbly dedicate this work to God for granting me this fulfilling opportunity to undertake my Master's degree in Tax and Customs Administration. I also dedicate this project to my parents and academic supervisors for playing a financial and emotional supportive role in my life and throughout my career endeavors.

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ABSTRACT

In Kenya, the volume of cross-border trade has been declining. The country's current account deficit increased by 10.2% in Q1 2020, to Kshs 110.9 billion from Kshs 100.6 billion in Q1 2019. The goal of this research was to see how customs operations affected the growth of cross-border trade in Kenya. The study's main goal was to see how trade facilitation, border coordination management, and risk management affected cross-border trade in Kenya. The study is guided by the gravity, monopolistic trade and new trade theories. The explanatory research design was considered in analyzing the effects of customs operations on cross border trade in Kenya. The target population of this study was 4117 customs administration officers working at Kenya revenue authority. The sample size for the research was 364 officials selected using stratified random sampling technique. Structured questionnaires were used to collect primary data. Descriptive and inferential statistics were used to analyze the data. To determine the effect of independent variables on the dependent variable, the researchers used multiple regression analysis. The findings revealed that trade facilitation had a positive and significant effect of growth of cross-border trade (β= 0.379, p=0.000). Border Coordination and Management had a positive and significant effect of growth of cross-border trade (β= 0.313, p=0.000). Risk management had a positive and significant effect of growth of cross-border trade (β= 0.13, p=0.049). The conclusion of the study is that customs operations have significant contribution to growth of Cross-Border Trade in Kenya. The study further concluded that trade facilitation, border coordination and management and risk management positively and significantly influence growth of Cross-Border Trade in Kenya. The study recommended that management of Kenya Revenue Authority should ensure review of the aspects relating to trade facilitation including trade barriers, system integration, complexity of customs clearance procedures and automation. The management should also review aspects relating to border coordination & management such as cooperation of different agencies, policies to promote international cooperation and multilateral mechanisms, efficient and secured border coordination and management, strategic partnership and efficient automation of border processes and procedures. Further, the management should review aspects relating to risk management including global approach to customs risk management, identification of risks, risk analysis, and risk evaluation. Furthermore, scholars should consider investigating variables that would influence the relationship between electronic customs systems and growth of Cross-Border Trade such as government policy and technology adoption.

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ABBREVIATIONS AND ACRONYMS

AEO	Authorized Economic Operator
AfCFTA	Africa Continental Free Trade Area
APEC	Asia-Pacific Economic Cooperation
CDPS	Customs Declaration Processing System
EU	European Union
FDI	Foreign Direct Investments
HR	Human Resource
IMF	International Monetary Fund
IMO	International Maritime Organization
IT	Information Technology
KRA	Kenya Revenue Authority
MoT	Ministry of Trade
NTBs	Non-Tariff Barriers
OECD	Organisation for Economic Co-operation and Development
RAU	Risk Analysis Unit
RILO	Regional Intelligence Liaison Offices
UNCTAD	United Nations Conference on Trade and Development
WCO	World Customs Organization
WTO	World Trade Organization

OPERATIONAL DEFINITION OF TERMS

Border Coordination Management: is the control exercised at a nation's borders and includes border security preventing unauthorized crossings and the facilitative side of border operations, which seeks to support rapid transit with minimal interference for authorized people and goods (Giovannucci, 2018).

Cross-Border Trade: Cross-Border Trade is the exchange of goods and services between countries. It allows countries to expand their markets and access goods and services that otherwise may not have been available domestically. Because of Cross-Border Trade, the market is more competitive (Widdowson, 2012). It is also known as Cross-Border Trade and international selling (Kantox, 2021).

Growth of Cross-Border Trade- Is the increase in amount of goods and services exchanged between two countries (World Bank, 2018).

Risk Management: is a process of identifying, analyzing, assessing and communicating risk and controlling it to an acceptable level considering associated costs and benefits of any actions taken (DHS, 2010).

Trade Facilitation: is the simplification, modernization and harmonization of export and import processes (Nilsson & Evelina, 2014).

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter gives a background of what the study entails including statement of the problem, research objectives, research hypotheses, significance and scope of the study.

1.1 Background of the Study

Cross-border trade has developed over the years due to the many benefits it offers to various countries around the world (Kedia & Mukherji, 2019). Cross Border Trade is a direct and indicative ticket to a country's economic growth if the country is well able to take up the various opportunities that favor them. Cross Border Trade encourages Foreign Direct Investment. This in return encourages economies to grow more efficiently and hence become competitive economic partners.

Cross-border trade expanded by 3.0% globally in 2018, putting it slightly ahead of GDP. This is a considerable decrease from the 4.6 percent increase in 2017. Part of the reason for this loss of momentum is escalating trade tensions and historically high trade barriers (World Bank, 2018). Cross-border trade and business activities form the backbone and survival environment of the world as a whole. This is because global events, as well as competition, affect almost all companies (large and small) as they sell or supply foreign supplies and products Daniels, Radebaugh and Sullivan, (2016). The business world is increasingly globalized, Javidan and House, (2017) and the focus of business has shifted from the internal environment to the global environment, there needs to be a paradigm shift and thinking to think globally. Kedia and Mukherji (2019) demonstrate the basic assumption that globalization and cross-border trade and investment are rapidly increasing and having dramatic new and different effects on people's lives. The parties cannot live alone. They had to share their wealth, technical

experience and trade to sell their surplus products. The world economy is interdependent. The economic progress of a country will depend on smooth connections and coordination with other countries. For this reason, most countries seek to maintain good relations with each other, to create allies and to maintain trade relations. A country needs a market for its goods. Markets are available both locally and internationally (Daniels, 2017).

Opening borders and increasing cross-border trade are not without costs, and finding ways to reduce early disparities and disruptions in life is an important issue that needs to be explored and addressed. The nice thing about cross-border trading, however, is that in the short term there are more winners than losers and in the end everyone, except for certain special interests, benefits. History and brilliant researchers from the past have taught us valuable lessons to build on our efforts to reduce the impact of global poverty, but much remains to be done and important issues of cross-border trade to be explored (Scott, 2016).

Customs operations include participating in the drafting, implementation and ratification of trade agreements and arrangements that ensure expedited clearance processes, exercise of effective revenue-generating controls, ensure compliance with national laws and ensure public safety and protection with others. The roles of Customs Operations have evolved from just collection of duties and taxes to facilitation of legitimate trade, control of imports and exports, collection of trade statistics, protection of national industries and enforcement of international treaties and conventions that protect fauna, flora and the environment. Customs also plays a role in stakeholder liaison and information exchange with bodies like the International Maritime Organization (IMO) and Regional Intelligence Liaison Offices (RILO). The above operations are engulfed by the proposed key variables to be studied that is, trade

facilitation, border coordination management and risk management and cross border trade hence the justification for a study on the same. To ensure protection of society, species of flora and fauna, customs risk management procedures have to be implemented. To collect trade statistics and ensure a seamless flow of goods across borders, customs trade facilitation measures have to be brought into play and to ensure cross border coordination, the aspect of border coordination management has to be considered.

1.2 Statement of the Problem

In today's era of globalization, Cross-Border Trade is triggered by the fact that no nation can be self-sufficient. Globalization has fostered an interdependency and interconnectivity element between countries. Countries around the world are increasingly dependent on trade, and trade relations are increasingly driving global interdependence. Great importance is attached to cross-border trade. Cross-border trade will be further strengthened through the expansion of global economic integration. Developing countries with the fastest growth in cross-border trade are more dependent on developed countries. Cross-border trade increases significantly with increasing global economic integration (Lun, Lai & Cheng, 2018).

However, Kenya's trade is on the decline. The country's current account deficit worsened by 10.2% in the first quarter of 2020 and reached 110.9 billion Ksh from 100.6 billion Ksh in the first quarter of 2019. This was mainly due to a 3.0% decline in the secondary income balance. , if an economy provides or receives goods, services, income or financial items) to 124.1 billion Ksh from 128.0 billion Ksh in the first quarter of 2019, a 67.0% decrease in the services trade balance) to 20.4 billion Ksh from Ksh 61.9 billion and the decline was due to a 9.1% decrease in the goods trade deficit (a scenario where imports are higher than exports of goods) to Ksh 218.9 billion

in the first quarter of 2019 from Ksh 240.7 billion in the first quarter 2020 mainly due to the 14.0% increase in exports exceeding the 0.1% increase in imports (Kenya Office of National Statistics, 2020).

Previous research and studies (Milner, Morrissey and Zgovu 2009; Malchow and Kanafani 2011; Mwashigadi 2014; Nguku 2013) have been conducted on the role and importance of customs administration. Despite the various roles played by customs operations, Kenya's portion of Cross-Border Trade is still largely informal and very low. Various empirical data portrays the interlinkage and relationship of Customs Operations and the independent variables under study, that is, trade facilitation, border coordination management and risk management. However, the researcher found no study that has looked at the effect of customs operations on the growth of Cross Border Trade in Kenya. The current study sought to bridge this research gap.

1.3 Research Objectives

The General Objective

The main objective of the study was to determine the effect of Customs Operations on the growth of Cross-Border Trade in Kenya.

The Specific Objectives

i. To determine the effect of Trade Facilitation on the growth of Cross-Border Trade in Kenya.
ii. To demonstrate the effect of Border Coordination and Management on the growth of Cross-Border Trade in Kenya.
iii. To demonstrate the effect of Risk Management on the growth of Cross-Border Trade in Kenya.

1.4 Research Hypotheses

H_{01}: Trade facilitation has no significant effect on the growth of Cross-Border Trade in Kenya

H_{02}: Border Coordination and Management has no significant effect on the growth of Cross-Border Trade in Kenya

H_{03}: Risk Management has no significant effect on the growth of Cross-Border Trade in Kenya.

1.5 Significance of the Study

This study may be important in addressing the relationship and impact of Customs Operations on the growth of Cross Border Trade in Kenya by focusing on Trade Facilitation, Border Coordination may benefit from this study are researchers and academicians, Kenya Revenue Authority and the Government.

The study results may be relevant to the following stakeholders who rely on the customs department; Kenya Revenue Authority is responsible for making policy decisions with the overarching goal of increasing revenue collection. This study is important for KRA to fill up its gaps in service delivery and to initiate corrective actions.

The research might be significant to scholars in impacting knowledge on revenue collection systems, traders and business people providing them with knowledge on the challenges facing the customs department and how to assist in minimizing delays in the export and import cycles. This study may instigate other researchers to investigate more about customs operations, which are not covered by this research and other studies. The research may be valuable for other researchers to use it as a source of reference for a comprehensive and thorough study on the efficiency of the public organization.

The government policy makers for purposes of planning and resources allocation will acquire knowledge on the effect of Customs Operations in enhancing Cross-Border Trade in Kenya. The types of trade facilitation, border coordination and management, risk management and measures needed to improve the efficiency of cross-border trade in Kenya were assessed.

1.6 Scope of the Study

The research scope was limited to the effect of customs operations on the growth of cross-border trade in Kenya. It involved a detailed analysis of trade facilitation, border coordination and management and risk management as the independent variables. The study target population was 4117 customs officials working in four departments at KRA. The four departments included trade facilitation, border coordination management, risk management and statistics, which formed the study unit of analysis. The sample size was 364 customs officials under management level, supervisory level and technical level. The study employed explanatory research design. Structured questionnaires were used to collect primary data. The research took place during August and October of 2021.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter entails a general overview of the concepts under study and a review of the theoretical and empirical literature. The chapter also provides critique of the literature review and conceptual framework.

2.1 Growth of Cross Border Trade

The flow of products and services across international borders between legal systems is referred to as cross-border trade. It is, in this sense, part of the routine legal trade that occurs within the country's conventional export/import system. The exchange of capital, goods, and services across national borders is known as cross-border trade. Cross-border trade contributes significantly to the balance of payments (BOP) condition in most countries. It allows countries sell their locally produced goods and services to foreign nations. Cross-Border Trade is the engine of growth that leads to stable advancement in livelihoods by increasing the variety of choices and preferences that people have (Otsuki, Wilson, & Sewadeh 2011). Cross-Border Trade is in the following forms, it is either by Multilateral, Regional and or Preferential Tariff Arrangements. According to US Department of Commerce (2016), bilateral trade is an economic agreement between two countries with the aim of growing trade and investment between the two nations and exchanging of market intelligence. This is done through the elimination of trade barriers between the members. A good example is Kenya’s bilateral trade agreement with India to develop the field of Medicine.

Kenya's trading volume is declining. The country's current account deficit worsened by 10.2% in the first quarter of 2020 and reached 110.9 billion Ksh from 100.6 billion Ksh in the first quarter of 2019. This was mainly due to a 3.0% decline in the secondary

income balance, if an economy provides or receives goods, services, income or financial items) to 124.1 billion Ksh from 128.0 billion Ksh in the first quarter of 2019, a 67.0% decrease in the services trade balance) to 20.4 billion Ksh from Ksh 61.9 billion and the decline was due to a 9.1% decrease in the goods trade deficit (a scenario where imports are higher than exports of goods) to Ksh 218.9 billion in Q1 2019 from 240.7. mitigating KSh billion in Q1 first year of 2020, mainly due to a 14.0% increase in exports, outperforming imports by 0.1%. (Kenya National Bureau of Statistics, 2020).

Thompson and Strickland, (2003) describe internationalization of Trade is the process of integrating markets through trade, technology, flow of financial resources and exchange of information and movement of people, goods and services. Cross-Border Trade is meant to fill certain market gaps such as: lack of self-sufficiency, no country big or small is self-sufficient hence, each country would out of necessity desire goods and services from other countries. These results in imports of the goods or services desired and exports of goods or services that other countries desire ultimately leading to specialization and elimination of surpluses and deficiencies of goods in various countries (Yabs, 2017). International business also provides a wide variety of chances related to the domestic markets, although it is fundamentally riskier than the domestic trade. However, the firm prefers to engage in Cross-Border Trade, if it is certain of the potential benefits (expansion of market share, sales revenue and increased in profit) against the expected risks (Ademola, Bankole, & Adewuyi, 2020).

Cross-border trade offers a way to make products and services more accessible to different customers. It promotes and facilitates the exchange of scarce resources between countries. This includes the exchange of products that are in short supply between the parties, and this exchange can be considered mutually beneficial. Therefore, consumers gain access to services and goods that may not be available or

restricted in their own country. This benefits the economy as it increases PB, encourages investment, and leads to economic growth in a country. Therefore, it means a better standard of living for citizens when resources are managed effectively by the government. (Brooks and Sheen, 2012).

Through its linkages to all other sectors of the economy, cross-border commerce plays an essential part in the country's growth and development. Through the development of jobs, trade also helps to alleviate poverty. For this reason, a review of the impact of cross-border trade on economic growth has received much attention. The importance of cross-border trade for economic growth was first highlighted in the economics literature by classical economists (Smith, 1776; Ricardo, 1817), who firmly believed that trade surpluses represented the most profitable returns that could be made from cross-border trade. in relationship. According to Smith (1776), this means that countries or regions should specialize in the production of goods in which they have an absolute advantage. Ricardo (1817) argued, however, that mutually beneficial trade depends only on the relative advantage of land in the production of certain goods, and not on absolute profits. On this basis, classical economists advocated export promotion which would lead directly to economic development by promoting the production of goods for export or enabling the accumulation of foreign currency through the import of capital investment and local industry (Wagner, 2011).

The development of Kenya's cross-border trade policy goes back to Session Document No. 10 of 1965 on African socialism and its application in planning in Kenya. This document aims at rapid economic growth and focuses on the promotion and protection of local industries. This policy is mainly focused on developing trade and seeking to improve internal market protection to support industrial development. These policies

had an important impact on the development of the cross-border trading system during the first decade of independence (Republic of Kenya, 2019).

Structural Adjustment Programs (SAPs), which were adopted by Session Document No. 1 of 1986 addressing Economic Governance for New Growth, helped Kenya make progress on cross-border trade policy. Kenya's trade strategy has emphasized encouraging industry to produce more efficiently for export, supporting private investment, and raising foreign exchange earnings in the sector, rather than relying on import substitution and protectionism.

2.2 Customs Operations

In a broad sense, these are the procedures that must be followed by the parties involved as well as the Customs administration in order to comply with the law. They entail a number of activities that are engulfed under the specific variables of Trade Facilitation, Border Coordination and Management and Risk Management.

2.2.1 Trade Facilitation

The concept of trade facilitation has gotten a lot of attention recently, and it's at the heart of a lot of customs programs. It's discussed a lot in supply chain security projects, and it's part of a lot of customs modernization programs. Trade facilitation is also a key component of larger attempts to improve trade facilitation capability. Institutions trying to strengthen the regulatory interface between authorities and traders at national borders frequently use the term "trade facilitation" (Bhattacharya & Hossain, 2016). Trade facilitation has the capacity to address a number of issues that are crucial to the efficient and smooth flow of trade. This term refers to a variety of potential Non-Tariff Barriers (NTBs), including B. Import permits, product testing, and unnecessarily complicated customs procedures.

The idea of trade facilitation received tremendous attention and became the center of many activities in the customs world. In addition, trade facilitation has become an integral part of WTO agreements and should therefore be part of port supply chain security and form part of a number of customs operations programmes. As a result, trade facilitation is likely to encompass a broad variety of challenges relating to the smooth and efficient flow of global trade (McIntyre, 2015). Non-tariff barriers, such as import permits, product testing, and unnecessarily complicated customs procedures, are all part of trade facilitation. By decreasing needless bureaucratic restrictions, increased use of technology in customs procedures has resulted in increased economic development of countries and increased the competitiveness of their businesses.

Most countries with different ministries maintain good alignment between personalized operating strategies and stakeholder assumptions to facilitate world trade (McIntyre, 2005). Global trade networks have long sought the idea of paperless exchanges to reduce lengthy customs procedures. This implies a shift to automation and virtual rejection of all printed materials at customs to facilitate world trade.

2.2.2 Border Coordination Management

The development of the concept of coordination and border management begins with defining national interests (Goorman, 2005). Are countries in the region a threat and therefore security a priority? Or is the goal of promoting economic growth and vitality through cross-border trade? There are no multiple choices: a state can seek security and facilitate the lawful flow of people and goods. In addition, changing threat landscapes can change country priorities over time and can be adapted to respond to changes in threat perceptions.

In many cases, these communities have their own culture that reflects the amalgamation of commonalities on both sides of an internationally recognized border. They are also very sensitive to changes caused by variations in law enforcement, security positions, and customs requirements. In other words, attempts to close the border may meet angry protests. These communities tend to rely heavily on cross-border trade and the resulting informal networks (Hunter, 2010). Minor procedural changes can have a huge impact on the daily lives of citizens who have developed their own "rules" that may not match the wording of national law. Even when borders are militarized and relations between communities do not allow regular interaction, trade can flow in the interests of communities and states.

Relationship management with the trading community, regulators, and transportation/supply chain partners are all important aspects of border coordination and management. Because of the combination of "customer segmentation" and "intelligence-based risk management," products and passengers can be processed electronically before physically crossing the border. Border authorities can customize information and services to the individual demands of distinct consumer groups via customer segmentation (Jayne, Zulu & Nijhoff 2006). Risk management guided by secret service information allows border authorities to provide trustworthy merchants or passengers with the proper identity and rights prior to arrival and departure and to intervene specifically with others. All relevant border coordination and border management authorities, partners and customers are provided with a common source of information on initial acceptance and processing requirements through a common information portal (for example, one window).

Border coordination and management allows authorities to work closely together and form an "interagency approach". Border coordination and management can be carried

out under the responsibility of the border coordination and management agency (Kieck, 2010). Creating a single agency, on the other hand, is not the only or best approach. A full regulatory body is typically established to allow the development of a comprehensive vision for border coordination and management, as well as to guarantee that all stakeholders are involved and collaborate to make the common goal a reality. Successful border coordination and management requires strong political will and commitment, as well as the development of an effective incentive/demotivation system to support and drive progress. The independence and specialized mandate of customs authority and other bodies involved in border coordination and administration are preserved by this system.

2.2.3 Risk Management

Risk management refers to the administration's concerted efforts to direct and control risk (WCO, 2018). It is the process of detecting, analyzing, assessing, communicating, and controlling risks to an acceptable level while considering the costs and benefits of each action made (DHS, 2010). Potential violations of customs regulations, such as licensing obligations, valuation regulations, rules of origin, customs clearance, trade limitations, and security regulations, are all risks from a customs perspective. Risk management is at the core of the effectiveness and efficiency of border coordination and management and is the key to a balanced approach to facilitating legitimate trade (Widdowson, 2012).

A risk-based management technique ensures that all points of entry limit exposure to such risks while determining which means of transport, goods, and persons should be examined and the level of examination (Durst, Susanne, Etges, Paula & Siqueira de Souza, 2015). High-risk modes of transportation, people, and goods should all be subjected to intensive management and controls. Even low-risk modes of

transportation, people, and goods are subjected to significant levels of trade facilitation in most cases. As a means of enabling cross-border trade, only the risk management concept can assure that all players comply with customs requirements.

2.3 Theoretical Framework

A theoretical framework is a structure that can be used to support or defend a research theory. The theoretical overview discusses and guides the reason behind why the research problem exists. Theories are developed to explain, predict, and comprehend phenomena, as well as to question and extend existing knowledge while adhering to certain constraints. To this end, three key theories have been adopted in this study, which are outlined in this section.

2.3.1 Gravity Theory

The theory of gravity was first introduced in 1960 by Tinbergen (1962), Pöyhönen (1963) and Linnemann (1966) to explain the flow of bilateral trade between a country and a host country. This model is a pared down form of the general equilibrium model, and the difference in bilateral trade between two countries is explained only by the national income of the countries and the distance between them. The gravity model was later augmented with many other explanatory variables such as population, trade bloc, common language etc. Following that, other models such as Ricardian, Hecksher-Ohlin, and monopolistic competition models were used to derive the gravity equation (Anderson, 1979, Bergstan, 1985 and Deardorff, 1998). In these frameworks, the simple gravity equation is based on the absence of all barriers to trade with homogeneous products and then enhanced with assumption of differentiated production. These papers conclude that different theories might provide theoretical grounds for the gravity model.

There are a huge number of applications in the literature of Cross-Border Trade, which have improved the performance of the gravity model by considering the impacts of technology and substitution on trade. Bikker (1987) presents an extension of the gravity model by considering substitution between export and import flows. He also tests his extended model for 181 countries in 2005 and finds that the standard gravity model could be rejected in favour of his approach. Eaton and Kortum (2002) studied the effects of innovation and geographical barriers on bilateral trade in the context of a Ricardian model. They assume that the gains from trade are larger when technology expands individual productivities. On the other side, decrease in geographical barriers permits the country to realize greater gain from bilateral trade. Empirical findings indicate that spreading of innovation, lowering of tariffs and geographical barriers raises bilateral trade for OECD countries in 1990.

The gravity theory was relevant to this research since it described how to improve bilateral trade by lowering or eliminating barriers. It also supports innovations in trade operations to enhance efficiency. Customs operations including trade facilitation, border coordination and management, and risk management can be considered as critical innovations that could boost growth of cross border trade. The gravity theory, therefore, underpins the independent variables (trade facilitation, border coordination and management, and risk management) in this study.

2.3.2 Monopolistic Trade Theory

The monopoly competition model, which represents the notion of monopoly trade, was designed to explain intra-industrial trade between OECD nations (Lai & Zhu, 2004). The majority of trade between these countries is made up of various products (Evenett & Keller 2002). Monopoly competition is a hypothesis of product differentiation that is consistent. This theory also inspires empirical study on the relationship between trade

costs and bilateral trade because it is simple to integrate trade costs in the standard model of monopolistic competition. Several empirical studies have found that tariffs and transportation costs explain major trade variations (Hummels 1999), whereas others represent trade costs as unexplained econometric fixed effects (Harrigan 1996).

Various empirical research on the evaluation of the gravity equation, in addition to the monopolistic competition model, have revealed that trade barriers explain the majority of the trade (Bergstrand 1985; Anderson and van Wincoop 2003). Trading commissions are mostly based on price. The intricacy of the constant substitution elasticity price index (CES) in the presence of asymmetric trade costs causes problems in the monopolistic competition model. Three approaches have been chosen to overcome this difficulty: the GDP price index is used to capture the price effect in the gravity equation, as in Bergstrand (1989) and Baier and Bergstrand (2001); marginal effect estimates are used to measure price effects, as in Anderson and van Wincoop (2003); and fixed effects are used to account for the price effect, as in Harrigan (1996), Hummels (1999), Redding and Venables (2002), and others. Asymmetric trade barriers and worldwide disparities in manufacturing costs are included in Lai and Zhu's analysis.

The monopolist trade theory is applicable in this study it explains the idea of trade costs. Trade facilitation, border coordination and management, and risk management are customs operations that require financial resources to run smoothly. This adds to the trade costs. The theory therefore, supports the trade facilitation, border coordination and management, and risk management variables.

2.3.3 New Trade Theory

Paul Krugman, a new trade theory economist, believes that international commerce can support economic growth in two ways. The first is the effect of scale economies through

trade, and the second is that international commerce can drive economic growth by increasing the optimal allocation of resources between the material and knowledge production sectors (Chen, 2009). According to Lam (2015), the new trade theory is derived from the new growth theory that emerged in the context of international trade and economic growth. The new growth theory emphasizes the technological and external effects brought about by the development and application of new knowledge as an explicit variable that determines economic growth. New trade theories were developed to explain the high levels of intra-industrial trade and most of the world trade between these countries (Dicken, 1998). This suggests that increasing economies of scale and imperfect competition are reasons for specialization and trade, even if countries share similar factors (Poon, 1997).

Although most of the work in New Business Theory assumes that increased returns are internal to the firm, increased returns are external to the firm (Krugman, 1991). In addition, Krugman's model shows that, in the presence of external economies of scale, trade leads to regional industrial concentration with intensive scaling. With regard to the long-term regional effects of trade, Krugman also points out that these effects are usually cumulative and self-reinforcing. Furthermore, the new trade theory explains how globalization came to be. This indicates that poor developing countries may struggle to grow some businesses in the future because they lag too far behind industrialized countries' economies of scale. This is due to the economies of scale that industrial enterprises already possess, rather than a fundamental comparative advantage.

The new trade theory is applicable to this research as it brings out the importance of trade in promoting economies of scale and in promoting optimal allocation of resources between the material and knowledge producing sectors. This theory focuses on the

importance of trade growth and how growth will help improve the economies of the participating countries. In this study, the focus is on growth of cross border trade. The study makes a prediction that customs operations influence the growth of cross border trade. The new trade theory thus underpins the dependent variable in this study, which is growth of cross border trade.

2.4 Empirical Review

2.4.1 Trade Facilitation and Growth of Cross Border Trade

Harzing (2019) comments that trade facilitation is a broad concept that encompasses a wide variety of issues linked to the regulation and execution of cross-border commerce, including supply chain management, in his study of the impact of customs operations on trade facilitation. The importance of trade facilitation in determining a country's export competitiveness is now widely acknowledged. At the same time, every country must be guaranteed the right to defend itself against unfair trade practices (Harzing, 2019). Trade facilitation is mainly considered as a continuation of cross-border trade liberalization activities. Trade facilitation is not a new phenomenon, as history has proved. Many medieval European market towns, for example, may show the units and sizes used to sell products in public. The act can still be found in several cities today, such as Bern, Switzerland. Trade facilitation has emerged in recent history at the international, regional, national, and even municipal levels (Grainger, 2018).

Trade facilitation, according to Wilson (2017), has the capacity to address a variety of challenges that are critical to the smooth and efficient flow of trade. By lowering superfluous bureaucratic restrictions and guaranteeing optimal use of technology, improved trade facilitation should contribute to enhanced economic growth in countries and increase the competitiveness of their sectors (Wilson, 2017). According to UNCTAD (2016), most nations' trade, transport, and finance ministries, as well as the

private sector, are involved in trade facilitation. The world trade community has long attempted to migrate to the concept of paperless commerce in order to maintain a steady balance between operational operations and stakeholder demands. This entails a move toward automation and the eradication of almost all paperwork (Schware & Kimberley, 2015).

Sakyi, Villaverde Maza, and Bonuedi (2017) investigated the impact of trade and trade facilitation on African economic growth. To that purpose, this study assesses trade facilitation using three variables derived from principal component analysis: trade, export, and import costs. These indicators, together with various policy variables, are employed as exogenous variables to evaluate growth promotion models that address potential endogeneity issues appropriately using a dynamic GMM scoring system. The findings indicate that trade facilitation is a significant avenue via which trade influences economic growth.

Duval, Utoktham, and Kravchenko (2018) used data from the United Nations Global Survey to facilitate trade and implement paperless commerce to examine the impact of implementing trade facilitation measures on trade expenses in Asia and the Pacific. The effects of several action packages were investigated, beginning with a basic package of steps to assure compliance with the World Commerce Organization's (WTO TFA) facilitation commitments and progressing to a comprehensive package of actions to facilitate digital trade. According to the estimate, full implementation of the WTO Agreement's mandatory and non-binding measures would result in a 15% reduction in trade costs in the Asia-Pacific area on average. Full implementation of the WTO's binding and non-binding TFA measures, combined with other measures to encourage paperless and cross-border trade (facilitating digital trade), is predicted to lower trade costs by more than 26%. The annual cost of international transactions in Asia and the

Pacific is around $1.2 trillion. The analysis also reveals that the trade costs associated with trading partners implementing trade facilitation will be greatly reduced. This suggests that a country with a high level of trade facilitation has a strong motivation to encourage and assist its trading partners in trade facilitation.

Márquez-Ramos and Martinez-Zarzoso (2008) investigated the impact of trade facilitation on sectoral trade flows. This study draws on data from the World Bank's economic database to calculate the expenses of carrying out export or import operations in a country, as well as the number of documents required and the time required to complete all import and export administrative procedures. The gravity equation was extended on 13 exporters and 167 importers using multiple estimate approaches, including OLS, PPML, and the Harvey model. The basic conclusion is that cutting transportation costs and the number of trading days increases trade flows. The findings back up multilateral initiatives like the World Trade Organization, which pushes countries to examine and improve their trade facilitation requirements and objectives. Not only do countries that increase trade facilitation benefit from the measures implemented, but so do their trading partners.

Zaki (2015) used a high-gravity model to analyze the effects of various components of trade facilitation in developed and developing nations on bilateral trade and to calculate the ad valorem equivalents (AVEs) of administrative trade obstacles. The findings reveal that a variety of trade facilitation characteristics, such as the Internet, bureaucracy, corruption, and geography, influence the timeliness of import and export transactions. The timing of imports, on the other hand, has a greater negative influence on commerce than the timing of exports. Another significant result is that trade facilitation and liberalization are not replacements but rather complements. Finally,

when considering the sector's characteristics, some perishable seasonal products with high added value tend to be more sensitive to transaction time than others.

Yadav (2014) investigated the impact of trade facilitation on spare parts and component commerce. This study examines the effects of four elements of trade facilitation – physical infrastructure, information and communication technology, business climate, and border efficiency – on parts and components and trade in commodities using data from 77 countries from 2004 to 2007. Manufacturing for the machinery and transportation equipment industries. The findings revealed that general trade facilitation had a greater impact on importers in terms of promoting spare parts and components than trade in finished goods. Border efficiency has the highest influence on trade flows in this sector among the four dimensions, and the effect of border efficiency on exporters and notably importers is significant for spare parts and components trade compared to finished goods commerce.

2.4.2 Border Coordination and Management and Growth of Cross Border Trade

Border coordination and management is a term used to describe the control exercised on the borders of a country and includes border security, prevention of unauthorized crossings and facilitation of border operations aimed at facilitating rapid transit with minimal disruption to authorized persons. In exercising this power, the challenge is to determine quickly and accurately which categories fall under the category of potential border crossings and have the resources to deal with both (Giovannucci, 2018). The management of border coordination relates to an illustration of how better regulation and efficiency can be achieved through better coordination between border authorities in policy development and operational activities at both national and international levels (Maria Polner, 2020).

Several defining features combine to make the boundary a unique zone. First, boundaries are determined by structures or physical boundaries (Harris, 2017). According to Hertel and Keeney (2016), in some cases terrain features such as rivers or mountains serve as natural boundaries, in other cases the boundaries are formed by a network of roads, fences, walls, checkpoints and ports. Physical structures are managed by national and local law enforcement agencies. Based on the prerogative of the state, military or paramilitary forces may be deployed to patrol and enforce national sovereignty. In most situations, border communities are busy areas where a mix of people live and work and where goods and services regularly transit. Many border communities share a common language, tribal affiliation, and family ties. They may not differ too much from country to country and may have more in common compared to the countries from which they originate (Hummels, 2016).

According to Kinana (2018), effective border coordination and management results in more suitable handling of traders and passengers due to more in-depth and precise data gathering and analysis. At the frontier of entry, less compliance inspections are required. Border coordination and management offers border coordination and management authority lower expenses and more control in the end. Border coordination and management allows for low-risk cross-border movement of people and goods, assuming political will, border authority administrative competence, and a compliance and reciprocal relationship culture. Simultaneously, enforcement measures can be focused on individuals who are more at risk and exposed, with the majority of decision-making taking place at "virtual borders." Each border coordination and management authority would benefit from adopting a “customer-centred view” which forms the basis for the concept of border coordination and management.

By collecting previously disseminated and possibly incomplete information individually in a cross-agency general information pool, border coordination and administrative authorities can obtain a completer and more accurate picture of customers or customers and their compliance history (Lesser & Leeman, 2018). This enables them to make more educated eligibility and compliance management decisions. This contrasted data is also advantageous to the buyer. Border management and coordination procedures should be aligned between customs and other border management and coordination entities. Reduced administration and compliance expenses, as well as significant time savings, result from a holistic approach to border coordination and border management, resulting in a more efficient and less expensive client experience. To achieve this, border coordination and management authorities must commit to proactive collaboration, as well as governance structures that effectively coordinate border operations, coordinate the duties and responsibilities of each authority, and ensure the transformation process's success. Coordination and boundary management enable a specific set of business outcomes. Citizens, businesses, and the country as a whole can benefit from the Border Management and Coordination Agency's unique efforts. This results in a more welcoming and responsive atmosphere for customers. For all relevant result areas, objective implementation steps can be identified.

2.4.3 Risk Management and Growth of Cross Border Trade

Customs can effectively manage daily activities and enhance their performance through the identification, analysis, evaluation, and treatment of risks (De Wulf, 2004). The risk management approach can minimize the effects of risks while enhancing decision making processes. Other than the economic benefits, it optimizes the use of the existing experience and skills while boosting customs control (Mate-Kodjo, 2012). Ultimately,

risk management improves transparency and the overall performance as well as customs' accountability and social responsibility. It helps customs focus on their core decisions and roles while utilizing the scarce resources to focus on the areas of high risk.

The implementation of effective risk management is beneficial for all stakeholders in avenues, such as lower transaction costs, improved human resource allocation, reduced release time, and increased revenues, better collaboration between customs and traders, and better compliance with regulations and laws (Drobot et al., 2017). However, the successful implementation of an effective risk-based approach is dependent on proper training and awareness, political goodwill, goals, historical records, cooperation with trade, adequate IT systems, and benchmarks.

Due to the benefits of the risk-based approach, there have been several Cross-Border Trade agreements to implement the concept. The trade agreements emphasize that administrations must implement and modernize risk management methods using up-to-date technologies that support pre-approved/low-risk shipments (Knowledge & Product, 2010). Some of the global risk-based approach international agreements include: Asia-Pacific Economic Cooperation (APEC) Framework for the Security and Facilitation of Global Trade, Revised Kyoto Convention on the Simplification of Customs Procedures, United States (US) Safe Ports Act, World Customs Framework of Standards to Secure and Facilitate Trade, North American Security and Prosperity Plan, European Union (EU) Risk Management Framework and Canada/US Smart Border Agreement.

To build effective customs operations at ports, airports, land borders, and the hinterlands, Turkey is upgrading existing risk management and risk analysis systems.

In Turkey, an automated risk analysis system divides transactions into three categories: high, medium, and low risk, based on the trader's previous compliance history, such as his position as an Authorized Economic Operator (AEO). This system allows the Ministry of Commerce (MT) to exercise risk-based controls, primarily with the aim of capturing high-risk shipments based on pre-arrival reports prior to arrival in Turkey, thereby facilitating Turkey's ambition to become a major player. in the world economy (Toksoz & Duran, 2013).

Mongolia is a landlocked country, far from sea ports. The development of industry is low and the country's economy is highly dependent on foreign trade. Against this backdrop, the Mongolian government has pursued a policy of liberalizing the economy and facilitating foreign trade and investment since the 1990s to accelerate the country's economic growth. Mongolia officially introduced the concept of customs risk management in the early 2000s, but before that, customs officials officially announced efforts to analyze contraband and target high border points. The use of risk management has led to faster clearance and reducing the transaction cost in the process (Davaa, 2015).

The Kosovo customs is managing the customs risk management on three levels; central, regional and local level. Central and local risk management in the customs sector is controlled centrally by the Risk Analysis Unit (RAU). Customs officers play a key role in local profiling. Local analysts monitor the correct application of selectivity, monitor that the controls exercised are in accordance with relevant reports and that the customs declaration processing system (CMS) provides control feedback. Feedback is included in the rules file. The customs service is a state structure at the local risk level, in which employees are responsible for risk management in their field of activity. If the analysis, based on risk indicators or available sources of information, raises doubts about the

accuracy of a customs declaration, customs officials may conclude that the consignment should be examined more closely than the system automatically identifies (COMCEC, 2018).

2.5 Critique of the Literature Review

Raballand (2012) revealed the various aspects that can increase efficiency in the South African Durban port in a study of port dwell times in Sub-Saharan Africa. The goal of the research was to figure out what causes long cargo stay durations. The study concluded that a variety of measures, including compressive customs modernization reforms, helped the port of Durban lower its dwell time from seven to four days. However, the study did not look at risk management specifically as a measure to rectify the situation. The study also was done in South Africa. Therefore, this study aims to find out how risk management affects trade facilitation, a Kenyan context.

Koral and Yanikkaya (2017) conducted a study to assess the determinants of transaction costs related to customs in Turkey. The purpose of this study is to find out how waiting time affects transaction costs, how complex clearing procedures affect transaction costs, and how transaction frequency affects transaction costs. The study found that the complexity of customs codes and their frequently changing structures and regulations were the main reasons for difficult compliance procedures. However, the study does not provide an in-depth study of the impact of risk management on dry ship performance in terms of trade facilitation. This study aims to find out how risk management affects trade facilitation at Inland container depot at Embakasi. Portugal-perez and Wilson (2012) did a study on trade facilitation measures. The objective of the study was to find out the effect of physical and ICT infrastructure on trade and the effect of border and transport efficiency classifying them as hard and soft measures respectively. The study found that hard and soft trade facilitation measures reinforce

each other in improving export flows. The study however, did not include risk management as a Cross-Border Trade measure. This study sought to establish the effect of Trade Facilitation, Border Coordination and Management and risk management on the growth of Cross-Border Trade in Kenya.

2.6 Research Gaps

The review of studies in the previous section provides significant and forthcoming evidence of the impact of customs operations on the growth of cross-border trade. However, with the various gaps identified, there is still need for in-depth study. The research gaps are summarized as shown in Table 2.1.

Table 2.1: Summary of Research Gaps

Variable	Author & Year	Focus of the Study	Research Methodology	Findings	Gap
Trade Facilitation	Harzing (2019)	Effect of Customs Operations on trade facilitation	Desk study methodology Interviews and consultations with key informants	Trade facilitation is a broad notion that encompasses a wide range of difficulties relating to cross-border trade regulation and execution, including supply chain management.	The study analyzed trade facilitation as the dependent variable to customs operations. This study focuses on trade facilitation as a predictor variable and a sub variable to customs operations
	Bhattacharya and Hossain, (2016)	The Need for and Cost of Selected Trade Facilitation Measures in Bangladesh: Implications for WTO Trade Facilitation Negotiations	Descriptive research design was used	Increased trade facilitation, achieved through the appropriate use of information technology, should result in enhanced economic growth for countries and increased competitiveness for their businesses by lowering superfluous bureaucratic restrictions.	The study gave an analysis of trade facilitation but did not show the correlation between trade facilitation and the growth of Cross-Border Trade
	Perez, Alberto & Wilson, (2018).	Why Trade facilitation matters to Africa	Descriptive research design was used. Disproportionate stratified sampling technique was used	According to the report, African countries' trade expenses are on average higher than those of other emerging countries. The authors derive ad-valorem equivalents of advances in trade indicators for a sample of African nations using gravity-model estimations.	The study failed to look at other custom operations factors that may influence Cross-Border Trade
Border Coordination and Management	Giovannucci, (2018)	National Trade Promotion Organizations: their Role and Functions	Desk study methodology	Measures to reduce direct and indirect trade transaction costs due to mandatory import- and export-related procedures, as well as mechanisms to simplify trade-related regulations and requirements for selected low-value transactions and policies to help improve compliance levels with existing Cross-Border Trade regulations, were identified.	The research does not suggest, however, that trade facilitation reform will be sufficient to reduce informal cross-border trading or that governments will be able to eradicate it entirely in the region.

	Goorman, (2005)	The international handbook of public finance management	The study team reviewed and summarized available literature	A country can desire security while also facilitating the free movement of people and goods. Changes in the threat posture can also modify a country's priorities over time, and priorities can be altered to adapt to changes in perceived threats.	The handbook brings out the concept of cross Border Coordination and Management but fails to show the relationship between Border Coordination and Management and the growth of Cross-Border Trade
	Hertley and Keeney (2016)	The future of Border Coordination and Management: maintaining peace and security	The study reviewed and summarized available literature	Small adjustments in operations can have a major impact on citizens' daily life, according to the study. Even when borders have been militarized and community relations do not allow for regular engagement, commerce can flow to the benefit of both communities and nations.	The study failed to look at the effect of Border Coordination and Management to the growth of Cross-Border Trade.
Risk Management	Durst, Susanne & Etges, Ana Paula & Siqueira de Souza, Joana. (2015).	Knowledge risk management: A promising theme	Descriptive research design was used. Disproportionate stratified sampling technique was used	The study established that A risk-based management technique ensures that all points of entry limit exposure to such risks while determining which means of transport, goods, and persons should be examined and the level of examination	The study brought out the concepts of risk management in customs but failed to show the influence of risk administration on the growth of Cross-Border Trade
	De Wulf, (2004)	Customs modernization initiatives	Desk study methodology	The study established that Customs can effectively manage daily activities and enhance their performance through the identification, analysis, evaluation, and treatment of risks	The research failed to look at the impact of risk management in the customs operations and its effect on the growth of Cross-Border Trade.
	Toksoz & Duran, (2013)	Improving Customs Risk Management Systems in OIC Member States to Facilitate Trade	The study reviewed and summarized available literature	The study found that Turkey's automated risk analysis system divides transactions into high, medium, and low-risk categories, taking into account a trader's compliance history, such as their Authorized Economic Operator (AEO) status.	The study focused on the risk analysis system but failed to look at the effect of risk management in the customs operations and its effect on the growth of Cross-Border Trade.

2.7 Conceptual Framework

The conceptual framework is a set of general ideas and principles taken from the respective research area and used to compose the next presentation (Wong & Wai-Yee, 2015). This indicates the intended connection between the study variables. In this study, the independent variables include trade facilitation, border coordination and management, and risk management. The dependent variable is the growth of cross-border trade. Figure 2.1 shows the conceptual framework.

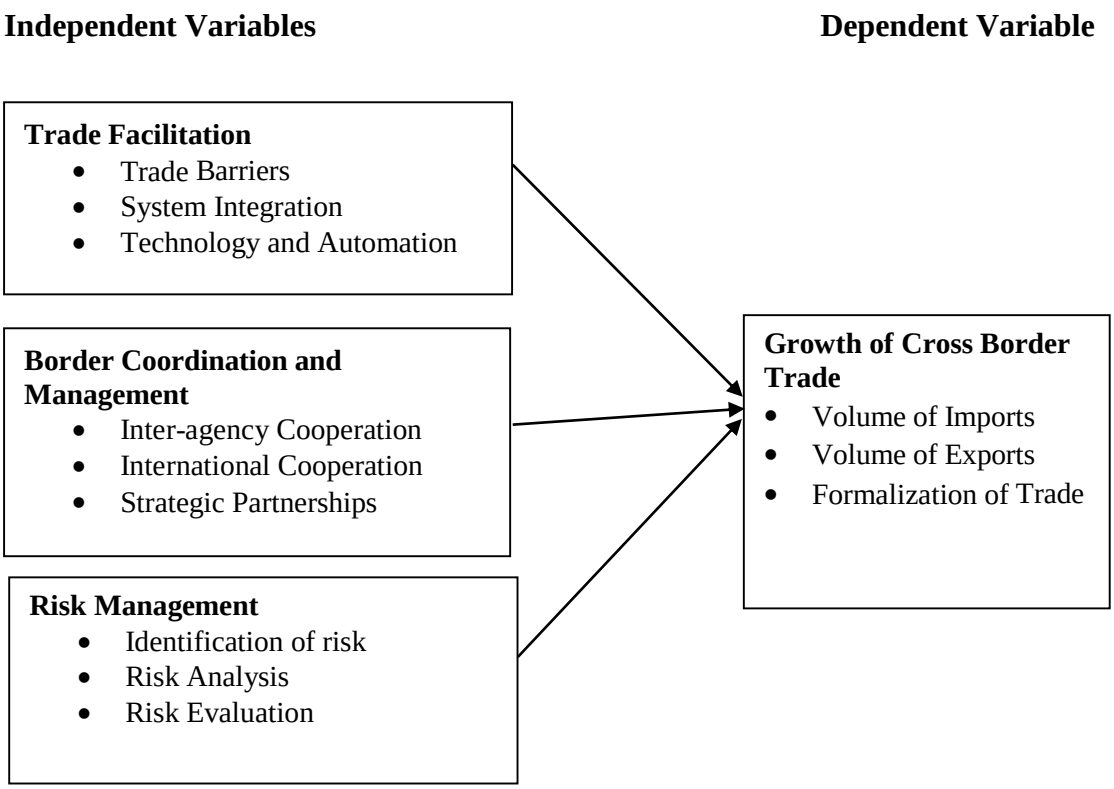

Figure 2.1: Conceptual Framework

Source; (Author, 2021)

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter contains research design, research population, sample design, data collection, and ethical considerations. It also describes the methods and approaches that guided the research. The nature and sources of data used in the study are described. The data collection methods and how the reliability and validity of the same data are ensured are described in detail here. This chapter also introduces the operationalization of variables and data analysis methods.

3.1 Research Design

According to Churchill and Jacobuchi (2009), research design is a strategy for gathering relevant and reliable data. According to Bryman (2008), a solid study design must be able to determine the correct approach that will be used by the researcher to collect accurate data. In addition, there are three main project groupings from which researchers might choose: case studies, research, and experiments, according to Bryman. This research study uses an explanatory study design to explain the causal relationship between customs operations and growth of cross-border trade. Explanatory research is a type of research design that focuses on explaining the relationship between variables (Rahi, 2017). Researchers start with a general idea and use research as a tool that can lead to topics to be worked on in the future. Therefore, an explanatory study design is preferred in this study as it takes into account the effect of trade facilitation, border coordination management and risk management for the growth of cross-border trade.

3.2 Target Population

The target group is the entire group of people who are the subject of research in the research area (Mugenda & Mugenda, 1999). The target group of this research is 4,117 customs officers who work in four KRA departments (KRA, 2020). The four departments included trade facilitation, border coordination management, risk management and statistics, which formed the study unit of analysis. Further, customs officials under management level, supervisory level and technical level constituted the study unit of observation. The choice of customs officers as the study respondents was because they were actively involved in customs operations. As such, they were believed to have adequate information relating to the effect of customs operations on growth of cross border trader. The breakdown of the target population is shown in table 3.1.

Table 3.1: Target Population

Level	Total
Management Level	417
Supervisory Level	1334
Technical Level	1556
Total	**4117**

Source; (KRA, 2020)

3.3 Sampling Frame and Sampling Technique

The sampling frame is a set of data used to categorize a population for statistical analysis (Mugenda & Mugenda, 2008). The study's sample frame includes all 4117 personnel in the trade facilitation, border coordination and management, statistics, and KRA risk management departments. Sampling technique refers to the part of the research plan that shows how cases should be selected for analysis. A sampling methodology is a means of picking items from a population that represent a population (Collins & Hussey, 2006). In this study, stratified random sampling and proportional sampling were utilized. A sample was taken from all 4117 officials in the KRA

departments that were chosen. Yamane (1967) formula was adopted in computation of the sample size.

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

Where:

'n' = sample size,

'N' = population

'e' = the confidence level

1 = constant.

This study assumed the level of precision of 5%

The sample size is:

$$n = \frac{4117}{1 + 4117(0.05)^2} = 364$$

Therefore, the survey focused on 364 KRA employees, calculated from the available population of 4,117 respondents. This is a rather big sample size, which boosts the sample's representativeness, potentially improving the survey's accuracy and validity (Kothari, 2004). A stratified sample was used in this study because all the different KRA departments were examined. The stratified sample allows the researcher to achieve greater representation in the population sample. This is achieved by randomly selecting individuals from a subgroup (stratified random sample) in relation to the actual group size in the general population (Van Dalen, 1979). Table 3.2 shows the sample size distribution.

Table 3.2: Sample Size Distribution

Level	Target population	Sample size
Management Level	417	37
Supervisory Level	1334	118
Technical Level	1556	138
Total	**4117**	**364**

Source; (Author, 2021)

3.4 Data Collection Instrument

The collection of reliable and systematic data relating to certain study objectives and themes is known as data collection (Burns & Grove, 1999). A structured questionnaire was used to obtain primary data for this investigation. The questionnaire is employed because it can reach a large number of people in a short amount of time, gives respondents enough time to answer questions, gives respondents a sense of security (confidentiality), and is an objective method since it is objective. There is discrimination based on personal attributes, which is not the reality. The questionnaire has closed questions, which allows easier analysis because it is in a ready-to-use form. A Likert scale questionnaire with a five-point scale was used. The choice of scale ranged from strongly agree to strongly disagree to allow for a holistic view of the respondents - where: 1 = strongly disagree, 2 = strongly disagree, 3 = neutral, 4 = strongly agree and 5 = I strongly agree.

3.5 Data Collection Procedures

The researcher obtained an authorization letter from KESRA and NACOSTI. Once the permission was granted, the researcher wrote a letter to KRA requesting permission to use the employees as respondents in this study. The researcher then visited the selected target audience where rapport was established and the intention of the study explained. Upon being granted permission by all the stakeholders, the sample questionnaire was

hand delivered to the respondents in their respective areas. Each questionnaire was accompanied by a cover letter that explained the study's goal to the potential responder.

3.6 Pilot Test

Researcher conducted trials of research tools to ensure their reliability and validity. The actual study did not include the pilot sample. The pilot study permits the research instrument to be tested for the first time. The surveys were double-checked to make sure they contained the desired outcomes. After this, the instrument is put to the test. The pilot study's feedback was used to fine-tune the questionnaire to the desired standard. Clarification of the tool's elements for responders is done to improve the tool's validity and reliability. The pilot study allows the researcher to become familiar with the study and the procedures for conducting it, as well as to identify items that need to be changed. Pilot studies help researchers correct the differences made by instruments, ensuring that they measure as intended. According to Bryman and Bell (2011), pre-testing questions with appropriate respondents can help assess whether the questionnaire poses challenges in terms of data collection. This section provides information on pre-testing to ensure the reliability and validity of the test equipment. Cooper and Schindler (2003) state that the pilot group can vary between 25 and 100 subjects and should not be selected statistically. Researchers selected a pilot group of 30 people from the quality assurance department who were not part of the sample to test the reliability of the research tool.

3.6.1 Validity of Research Instrument

Validity is the degree to which a sample of test items accurately represents the content that the test is designed to assess (Sekaran, 2013). Face, content, and structural validity standards were applied to the questionnaire. To ensure that the instrument was genuine, the researcher sought the advice of specialists in the field, particularly the research

director. Face validation was accomplished by having supervisors judge the test's validity at their discretion. Factor analysis was used to assess design validity. Factor analysis is used to summarize data to make it easier to manage without losing important information, thus facilitating hypothesis testing (Field, 2009). Kaiser (1974) stated that a load factor value greater than 0.4 should be accepted and a value below 0.4 should lead to additional data correction to help researchers determine the value.

3.6.2 Reliability of Research Instrument

Reliability refers to the consistency, stability or reliability of data; a reliable measurement is one that leads to the same results when repeated a second time as the first time (Kimberlin & Winterstein, 2008). For each object of interest, the researcher was given more than one source of information to check for consistency. The Statistical Science Package (SPSS) was used to test the reliability of research tools with Cronbach's Alpha. Cronbach's alpha is the basic formula for determining reliability based on internal sequences (Tavakol & Dennick, 2011). Cronbach's alpha measures internal ordering or how closely a set of elements is related as a group. This is often used in some of the Likert questions on the questionnaire used to determine the reliability of the scale. The following standard alpha Cronbach formula is used.

$$\alpha = \frac{N.\bar{c}}{\bar{v}+(N-1).\bar{c}}$$

Where N is equal to the number of items,

c-bar is the average inter-item covariance among the items and

v-bar equals the average variance. In this study, elements with Cronbach's alpha greater than 0.7 were considered reliable. The reliability results are shown in Table 3.4.

Table 3.3: Reliability Test

Variable	No of Items	α > 0.7	Decision
Trade facilitation	12	0.747	Reliable
Border coordination and management	7	0.786	Reliable
Risk management	5	0.780	Reliable
Growth of cross-border trade	5	0.826	Reliable

Source: Research Data (2021)

Table 3.3 indicates that all the variables had Cronbach alpha values >0.7, suggesting that the study data was reliable. This implied that the items in the questionnaire were dependable.

3.7 Data Analysis and Presentation

Data analysis involves finding the underlying structure, extracting important variables, identifying anomalies, and testing all basic assumptions. The collected data were analyzed using descriptive statistics and inference with the help of SPSS version 25. Frequency, percentage, mean, and standard deviation were among the descriptive statistics. This aids in demonstrating the qualities of the variables under investigation. The relationship between the study variables was determined using statistics such as Pearson correlation and regression analysis. The results are presented using diagrams, graphs and tables.

The regression equation was of the form:

$$Y = \beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3 + \varepsilon$$

Y= Growth in Cross-Border Trade

α = represent the model Constant (intercept)

$\beta_1 \ldots \beta_3$ = regression coefficient which measures unit changes included in Y for each unit change in X variables

X_1 = Trade Facilitation

X_2 = Border Coordination and Management

X_3 = Risk Management

ε = Error Term

3.8 Regression Assumptions

The study performed regression assumptions, which included test of normality, multicollinearity, homoscedasticity, linearity and autocorrelation.

3.8.1 Normality Test

The Shapiro-Wilk test is used to determine normalcy, and it can discover irregularities caused by bias, excess, or both. The statistics range from 0 to 1, with a value of greater than 0.05 indicating that the data is normal (Razali & Wah, 2011). When the sample size is smaller than 2000, the Shapiro-Wilk test is the most suited. The null hypothesis is not rejected and the alternative hypothesis is not accepted if the p-value is greater than the alpha value of 0.5. The data is then normal.

3.8.2 Multicollinearity Test

The coefficient of variance of inflation (VIF) and its reciprocity, tolerance, were used to test multicollinearity. In multiple regression analysis, this is a situation in which the predictor variables are highly linked, making it difficult to establish the real contribution of each predictor to the variance of the dependent variable. This study analyses a good correlation matrix using the inflation variance coefficient to identify multicollinearity (VIF). In a simple regression study using the least squares method, the rate of variance inflation (VIF) assesses the severity of multicollinearity. Multicollinearity is indicated by a VIF more than 10; the higher the VIF value, the more significant the problem.

3.8.3 Homoscedasticity Test

There is heteroscedasticity in the data if the error variance is not constant. The parameter estimation will be skewed if the regression model is used without taking heteroscedasticity into account. The Leven's change reasonableness test is used to determine whether fluctuations are homogeneous (Parra-Frutos, 2013). The null hypothesis argues that the error term's variance remains constant. When the probability value is greater than 0.05, the null hypothesis is assumed, implying that the error term has a constant variance.

3.8.4 Linearity Test

A scatter plot is used to indicate whether there is a linear relationship between two continuous variables, and it is used to assess linearity. Before using the regression model, the relationship between variables should be fairly linear (Jain et al., 2017).

3.8.5 Data Transformation

Data transformation is defined as applying mathematical modifications to the values of a variable, including adding constants for multiplication, squares or enlargement, conversion to a logarithmic scale, inversion and reflection, taking values from square roots and even applying trigonometric transformations (azimi, Ghayekhloo, Ghofrani & Sajedi, 2017). This is done to ensure that the data meet the regression assumptions. In this study, the Likert scale data for each variable was converted to continuous data by computing composite means.

3.9 Hypothesis testing

Table 3.4 shows a summary of the proposed hypotheses. The study utilized regression analysis to determine the effect of customs operations on the growth of Cross-Border Trade in Kenya.

Table 3.4: Hypothesis Testing

Hypothesis	When To Reject or Not Reject (Decision)
There is no significant relationship between trade facilitation on the growth of Cross-Border Trade	Reject when the significance value in the regression coefficients <0.05.
There is no significant relationship between Border Coordination and Management on the growth of Cross-Border Trade	Reject when the significance value in the regression coefficients <0.05.
There is no significant relationship between risk management and the growth of Cross-Border Trade	Reject when the significance value in the regression coefficients <0.05.

3.10 Operationalization of Variables

The predicted construct in this research is growth of cross border trade, which was measured using volume of imports, volume of exports and formalization of trade. Similar measures were used by Bhattacharya and Hossain, (2016) and McIntyre, (2015). The independent variables included trade facilitation, border coordination and management and risk management. Trade facilitation was using trade barriers, system integration, complexity of customs clearance procedure and technology and automation as previously used by Harzing (2019) and Wilson (2017). Border coordination and management was measured using inter-agency cooperation, international cooperation, strategic partnerships, and technology and automation. Giovannucci (2018) and Kinana (2018) also used similar studies. Risk management was measured using identification of risk, risk analysis, risk evaluation, risk prioritization and risk treatment as previously used by Mate-Kodjo (2012) and Davaa (2015). Table 3.5 shows a summary of operationalization of variables.

Table 3.5: Operationalization of Variables

Variable	Type	Indicators	Source	Scale of Measurement	Data Analysis Technique
Growth of Cross Border Trade	Dependent	• Volume of Imports • Volume of Exports • Formalization of Trade	Bhattacharya and Hossain, (2016) McIntyre, 2015	5-point Likert scale	Descriptive and inferential analysis
Trade facilitation	Independent	• Trade Barriers • System Integration • Complexity of Customs Clearance Procedure • Technology and Automation	Harzing (2019) Wilson (2017),	5-point Likert scale	Descriptive and inferential analysis
Border Coordination and Management .	Independent	• Inter-agency Cooperation • International Cooperation • Strategic Partnerships • Technology and Automation	Giovannucci, 2018 Kinana (2018)	5-point Likert scale	Descriptive and inferential analysis
Risk Management	Independent	• Identification of risk • Risk Analysis • Risk Evaluation • Risk Prioritization • Risk Treatment	Mate-Kodjo, 2012 Davaa, 2015	5-point Likert scale	Descriptive and inferential analysis

3.11 Ethical Considerations

The following ethical issues were taken into account in this investigation. Plagiarism is a practice in which an author or researcher must ensure that each written work is original and free of texts, results, or even expressions that have been borrowed, manipulated, or used as ideas, processes, results, or even words from publications

without indicating where the information came from (Mugenda, 2003; Kour, 2014). The researcher made certain to recognize all confessions and place them in their proper context. Falsification or fraud is the manipulation of materials, devices, or processes by changing the results or eliminating certain data or results so that research does not appear. Fiction includes the creation, creation, or falsification of data or results that are then recorded or reported, whereas falsification or fraud is the manipulation of materials, devices, or processes by changing the results or eliminating certain data or results so that research does not appear. well-delivered or recorded (Mugenda, 2003; Kour, 2014). The researcher guarantees that he or she will not interfere in such practices as they violate the basic objectives of research ethics, make them unreliable, and may mislead other scientists while undermining their own scientific authority.

It is the researcher's responsibility to create a project that does not infringe on the respondent's or respondents' rights or safety. This is critical for their rights to be protected, promoted, and defended (Blumberg et al., 2005). During the trial, the hazards connected with the study were addressed to the participants. Anonymity refers to maintaining confidentiality by not identifying the respondents' racial or cultural background, not revealing their names, or releasing any other sensitive information about them (Mugenda, 2003). During the course of the study, the researcher is required to maintain the confidentiality of the information provided by the respondents and, in the event that such information is to be disclosed, the respondent's consent is obtained. The word "charity" literally means "doing good" (Churchill, 1995). In direct contact with participants, a researcher's job is to explain the research's purpose and the benefits that will be gained. The researcher did neither overstate or underestimate the benefits in this example. The notion of philanthropy in research, developed by Beauchamp and Childress (2001); Mugenda, (2003) connected with Hippocrates' "Be helpful, do no

harm," will lead researchers to examine the utility of this research. The basic goal of ethical research is to serve and promote the common good while avoiding prejudice and dishonesty.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter provides the study findings and discussion. The chapter starts by providing results on response rate and factor analysis. Descriptive analysis results are then provided followed by regression assumptions, correlation and regression results. The study findings are also compared with past literature in chapter two.

4.2 Responses Rate

The researcher administered 354 questionnaires to customs officers working at KRA. Out of 354 questionnaires administered, 252 were successfully filled and returned representing 71.2% response rate. The remaining questionnaires were either unreturned or incorrectly filled. According to Saunders et al. (2009), a return rate above 50% is considered enough for statistical analysis. A return rate of 71.2% was thus considered a good representation of the views of the target population.

4.3 Factor Analysis

The study adopted KMO and Barlett's test in testing for construct validity of the data instrument. Table 4.1 displays the outcome.

Table 4.1: Factorial test results for Validity

	KMO	Bartlett's Test of Sphericity			Conclusion	Validity
Variable		Approx. Chi-Square	df	Sig.		
Trade facilitation	0.568	88.717	66	.033	Acceptable	Valid
Border coordination and management	0.515	32.989	21	.046	Acceptable	Valid
Risk management	0.589	16.017	10	.009	Acceptable	Valid
Growth of cross-border trade	0.515	6.620	10	.011	Acceptable	Valid

Source: Research Data (2021)

Table 4.1 indicated that KMO sample adequacy for the variables ranged from 0.515 to 0.589. This was within the threshold hence the factors under these variables were considered to be constructively valid and hence were retained for further analysis. Table 4.2 summarizes the factor loadings of all the items measuring the variables. According to Kaiser (1974), factor loading values larger than 0.4 should be accepted, whereas values less than 0.4 should be rejected.

Table 4.2: Factor loadings of the study variables

Variable	Items	Factor loadings
Trade Facilitation	Trade barriers hinder trade facilitation	0.723
	The trade barriers aid in protecting domestic employment	0.496
	Integration of systems enhances Cross-Border Trade at the border points	0.529
	Complex customs clearance procedures are a hindrance to Cross-Border Trade	0.433
	Automation of activities at the border points is a catalyst to Cross-Border Trade	0.591
	Quick and easy facilitation of imports and exports is critical to enhancing Cross-Border Trade	0.459
	Trade facilitation is a key factor for growth of Cross-Border Trade in Kenya	0.785
	Risk Management results to into an increase in Cross-Border Trade	0.602
	Trade facilitation attracts direct foreign investments.	0.528
	Kenya has made significant progress in enhancing Border Coordination and Management operation	0.687
	It is important to implement and enhance administrative efficiency at the border as move to increase Cross-Border Trade	0.631
	Risk management at the Border has led to a significant increase in Cross-Border Trade.	0.731
Border coordination and management	The cooperation of different agencies at the border points enhances Cross-Border Trade	0.855
	Policies to promoting international cooperation and multilateral mechanisms have improved trade at the border points	0.684
	An efficient and secured Border Coordination and Management is vital for conducting cross-border trade	0.743
	Strategic partnership is a key factor to improving trade at the border points	0.452
	Border Coordination and Management involves active involvement of border agencies	0.659
	Effective Border Coordination and Management promotes open and secure borders to allow the movement of people and goods.	0.57
	Efficient automation of border processes and procedures leads to unimpeded flow of people and goods	0.575
Risk management	Global integration requires that a global approach to customs risk management	0.609
	Identification of risks allows for mitigation of any potential risk before their occurrence	0.445
	Risk analysis enables identification of circumstances, which have the greatest potential of non-compliance.	0.48
	Risk evaluation enhances prioritization of high-risk threats at the border points thus improving Border Coordination and Management	0.612
	Practicing risk management ensures internal controls of a firm are adequate and enhance Cross-Border Trade	0.479
Growth of cross-border trade	Cross-Border Trade is increasing significantly with the expanding global economic integration	0.637
	The volume of imports and exports has increased overtime	0.419
	International business provides a wide variety of chances related to the domestic markets	0.483
	Cross-Border Trade provides a way through which products and services are more available to various customers.	0.448
	Customs operations greatly influence the growth of Cross-Border Trade	0.508

Source: Research Data (2021)

The findings in Table 4.2, all of the items measuring trade facilitation, border coordination and management, risk management, and growth of cross-border trade had values greater than 0.4. This meant that the items were important in explaining each of the variables. Therefore, they were adopted in the subsequent analysis.

4.4 Descriptive Analysis

According to Creswell (2013), descriptive analysis is necessary in a study because it allows the researcher to see the results as they are; this allows the researcher to completely comprehend the phenomena that the study is built on. Percentage, mean, and standard deviation are the key descriptive statistics employed in this study. 5=Strongly Agree, 4=Agree, 3=Neutral, 2=Disagree, and 1=Strongly Disagree were the scales utilized.

4.4.1 Trade Facilitation

The research sought to determine the effect of Trade Facilitation on the growth of Cross-Border Trade. Results are shown in Table 4.3.

Table 4.3: Descriptive statistics of trade facilitation

	1	2	3	4	5	M	S.D
Trade barriers hinder trade facilitation	1.2%	4.0%	4.4%	45.2%	45.2%	4.29	0.82
The trade barriers aid in protecting domestic employment	2.0%	3.2%	2.8%	41.3%	50.8%	4.36	0.85
Integration of systems enhances Cross-Border Trade at the border points	5.2%	5.2%	4.4%	39.7%	45.6%	4.15	1.07
Complex customs clearance procedures are a hindrance to Cross-Border Trade	4.4%	7.5%	4.4%	43.7%	40.1%	4.08	1.07
Automation of activities at the border points is a catalyst to Cross-Border Trade	3.2%	5.6%	2.8%	45.2%	43.3%	4.20	0.97
Quick and easy facilitation of imports and exports is critical to enhancing Cross-Border Trade	5.2%	7.9%	4.0%	39.3%	43.7%	4.08	1.12
Trade facilitation is a key factor for growth of Cross-Border Trade in Kenya	6.3%	10.7%	3.6%	34.5%	44.8%	4.01	1.22
Risk Management results to into an increase in Cross-Border Trade	2.0%	5.2%	1.6%	46.0%	45.2%	4.27	0.88
Trade facilitation attracts direct foreign investments.	5.6%	12.7%	4.0%	34.9%	42.9%	3.97	1.22
Kenya has made significant progress in enhancing Border Coordination and Management operation	4.0%	3.2%	2.4%	48.4%	42.1%	4.21	0.94
It is important to implement and enhance administrative efficiency at the border as move to increase Cross-Border Trade	6.0%	6.0%	6.3%	40.5%	41.3%	4.05	1.12
Risk management at the Border has led to a significant increase in Cross-Border Trade.	5.2%	7.5%	4.0%	41.3%	42.1%	4.08	1.11
Overall mean						**4.15**	**1.03**

Source: Research Data (2021)

The results in Table 4.3 show that the majority of respondents agree that trade barriers hinder trade facilitation, which corresponds to a mean of 4.29 and a standard deviation of 0.82. They also agree that trade barriers help protect domestic work, as showed by the mean of 4.36 and standard deviation of 0.85. Regarding the statement that the automation of cross-border activities is a catalyst for cross-border trade, respondents agree, which is indicated by an average of 4.20 and a standard deviation of 0.97. In addition, respondents agree that risk management leads to increased cross-border trading, as evidenced by the mean of 4.27 and standard deviation of 0.88. Most of the

respondents agreed with the statement that Kenya has made significant progress in improving border coordination and management, as indicated by the mean of 4.21 and standard deviation of 0.94.

Responses to various aspects of trade facilitation are supported by an overall average of 4.15 and a standard deviation of 1.03. It should therefore be noted that the respondents agreed with the aspects identified to measure trade facilitation. Low volatility is a good indication that respondents agree with most aspects of trade facilitation.

4.4.2 Border coordination and management

The study sought to demonstrate the effect of Border Coordination and Management on the growth of Cross-Border Trade. Table 4.4 shows the outcome.

Table 4.4: Descriptive statistics of border coordination and management

	1	2	3	4	5	M	S. D
The cooperation of different agencies at the border points enhances Cross-Border Trade	3.2%	6.0%	3.2%	35.7%	52.0%	4.27	1.00
Policies to promoting international cooperation and multilateral mechanisms have improved trade at the border points	2.8%	7.1%	3.2%	40.5%	46.4%	4.21	1.00
An efficient and secured Border Coordination and Management is vital for conducting cross-border trade	2.8%	4.4%	2.8%	44.4%	45.6%	4.26	0.92
Strategic partnership is a key factor to improving trade at the border points	6.7%	8.3%	4.4%	40.5%	40.1%	3.99	1.18
Border Coordination and Management involves active involvement of border agencies	4.0%	6.0%	2.4%	42.5%	45.2%	4.19	1.02
Effective Border Coordination and Management promotes open and secure borders to allow the movement of people and goods.	3.6%	6.3%	7.1%	39.7%	43.3%	4.13	1.03
Efficient automation of border processes and procedures leads to unimpeded flow of people and goods	1.6%	6.7%	2.4%	40.1%	49.2%	4.29	0.92
Overall mean						**4.19**	**1.01**

Source: Research Data (2021)

The findings tabulated in Table 4.4 revealed that majority of the respondents agreed with the aspect that the cooperation of different agencies at the border points enhances Cross-Border Trade (mean=4.27, S.D.=1). The respondents also agreed that policies to promoting international cooperation and multilateral mechanisms have improved trade at the border points (mean=4.22, S.D.=1). Further, the respondents agreed with the following aspects: An efficient and secured Border Coordination and Management is vital for conducting cross-border trade (mean=4.26, S.D.=0.92), strategic partnership is a key factor to improving trade at the border points (mean=3.99, S.D.=1.18), Border Coordination and Management involves active involvement of border agencies (mean=4.19, S.D.=1.02), effective Border Coordination and Management promotes open and secure borders to allow the movement of people and goods (mean=4.13, S.D. =1.03), and efficient automation of border processes and procedures leads to unimpeded flow of people and goods (mean=4.29, S.D.=0.92).

The answers to various aspects of border coordination and management are supported by an overall average of 4.19 and a standard deviation of 1.01. It should therefore be noted that the respondents agreed with the aspects identified for measuring border coordination and management. The low variability is a good indication that respondents agree with most aspects of border coordination and management.

4.4.3 Risk management

The research sought to demonstrate the effect of risk management on the growth of Cross-Border Trade. Results are shown in Table 4.5.

Table 4.5: Descriptive statistics of risk management

	1	2	3	4	5	M	S. D
Global integration requires that a global approach to customs risk management	2.0%	11.5%	8.3%	39.3%	38.9%	4.02	1.06
Identification of risks allows for mitigation of any potential risk before their occurrence	3.2%	7.1%	4.0%	43.7%	42.1%	4.14	1.01
Risk analysis enables identification of circumstances, which have the greatest potential of non-compliance.	2.8%	8.7%	4.4%	46.4%	37.7%	4.08	1.01
Risk evaluation enhances prioritization of high-risk threats at the border points thus improving Border Coordination and Management	5.2%	9.9%	1.6%	35.3%	48.0%	4.11	1.16
Practicing risk management ensures internal controls of a firm are adequate and enhance Cross-Border Trade	6.0%	13.1%	4.0%	38.9%	38.1%	3.90	1.22
Overall mean						4.11	1.05

Source: Research Data (2021)

The findings in Table 4.5 showed that most of the participants agreed with the aspect that global integration requires that a global approach to customs risk management (mean=4.02, S.D.=1.06). The respondents also agreed with the aspect that identification of risks allows for mitigation of any potential risk before their occurrence (mean=4.14, S.D.=1.01). On the statement that risk analysis enables identification of circumstances, which have the greatest potential of non-compliance, most of the respondents agreed (mean=4.08, S.D.=1.01). The respondents further agreed with the aspect that risk evaluation enhances prioritization of high-risk threats at the border points thus improving Border Coordination and Management (mean=4.11, S.D.=1.16). Finally, on the statement practicing risk management ensures internal controls of a firm are adequate and enhance Cross-Border Trade, most of the respondents were in agreement (mean=3.90 S.D.=1.22).

The answers to various aspects of risk management are supported by an overall average of 4.11 and a standard deviation of 1.05. It should therefore be noted that the

respondents agreed with the aspects identified to measure risk management. Low variability is a good indication that respondents agree with most aspects of risk management.

4.4.4 Growth of cross-border trade

The study sought to find out the growth of cross-border trade. The findings are shown in Table 4.6.

Table 4.6: Descriptive statistics of growth of cross-border trade

	1	2	3	4	5	M	S. D
Cross-Border Trade is increasing significantly with the expanding global economic integration	4.4%	5.2%	2.8%	44.8%	42.9%	4.17	1.02
The volume of imports and exports has increased overtime	4.0%	6.3%	4.8%	38.9%	46.0%	4.17	1.05
International business provides a wide variety of chances related to the domestic markets	3.6%	5.2%	3.6%	44.4%	43.3%	4.19	0.98
Cross-Border Trade provides a way through which products and services are more available to various customers.	6.3%	9.9%	3.2%	32.1%	48.4%	4.06	1.22
Customs operations greatly influence the growth of Cross-Border Trade	1.6%	4.0%	2.4%	45.2%	46.8%	4.32	0.83
Overall mean						**4.13**	**1.07**

Source: Research Data (2021)

The findings in Table 4.6 demonstrated that majority of the respondents agreed with the aspect that cross-Border Trade is increasing significantly with the expanding global economic integration (mean=4.17, S.D.=1.02). They also agreed that the volume of imports and exports has increased overtime (mean=4.17, S.D.=1.05). Most of the respondents agreed with the statement that international business offers a variety of opportunities in relation to the domestic market (mean = 4.19, S.D. = 0.98). In addition, respondents agree that cross-border trade offers opportunities to make products and services more accessible to different customers (mean = 4.06, SD = 1.22). Finally, respondents agreed that customs operations had a major impact on the growth of cross-border trade (mean = 4.32, SD = 0.83).

Responses to various aspects of cross-border trade growth are supported by an overall average of 4.13 and a standard deviation of 1.07. It should therefore be noted that the respondents agreed with the aspects identified to measure the growth of cross-border trade. Low volatility is a good indication that respondents agree with most aspects of the growth of cross-border trade.

4.5 Regression Assumptions

This section provides results regarding the regression assumptions. Regression diagnostics is used to evaluate model assumptions and to test whether there are observations with an unacceptable large effect on the analysis (Pesaran, 2021). The purpose of the test is to ensure that the data set is not skewed, which would lead to incorrect estimates. The tests include multicollinearity test, normality test, homoscedasticity test, and autocorrelation test.

4.5.1 Normality test

To test the normality of the data, Shapiro-Wilk test was conducted. Results are illustrated in Table 4.7.

Table 4.7: Normality test using Shapiro Wilk

Variables	Statistic	df	Sig.
Growth	.932	252	.104
Trade facilitation	.939	252	.092
Border coordination	.940	252	.057
Risk management	.963	252	.066

Source: Research Data (2021)

The results in Table 4.7 show that the significance value for all variables is greater than 0.05. This leads to the assumption of a null normal distribution hypothesis, which assumes that the data representing each variable is normally distributed.

4.5.2 Multicollinearity Test

The findings are shown in Table 4.8.

Table 4.8: Collinearity test using VIF

	Tolerance	VIF
Trade facilitation	0.484	2.067
Border coordination and management	0.42	2.379
Risk management	0.426	2.348

Source: Research Data (2021)

The findings in Table 4.8 indicate VIF values < 10 suggesting that there was no multicollinearity among the explanatory constructs.

4.5.3 Homoscedasticity Test

In testing for homoscedasticity test, the study used Levene's test. Results are indicated in Table 4.9.

Table 4.9: Homoscedasticity using Levene's test

Dependent Variable: VAT Revenue			
F	df1	df2	Sig.
2.798	95	156	.071

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a Design: Intercept + trade facilitation, border coordination, risk management

Source: Research Data (2021)

Table 4.9 shows that the probability value (Sig) of 0.071 is greater than the critical value of 0.05. This leads to the null hypothesis assumption that the variance in the error of the dependent variable is the same between the groups. Therefore, the data are homoscedastic.

4.5.4 Linearity test

Scatterplots, which are used to indicate if two continuous variables have a linear relationship, were employed to assess linearity. The results are demonstrated below.

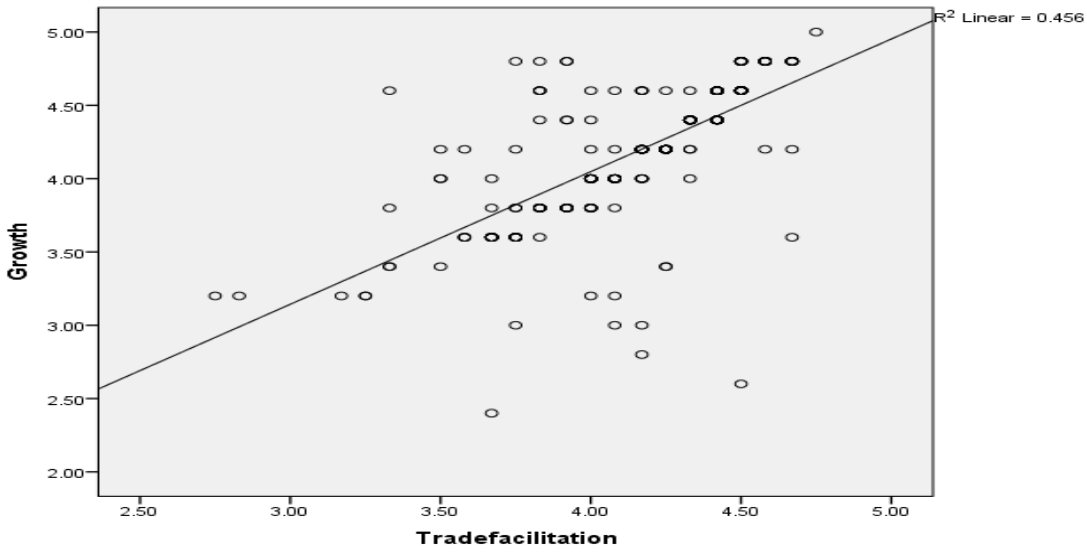

Figure 4.1: Linearity test between trade facilitation and growth of cross-border trade

Source: Research Data (2021)

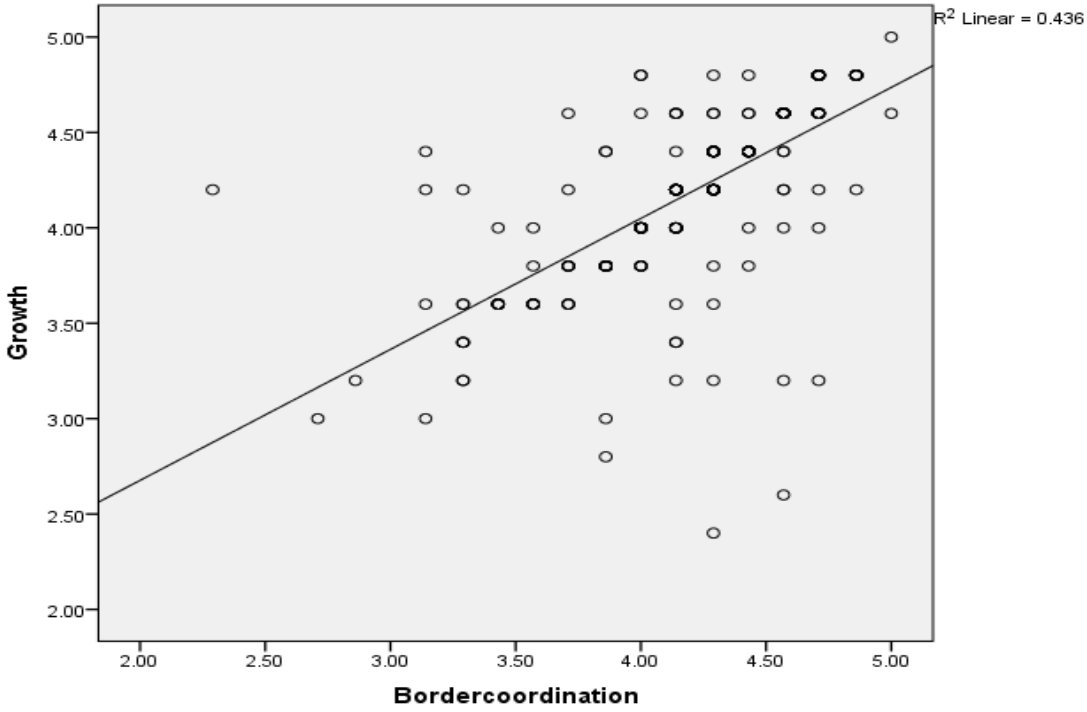

Figure 4.2: Linearity test between border coordination & management and growth of cross-border trade

Source: Research Data (2021)

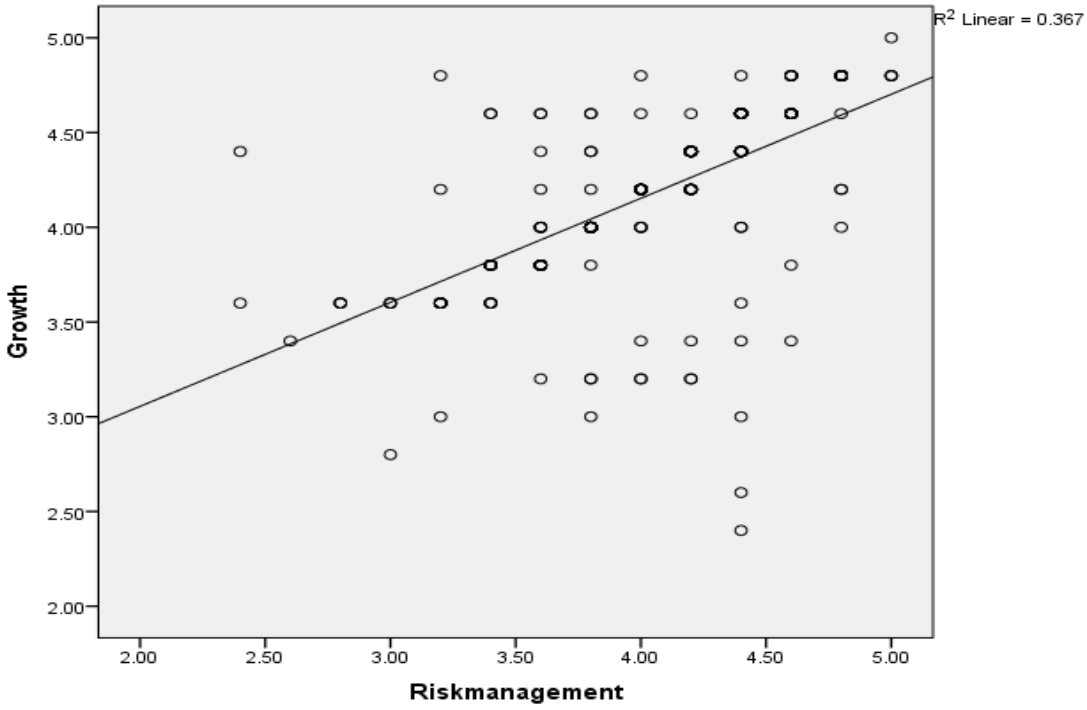

Figure 4.3: Linearity test between risk management and growth of cross-border trade

Source: Research Data (2021)

The scatter plots above show that the independent variables (trade facilitation, border coordination & management, and risk management) have a linear relationship with the dependent variable (growth of cross-border trade). The straight lines demonstrate the linear dependence between the variables.

4.6 Correlation Analysis

Correlation analysis was conducted to determine the degree of the connection between the study variables. The correlation results are shown in Table 4.10.

Table 4.10: Correlation between customs operations and growth of cross-border trade

	Growth	Trade facilitation	Border coordination	Risk management
Growth	1			
Trade facilitation	.675**	1		
Border coordination	.660**	.668**	1	
Risk management	.606**	.663**	.716**	1

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

Source: Research Data (2021)

The results in Table 4.10 show that trade facilitation and growth in cross-border trade have a correlation value of 0.675 and p value of 0.000<0.05. Therefore, there is a strong and significant positive correlation between trade facilitation and growth in cross-border trade.

For border coordination and management and cross-border trade growth, the correlation value is 0.66 and p value of 0.000<0.05. Therefore, there is a strong positive significant relationship between border coordination and management with the growth of cross-border trade.

Finally, risk management and growth in cross-border trade have a correlation value of 0.606 and p value of 0.000<0.05. Therefore, there is a strong and significant positive relationship between risk management and growth in cross-border trade.

4.7 Regression Analysis

Multiple regression analysis was used to conduct regression analysis, which included applying the least square regression approach and analyzing R2 values, F values, and coefficients. The independent variables (trade facilitation, border coordination & management, and risk management) were regressed on the dependent variable (growth

of cross-border trade). The results of the joint regression analysis are displayed in Tables 4.11, 4.12 and 4.13 respectively.

Table 4.11: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.736a	0.542	0.536	0.31195

a Predictors: (Constant), Risk management, Trade facilitation, Border coordination

Source: Research Data (2021)

The summary results of the model (Table 4.11) show that the R-squared and corrected R-squared values are 0.542 and 0.536, respectively. Therefore, the coefficient of multiple determination, which provides the explanatory power of the specified statistical model, is 0.542. This implied that jointly, the three components of customs operations (trade facilitation, border coordination & management, and risk management) explain 54.2% of growth of cross-border trade in Kenya.

Table 4.12: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	28.527	3	9.509	97.715	.000b
	Residual	24.134	248	0.097		
	Total	52.661	251			

a Dependent Variable: Growth

b Predictors: (Constant), Risk management, Trade facilitation, Border coordination

Source: Research Data (2021)

The results in Table 4.12 show that the statistical model defined is good for the observed data set with an F-statistical value of 97.715 at a p value of 0.000, which is below the 0.05 threshold, which closes at 95% Matched. Confidence level. The results showed that the proposed model was statistically significant (good fit) in predicting the dependent variable.

Table 4.13: Regression of Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	**Std. Error**	**Beta**	**t**	**Sig.**
1	(Constant)	0.229	0.244		0.94	0.348
	Trade facilitation	0.508	0.083	0.379	6.138	0.000
	Border coordination	0.326	0.069	0.313	4.725	0.000
	Risk management	0.118	0.06	0.13	1.977	0.049

a Dependent Variable: Growth

Source: Research Data (2021)

The results displayed in Table 4.13 provided the beta values for establishing the statistical model below.

Growth of cross-border trade =0.229+0.379 Trade facilitation+0.313 Border coordination & management+0.13 Risk management

The regression coefficient results indicate that trade facilitation has a positive and significant effect on the growth of cross-border trade. This is supported by a beta factor of 0.379 and a p-value of 0.000. The p value is below 0.05 with a 95% confidence interval. This means that a single increase in trade facilitation would result in a 0.379 increase in the growth of cross-border trade in Kenya.

The results also show that border coordination and management has a positive and significant effect on the growth of cross-border trade. This is supported by a beta of 0.313 and a p-value of 0.000. The p value is below 0.05 with a 95% confidence interval. This means that improved border coordination and management would lead to a 0.313 increase in the growth of cross-border trade in Kenya.

In addition, the findings of the study showed that risk management has a positive and significant effect on the growth of cross-border trade. This is supported by a beta factor of 0.13 and a p value of 0.049. The p value is below 0.05 with a 95% confidence

interval. This means that improved risk management will result in a 0.13 increase in cross-border trading in Kenya.

4.8 Test of Hypotheses

Hypothesis testing was based on regression of coefficients (Table 4.13) results. The criterion was to reject the null hypothesis if the p value was <.05. Otherwise, the null hypothesis would not be rejected.

The first null hypothesis (**H_{01}**) predicts that trade facilitation does not have a substantial effect on the growth of cross-border trade in Kenya. Based on p-value .000 <.05, the null hypothesis is rejected. This shows that trade facilitation has important effect on the growth of cross-border trade in Kenya.

The second null hypothesis (**H_{02}**) predicts that border coordination and management is not critical to the growth of cross-border trade in Kenya. Based on p-value .000 <.05, the null hypothesis is rejected. This shows that border coordination and management have an important effect on the growth of cross-border trade in Kenya.

The third null hypothesis (**H_{03}**) predicts that risk management is not an important part of the growth of cross-border trade in Kenya. Based on p-value 0.049 <0.05, the null hypothesis is rejected. This shows that risk management has an important effect on the growth of cross-border trade in Kenya.

4.9 Discussion of the Findings

4.9.1 Trade facilitation and growth of Cross-Border Trade

The first objective of the study was to determine the effect of trade facilitation on the growth of Cross-Border Trade in Kenya. From the descriptive analysis output, majority of the respondents agreed that trade barriers hinder trade facilitation, trade barriers aid in protecting domestic employment, and automation of activities at the border points is

a catalyst to Cross-Border Trade. This suggested that the respondents acknowledged the importance of trade facilitation in customs operations. The results of correlation analysis shows that trade facilitation and growth of cross-border trade have a strong positive and significant relationship ($r = 0.675$, $p = 0.000$). This indicates that the growth of cross-border trade is changing in the same direction as trade facilitation.

The output of regression analysis showed that trade facilitation had a positive and significant effect of growth of cross-border trade ($\beta = 0.379$, $p=0.000$). The implication is that increasing trade facilitation would significantly boost the growth of Cross-Border Trade in Kenya. The results of this study are in line with Wilson's (2017) demonstration that trade facilitation has the potential to cover a number of issues that are important for the smooth and efficient flow of trade. Similarly, the findings of this study agree with Harzing's (2019) claim that trade facilitation is recognized as an important factor in determining a country's export competitiveness.

4.9.2 Border coordination & management and growth of Cross-Border Trade

The second objective of this study is to identify the effect of border coordination and management on the growth of cross-border trade in Kenya. The descriptive analysis findings revealed that majority of the respondents agreed that the cooperation of different agencies at the border points enhances Cross-Border Trade, policies to promoting international cooperation and multilateral mechanisms have improved trade at the border points, efficient and secured Border Coordination and Management is vital for conducting cross-border trade, strategic partnership is a key factor to improving trade at the border points and efficient automation of border processes and procedures leads to unimpeded flow of people and goods. This suggested that the respondents acknowledged the importance of Border Coordination and Management in customs operations.

The correlation analysis results indicated that Border Coordination and Management and growth of cross-border trade had a strong positive and substantial connection ($r=0.66$, $p=0.000$). This implied that growth of cross-border trade changes in the same direction with border coordination and management. The output of regression analysis revealed that border coordination and management had a positive and significant effect of growth of cross-border trade ($\beta= 0.313$, $p=0.000$). The implication is that increasing Border Coordination and Management would significantly boost the growth of Cross-Border Trade in Kenya.

The findings of this study support Kinana (2018) assertion that, as a result of more in-depth and accurate data collection and analysis, successful border coordination and management leads to more suitable treatment of traders and passengers. Lesser and Leeman (2018) further point out that coordination and governance synchronize customs and other border coordination and management authorities' coordination and border management procedures.

4.9.3 Risk management and growth of Cross-Border Trade

The third objective of this study is to identify the effect of risk management on the growth of cross-border trade in Kenya. From descriptive analysis findings, most of the participants noted that global integration requires that a global approach to customs risk management, identification of risks allows for mitigation of any potential risk before their occurrence, risk analysis enables identification of circumstances, which have the greatest potential of non-compliance, and risk evaluation enhances prioritization of high-risk threats at the border points. This suggested that the respondents acknowledged the importance of risk management in customs operations.

The correlation analysis results indicated that risk management and growth of cross-border trade had a strong positive and substantial connection (r=0.606, p=0.000). This implied that growth of cross-border trade changes in the same direction with risk management. The output of regression analysis indicated that risk management had a positive and significant effect of growth of cross-border trade (β= 0.13, p=0.049). The implication is that increasing risk management would significantly boost the growth of Cross-Border Trade in Kenya.

The study findings are consistent with Davaa (2015) conclusion that the use of risk management has led to faster clearance and reducing the transaction cost in the process. Similarly, Drobot et al. (2017) observed that the implementation of effective risk management is beneficial for all stakeholders in avenues, such as lower transaction costs, improved human resource allocation, reduced release time, and increased revenues, better collaboration between customs and traders, and better compliance with regulations and laws. Furthermore, Knowledge and Product (2010) supported the use of risk management for enhanced trade.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the main findings, draws conclusions, offers recommendations based on the findings, and provides areas for additional investigation. This chapter summarizes the results of a study of the effect of customs operations on the growth of cross-border trade in Kenya.

5.2 Summary of Key Findings

5.2.1 Trade Facilitation

The regression study revealed that trade facilitation has a positive significant influence on cross-border trade growth in Kenya (= 0.379, p=0.000). Given that the p value was less than the conventional p value of 0.05, the null hypothesis that trade facilitation had no significant effect on the growth of Cross-Border Trade in Kenya was rejected.

5.2.2 Border coordination & management

The results of the regression analysis showed that there was a significant positive effect of border coordination and management on the growth of cross-border trade in Kenya ($\beta = 0.313$, $p = 0.000$). Since the p-value is smaller than the conventional p-value of 0.05, the null hypothesis that border coordination and management is not important for the growth of cross-border trade in Kenya is rejected.

5.2.3 Risk Management

The results of the regression analysis confirmed the significant positive effect of risk management on the growth of cross-border trade in Kenya ($\beta = 0.13$, $p = 0.049$). Since the p-value is smaller than the conventional p-value of 0.05, the null hypothesis that

risk management is not an important part of the growth of cross-border trade in Kenya is rejected.

5.3 Conclusions

The first objective of this study is to identify the effect of trade facilitation on the growth of cross-border trade in Kenya. The results showed that trade facilitation had a positive and substantial influence on the growth of cross-border trade. The research therefore concludes that trade facilitation has made a positive contribution to the growth of cross-border trade in Kenya. This has the implication that an improvement in trade facilitation would significantly enhance growth of Cross-Border Trade in Kenya.

The second objective of this study is to identify the effect of border coordination and management on the growth of cross-border trade in Kenya. The results showed that border coordination and management had a positive and significant effect on the growth of cross-border trade. This study therefore concludes that border coordination and management make a positive contribution to the growth of cross-border trade in Kenya. The implication is that an improvement in border coordination and management would significantly enhance growth of Cross-Border Trade in Kenya.

The third objective of this study is to identify the effect of risk management in the growth of cross-border trade in Kenya. The findings reveal that risk management has a favorable and considerable impact on cross-border trade growth. This study therefore concludes that risk management has made a positive contribution to the growth of cross-border trade in Kenya. The implication is that an improvement in risk management would significantly enhance growth of Cross-Border Trade in Kenya.

5.4 Recommendations

5.4.1 Practice

The research established that trade facilitation, border coordination & management, and risk management positively and significantly influence the growth of Cross-Border Trade. The study recommended that the management of KRA should review aspects relating to trade facilitation. These include trade barriers, system integration, complexity of customs clearance procedures and automation. The management should also review aspects relating to border coordination & management. These are; cooperation of different agencies, policies to promote international cooperation and multilateral mechanisms, efficient and secured border coordination and management, strategic partnership and efficient automation of border processes and procedures. Further, the management should review aspects relating to risk management. These are; global approach to customs risk management, identification of risks, risk analysis, and risk evaluation.

5.4.2 Policy

The study recommended that the government of Kenya through the ministry of industrialization, trade and enterprise development should review policies on customs operations. In particular, the government need to strengthen policies on trade facilitation, border coordination and management, and risk management. This will ensure that the policies favour the growth of cross-border trade.

5.5 Limitations of the Study

The study utilized primary data that was collected from customs officers using a questionnaire as the research tool. The researcher had no way to ascertain the honesty of responses given by the respondents. To minimize the challenge from happening, the researcher requested the participants to respond to the research tool honestly and

assured them that the data to be provided would be handled confidentially and that its use was only limited to the purpose of the study. Some cases of incomplete or missing data in the questionnaires were encountered. To counter this limitation, the researcher performed data cleaning before the final analysis to ensure completeness of the information availed through the questionnaires.

5.6 Suggestions for Further Research

The study was confined to the effect of customs operations on the growth of Cross-Border Trade in Kenya. The three components of customs operations only explained fifty-four percent of variations in growth of Cross-Border Trade suggesting the existence of other factors that may account for changes in growth of Cross-Border Trade. Future scholars should consider investigating other factors that growth of Cross-Border Trade. Furthermore, scholars should consider investigating variables that would influence the relationship between electronic customs systems and growth of Cross-Border Trade such as government policy and technology adoption.

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APPENDICES

Appendix I: Introduction Letter

Dear Sir/Madam,

RE: REQUEST TO PARTICIPATE IN A RESEARCH STUDY

I am a student at Moi University undertaking a Masters of Customs and Tax Administration. I am carrying out research on ***Effect of Customs Operations on the Growth of Cross-Border Trade in Kenya*** as part of the requirement in fulfilling my course degree. Given your unique position in the organization and experience you have, I have been referred to you as one of the respondents. Your role in this study will only involve participating in an interview. The questions to be asked will relate to your experience and opinions regarding the subject matter. It is important that you understand that there is no correct or wrong response. This research is aimed at allowing you to provide details about what you honestly think.

In this regard, I am requesting you to dedicate some time to participate in this exercise. I will observe anonymity and I can assure you that the responses you give will not be disclosed to anyone.

Thank you.

Shiphrah Sande

The Researcher

Appendix II: 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.

PART A: TRADE FACILITATION

Please indicate the extent to which you agree or disagree with the following statements on trade facilitation

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

Opinion Statement	**1**	**2**	**3**	**4**	**5**
Trade barriers hinder trade facilitation					
The trade barriers aid in protecting domestic employment					
Integration of systems enhances Cross-Border Trade at the border points					
Complex customs clearance procedures are a hindrance to Cross-Border Trade					
Automation of activities at the border points is a catalyst to Cross-Border Trade					
Quick and easy facilitation of imports and exports is critical to enhancing Cross-Border Trade					
Trade facilitation is a key factor for growth of Cross-Border Trade in Kenya					
Risk Management results to into an increase in Cross-Border Trade					
Trade facilitation attracts direct foreign investments.					
Kenya has made significant progress in enhancing Border Coordination and Management operation					
It is important to implement and enhance administrative efficiency at the border as move to increase Cross-Border Trade					

Risk management at the Border has led to a significant increase in Cross-Border Trade.					

PART B: BORDER COORDINATION AND MANAGEMENT

Please indicate the extent to which you agree or disagree with the following statements on Border Coordination and Management

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

Opinion Statement	**1**	**2**	**3**	**4**	**5**
The cooperation of different agencies at the border points enhances Cross-Border Trade					
Policies to promoting international cooperation and multilateral mechanisms have improved trade at the border points					
An efficient and secured Border Coordination and Management is vital for conducting cross-border trade					
Strategic partnership is a key factor to improving trade at the border points					
Border Coordination and Management involves active involvement of border agencies					
Effective Border Coordination and Management promotes open and secure borders to allow the movement of people and goods.					
Efficient automation of border processes and procedures leads to unimpeded flow of people and goods					

PART C: RISK MANAGEMENT

Please indicate the extent to which you agree or dis agree with the following statements on risk management

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

Opinion Statement	**1**	**2**	**3**	**4**	**5**
Global integration requires that a global approach to customs risk management					
Identification of risks allows for mitigation of any potential risk before their occurrence					
Risk analysis enables identification of circumstances, which have the greatest potential of non-compliance.					
Risk evaluation enhances prioritization of high-risk threats at the border points thus improving Border Coordination and Management					
Practicing risk management ensures internal controls of a firm are adequate and enhance Cross-Border Trade					

PART D: GROWTH OF CROSS-BORDER TRADE

Please indicate the extent to which you agree or dis agree with the following statements on the growth of Cross-Border Trade

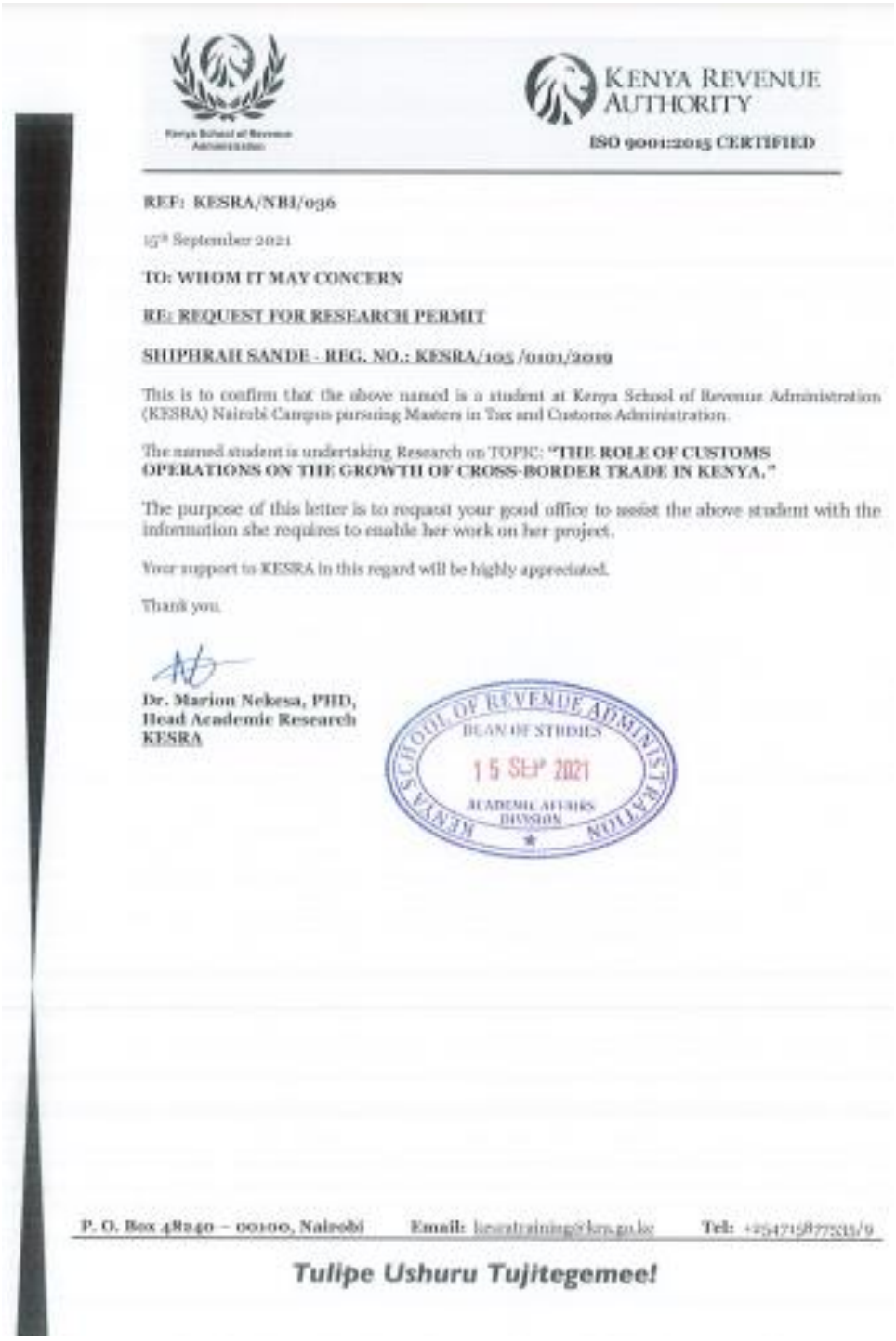
Where: 1= strongly disagree, 2= disagree, 3= Neutral, 4= Agree and 5= Strongly Agree

Opinion Statement	**1**	**2**	**3**	**4**	**5**
Cross-Border Trade is increasing significantly with the expanding global economic integration					

The volume of imports and exports has increased overtime					
International business provides a wide variety of chances related to the domestic markets					
Cross-Border Trade provides a way through which products and services are more available to various customers.					
Customs operations greatly influence the growth of Cross-Border Trade					

THANK YOU FOR YOUR COOPERATION

Appendix III: Authorization letter from KESRA



Kenya School of Revenue Administration

KENYA REVENUE AUTHORITY

ISO 9001:2015 CERTIFIED

REF: KESRA/NBI/036

15th September 2021

TO: WHOM IT MAY CONCERN

RE: REQUEST FOR RESEARCH PERMIT

SHIPHRAH SANDE - REG. NO.: KESRA/105 /0101/2019

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: **"THE ROLE OF CUSTOMS OPERATIONS ON THE GROWTH OF CROSS-BORDER TRADE IN KENYA."**

The purpose of this letter is to request your good office to assist the above student with the information she requires to enable her work on her project.

Your support to KESRA in this regard will be highly appreciated.

Thank you.

Dr. Marion Nekesa, PHD,
Head Academic Research
KESRA

KENYA SCHOOL OF REVENUE ADMINISTRATION
DEAN OF STUDIES
15 SEP 2021
ACADEMIC AFFAIRS DIVISION

P. O. Box 48240 – 00100, Nairobi Email: kesratraining@kra.go.ke Tel: +254715877331/9

Tulipe Ushuru Tujitegemee!

Appendix IV: NACOSTI Permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Ref No: 194101

Date of Issue: 04/October/2021

RESEARCH LICENSE

This is to Certify that Ms. Shiphrah Sande of Kenya School of Revenue Administration, has been licensed to conduct research in Nairobi on the topic: THE ROLE OF CUSTOMS OPERATIONS ON THE GROWTH OF CROSS-BORDER TRADE IN KENYA for the period ending : 04/October/2022.

License No: NACOSTI/P/21/12299

194101

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Verification QR Code

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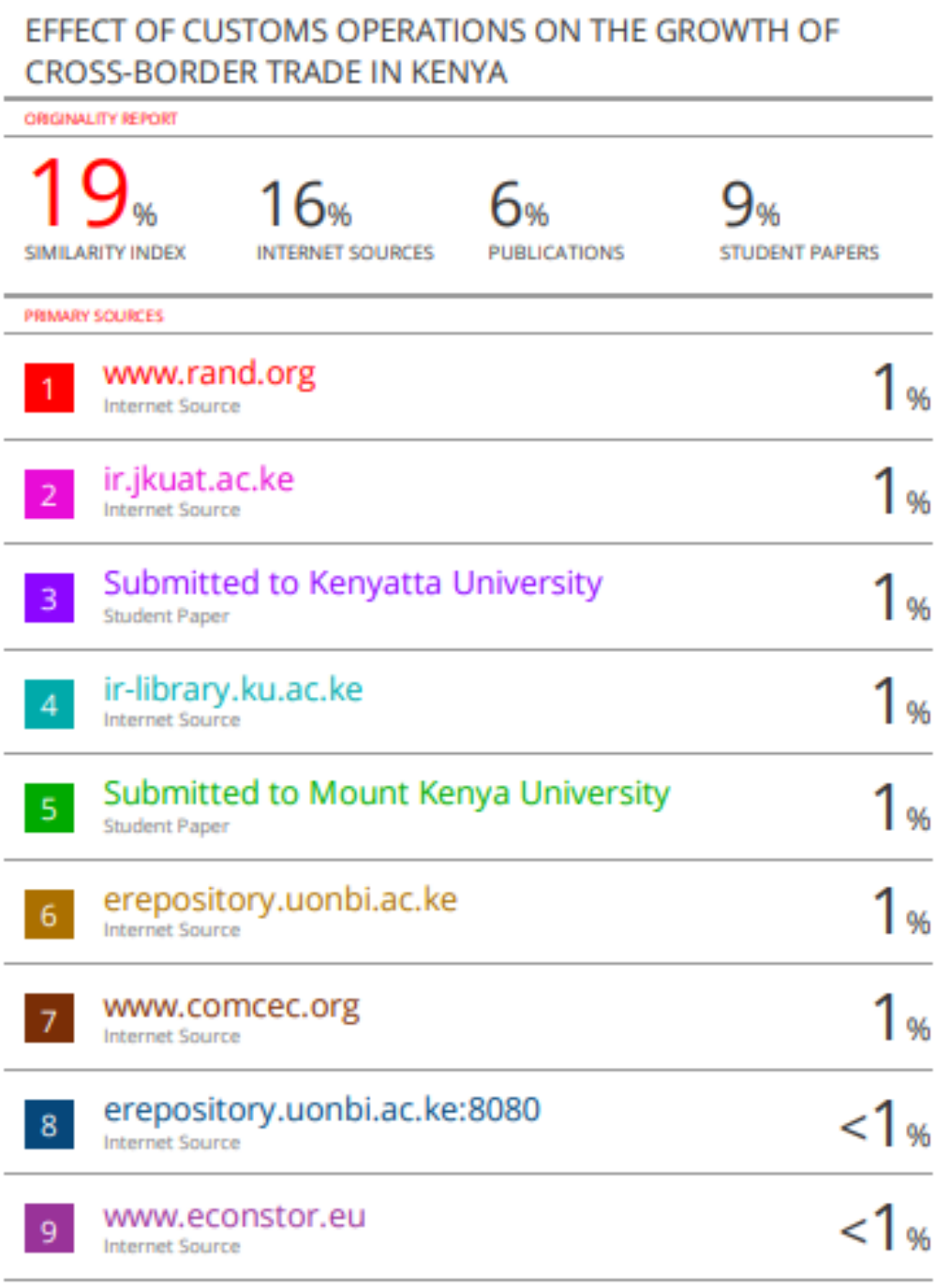
Appendix V: Plagiarism Report



EFFECT OF CUSTOMS OPERATIONS ON THE GROWTH OF CROSS-BORDER TRADE IN KENYA

ORIGINALITY REPORT

19%	16%	6%	9%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	www.rand.org Internet Source	1%
2	ir.jkuat.ac.ke Internet Source	1%
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