

**IMPACT OF REVENUE ADMINISTRATION ON TRADE FACILITATION
PERFORMANCE IN LIBERIA**

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DECLARATION

This research project is my original work and has not been presented for a degree in any other university.

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This research project has been submitted for examination with my approval as the University Supervisor.

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DEDICATION

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ABSTRACT

As a result of a growing awareness of the importance of trade facilitation, governments around the world have signed several bilateral, subregional, and regional trade facilitation agreements that demonstrate the global reach of the concept. Despite the fact that most of these initiatives are robust and ambitious, the vast majority of them have had little results. Based on the desire to reduce the cost of doing business and create an environment conducive to attracting investment for economic development, trade facilitation is becoming increasingly attractive to many countries around the world. In West Africa, trade facilitation was used to assess the impact of four key factors; Port efficiency, customs environment, regulatory environment, and use of e-commerce. On the other hand, these areas have had their fair share of challenges in facilitating trade. For example, Liberia, as a member of the ECOWAS region, received a poor score in the World Bank's 2019 Ease of Doing a business study, ranking 175th out of 190 countries evaluated. Liberia is on the decline, according to the World Bank's latest annual rankings, as it ranked 174th out of 190 countries in 2018 in terms of ease of doing business in the ECOWAS region, before the last survey was conducted in 2019. Hence the study's main objective was to determine the impact of revenue administration on Liberia's trade facilitation performance. To achieve the objective, the study examined the influence of revenue administration in tax collection on trade facilitation performance, the influence of revenue administration in controlling the flow of goods on trade facilitation performance, the influence of revenue administration in social protection on trade facilitation performance, and the impact of governance structure on the relationship between tax administration and trade facilitation performance in Liberia. The theory of mercantilism, the Heckscher-Ohlin theory (theory of factor proportions), the theory of global strategic rivalry, and Porter's theory of national competitive advantage, as well as several empirical studies, are among the literature that has influenced this research. The primary data was collected using a structured questionnaire distributed to 180 respondents working in the Liberian Revenue Administration (LRA) customs departments. To test the hypothesis, a descriptive research design with a cross-sectional character was used, which enabled the examination of the correlations between the study variables. Simple linear and multiple regression models were used in the model specification. The study concluded that there is a positive and significant relationship between the revenue administration in tax collection and trade facilitation performance in Liberia, that there is a positive and significant relationship between the tax administration in controlling the flow of goods and the performance of trade facilitation in Liberia, and that in Liberia there was a positive and significant association between social protection, tax administration and trade facilitation performance. The study concludes that the governance structure has a full moderating effect on the relationship between tax administration and trade facilitation performance in Liberia. The role of civil society organizations in tax administration, the impact of effective border management on trade facilitation, and alleviating liquidity concerns for businesses and individuals in the post-COVID-19 era and tax collection are all areas where more research is needed.

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ABBREVIATIONS AND ACRONYMS

AEO:	Authorized Economic Operators
CD:	Customs Department
COMESA:	Common Market for Eastern and Southern Africa
ECOWAS:	The Economic Community of West African States
DTD:	Domestic Tax Department
FDI:	Foreign Direct Investment
GDP:	Gross Domestic Product
LRA:	Liberian Revenue Authority
OECD:	Organization for Economic Cooperation and Development
RADDeX:	Revenue Authorities Digital Data Exchange
RARMP:	Revenue Administration Reform and Modernization Program
TMP:	Tax Modernization Program
VAT:	Value Added Tax
WCO:	World Customs Organization
WTO:	World Trade Organization

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

As a consequence of the rising understanding of the significance of trade facilitation, governments all over the globe have signed a slew of bilateral, sub-regional, and regional trade facilitation agreements, demonstrating the concept's global reach. However, despite the fact that most of these initiatives are robust and ambitious, the majority of them have yielded only marginal benefits (Buyonge & Kireeva, 2008; Bartley et al., 2018). To enhance performance, the existing tax and customs administrations need an efficient and well-defined institutional framework (World Bank Group, 2018).

For instance, the Sub-Saharan African (SSA) region, reform of the customs system is frequently associated with the construction or improvement of "hard infrastructure. (Barka, 2012; Hoffman, De Coning et al., 2015; Bhero et al., 2015; Lusanga et al., 2017; Gnanon, 2017). Improving the efficiency and harmonisation of customs and border procedures, as well as the incorporation of information and communications technology (ICT) into processes, elimination of corruption at border checkpoints, are all seen as critical components to the process within the framework of "soft infrastructure reform" (Peterson, 2017).

Muntschick (2018) notes that the Southern African Development Community (SADC) propelled its Free Trade Area (FTA) in 2008 in agreement with the SADC Trade Protocol (STP), capping a decade of gradual tariff phase-downs on originating commodities. Although there has been significant progress in the decrease of charges and the removal of non-tariff trade obstacles, as Dabrowski and Myachenkova (2018) point out, there has been minimal improvement in the majority of developing-country economic blocs.

In revenue administration, it is argued that customs play an essential role in international commerce. Trade facilitation initiatives amongst Partner countries includes a significant reduction in the number and volume of trade documentations due to the implementation of common standards and procedures, the coordination of trade, and the establishment of joint transportation facilities (Shinyekwa & Ota, 2004). These measures aid in the improvement of the commerce sector's performance (Kafeero, 2008). Increasing the volume of trades, as well as the quantity of external money earned, is widely regarded as a way to strengthen a country's economy and boost its overall prosperity (McCombie & Thirlwall, 2016; Cooper, Hartley & Harvey, 2018).

Specifically, trade facilitation has measured the influence of four key measures in West Africa, namely: port efficiency, the customs environment, the regulatory environment, and the use of electronic commerce. These area, on the other hand, has seen its fair share of difficulties in fostering trade facilitation. Liberia had a dismal rating in the World Bank's 2019 ease of doing business study, coming in at 175th place out of 190 countries evaluated. According to the World Bank, Liberia dropped from 174th place in 2018 to 175th place in 2019 out of 190 nations.

Figure 1.1: depicts the features of West African nations and their ease of doing business.

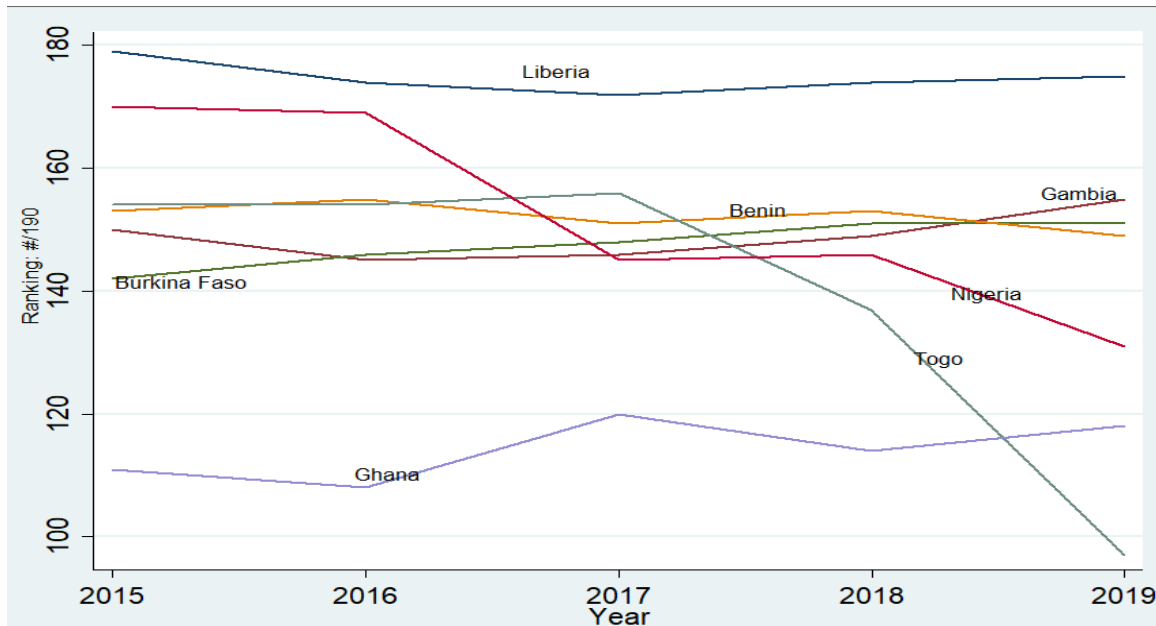


Figure 1.1 Ease of doing business in West-Africa (2015-2019).

Source: World Bank (2020).

1.1.1 Trade Facilitation Performance

In today's globalized society, where items routinely cross borders multiple times as both intermediate and final products, the reduction of total trade costs, and the enhancement of economic wellbeing are essential objectives (Hornok & Koren, 2015; Arvis et al., 2016). According to Fessehaie and Morris (2018), trade facilitation entails a number of diverse players working together to execute a system of laws, standards, and processes that encourage rather than impede international trade transactions. Djankov, Freund, and Pham (2006) discovered that each other day that a product is delayed before it is delivered decreases its value by at least 1%. Bilateral trade flows are used by Clark, Dollar, and Micco (2004) to show how port efficiency affects trade costs in the United States.

They illustrated that boosting port efficiency results in considerable cost savings for shipment. They determine that raising logistics efficiency to the 75th percentile from the 25th percentile could save twelve percent shipping costs. Trade facilitation measures have grown in popularity in the Economic Community of West African States (ECOWAS) in recent years, but there is still much to learn about customs administration in this region. The Organization for Economic Cooperation and Development (OECD) created trade facilitation measures to help ascertain places for reform and evaluate the potential influence of changes. (Hynes & Lammersen, 2017; Mosé & Sorescu, 2019).

As a result, trade facilitation is defined in this study as a broad and coordinated strategy aim at reducing the cost and complexity of the entire trade process while also guaranteeing that events are carried out in a timely, obvious, and anticipated methods, grounded on globally conventional standards, and best practices. (UNECE, 2006). The improvement in this area was measured using a variety of indicators such as advanced rulings, fees and charges, technological integration, and collaboration.

1.1.2 Revenue Administration

Given that a significant portion of VAT is collected at the point of entry, customs' revenue collection role in Africa remains vital despite the decline in significance of tariffs. Customs has a unique advantage point from which to see the world. In the words of Chimilila, Sabuni, and Benjamin (2014), to name a few areas of concern, they are the intersection in terms of commerce, economy, monetary and budgetary challenges, criminality prevention, conservational concerns, and transportation. Customs officers around the world are used to dealing with publics who have crossed borders, so they are often the first to learn about new goods, activities, and even new ideas.

When compared to any other border agency, the Customs Administration works closely with its counterparts on the other side of the world (Liu, 2012). They also have access to sensitive business information on a regular and non-judicial basis. While customs' border security and trade facilitation responsibilities have grown around the world, the necessity for strong tax and customs administration links has become even more critical, given the continued fiscal significance of customs administration (Ismail & Mahyideen, 2015). In order to reduce redundancy and improve efficiency and effectiveness, various customs and tax administration tasks are being integrated. This result in the creation of a more unified and coherent image of the revenue administration like the Liberia Revenue Authority (LRA).

Henceforth, in this study revenue administration can be defined as measures set in place by any given economy in ensuring that there is maximum revenue collection visa vie ensuring sufficient trade facilitation (Molinuevo et al., 2014). Revenue administration in this study was measured using various indicators including VAT reforms, reform in management system, risk control and preventing commercial frauds within the Liberia Revenue Authority (LRA).

1.1.3 Revenue Administrations and Trade Facilitation Performance

Almost every country in the world has a revenue administration dedicated to trade facilitation, which entails lowering the barriers to conducting business between nations. While in some nations, these revenue administrations are autonomous, in others, their activities are merged into other government agencies such as security, home affairs, immigration, and customs administrations, among others (Peterson & Ketners, 2013). Customs' function in industrialised nations might be considered as one of protection and trade facilitation rather than enforcement (Ismail & Mahyideen, 2015). Customs duties have been shown to play a role in the creation of budget revenues in Romania, where it was claimed that their effects on revenue collection multiplied the

country's budget revenues, as well as in other countries (Mirela & Marilena, 2013). Customs' role in revenue administration includes revenue collection through the imposition of various duties and taxes in developing countries with coastlines, such as Liberia, where import taxes account for a significant portion of the country's budgetary resources (Cherono, Omar, and Nsavyimana, 2019). Customs, as a watchdog over the flow of goods, can provide reliable trade data, which can then be compared to trade records from other countries (Chimilila, Sabuni & Benjamin, 2014). They have the ability to create revenue estimates and simulations. Customs also maintains a record of all movements and the individuals who are responsible for them. All of this may be utilized not just to generate cash, but also to safeguard society, which is referred to as social protection in the popular press. Cantens (2012), as well as Chimilila, Sabuni, and Benjamin (2014), argue that customs has three main functions: evaluating and generating revenue based on product characteristics; protecting the nation and society by attempting to prevent smuggling; and ensuring that legislation is applied to both imports and exports.

Trade facilitation therefore, is defined in this study as a set of measures aimed at making international trade more convenient, and it includes a variety of initiatives aimed at lowering transaction costs through the enforcement of regulations and the administration of trade policies across borders (Iwanow & Kirkpatrick, 2009). On the contrary, revenue administration considers numerous strategies to accomplish this aim via facilitation programmes, including VAT changes, management system improvements, and ensuring that the tax system is more efficient.

1.1.4 Liberia Revenue Authority

The LRA was molded by an Act of the National Legislature in 2013 to replace the Department of Revenue (DOR), which was a subordinate of the Ministry of Finance (MOF), which is now known as the Ministry of Finance and Development Planning (MFDP). It began full operations in 2014

with the establishment of its four departments, Department of the Commissioner-General (DOCG), Department of Administration (DOA), Domestic Tax Department (DTD), and Customs Department (Liberia Revenues Authority Act, 2013).

The Liberia Revenue Authority (LRA) is the primary tax collector and the administrator of the Revenue Code of Liberia. In addition, the LRA represents the government in tax treaty talks, assists in the formulation of tax policies and laws, and gives advice on the effect of taxes on the general public and businesses (the Republic of Liberia, 2019). Its objective is to collect legal taxes in a professional, fair, transparent, and effective manner; to enable legitimate commerce and social protection for the people of Liberia. The LRA's mission and vision are upheld by its two functional departments, DTD and CD, which work together to achieve them. The Department of Domestic Taxation (DTD) is in charge of assessing, collecting, enforcing, and auditing all domestic taxes, including property tax. The Department is divided into four divisions and six units that report directly to the deputy commissioner of domestic tax (LRA, 2020). Customs is another core operational departments of the Liberia Revenue Authority and is responsible for border management and border enforcement in relations to: collection of duties and border taxes and fees on international trade, facilitation of legitimate trade, strategic trade control for environmental protection and international supply chain security, and regulation of the movement of all means of transport including land, sea and air transport, whether civil or military, attending customs ports of entry in Liberia (LRA, 2020).

Customs department is also a member of the National Joint Security in Liberia and performs other collaborative functions, through its strategic control of the international trade supply chain, such as: Drug enforcement at borders, Anti-money laundering operations, Counter-terrorism operations, such as the creation of deliberate disruptions to terrorist networks and the use of the international

supply chain to transport precursor chemicals used to manufacture improvised explosive devices (IEDs).

1.2 Statement of the Problem

Conceptually, changes in the trade environment, such as reforms, modernization, and requirement simplification, are all linked to trade facilitation. This viewpoint is shared by Francois and Manchin (2013), who added that trade volume effects on revenue collection multiplied the country's budget revenues and its willingness to contribute within the global trading system, are dependent on the worth of the monitoring bodies and right of entry to a well-built transportation and ICT structures. Puertas, Mart, and Garca (2014) estimated the possible benefits in trade performance that might result from the adoption of trade facilitation legislation in European nations. Improvements in regulatory environments, basic transportation, and ICT structures are all similarly or supplementary significant in facilitating shipment's development, according to the study's findings. Contrastingly, this study implored whether the scenario could be the same or slightly different in African countries like Liberia.

Liberia has had privileged marketplace right of entry to the US and the EU marketplaces in West Africa since 2011, thanks to the African Growth and Opportunity Act and the Voluntary Partnership Agreement (International Trade Centre, 2019). The country has also established a trade facilitation forum as a follow-up to the work of trading across borders working groups and in response to the US Millennium Challenge Corporation's Indicators of government effectiveness.

Despite these and other significant interventions, Liberia's trade facilitation performance lags behind countries in the same region or with comparable income levels (UNCTAD, 2021).

Liberia was ranked 175th in the ease of doing business in 2019 out of 190 economies. Liberia's ranking fell to 175 in 2019 from 174 in 2018, according to the World Bank's most recent annual ratings indicating a declining rate in its trade performance (World Bank, 2020).

Bezabih (2018) investigated tariff evasion and the role of aid in trade facilitation in the SSA. The key conclusion is that tariff evasion has increased over time and continues to be higher than in high-income countries, while remaining comparable to the rest of the world. The results indicate that high levels of corruption in importing and exporting countries exacerbate regional charges avoidance. Purpose of this study was to see if Liberia's trade facilitation could still produce the same results as that of one of the SSA countries.

In the context of Liberia, there are few studies examining the role of revenue administration in the performance of Liberia's trade facilitation system. Moreover, there is no specific study linking Liberia's trade facilitation performance with revenue administration. Liberia's available research focuses on ICT and LRA reforms. Most studies were conducted over a short period resulting in skewed estimates, and others were purely descriptive, making no inferences about their findings. None of the studies use a correlation to ascertain the relationship between the study variables and the variables themselves. Methods of analysis were often gravity models instead of linear or multiple regression models that can better analyze quantitative data, and identify the correlation among one or more independent variables and the dependent variable.

Given the importance of trade facilitation performance in the current COVID-19 context, as well as these research gaps, this research determined the impact of revenue administration on trade facilitation performance in Liberia using descriptive research designed, linear and multiple regression models for analysis, and made policy, practice, theory, and further research recommendations.

1.3 Objective of the Study

The primary objective of the study was to define the impact of revenue administration on Liberia's trade facilitation performance, and was measured using indicator such as, advance rulings, fees and charges, technology integration and corporation.

The study's supplementary objectives were to ascertain the impact of revenue administration in tax collection on Liberia's trade facilitation performance, and it was indicated by VAT reform, reforming management system, risk control and prevention of commercial fruds. Additionally, parameters like control of manifest, assessment and verification procedures, payment and collection procedures and paperless processing of inputs was used to establish the influence of revenue administration in controlling the flow of goods on trade facilitation performance in Liberia, and to established influence of revenue administration on trade facilitation performance in social protection in Liberia, industry protection, dumping, infrastructure protection and HR protection were implored as indicators. Moreover, to established the relationship between revenue administrations and trade facilitation performance in Liberia governance structure was employ as moderating variables and it was measure using indicators like legal, organization, techonology and processes.

1.4 Value of the Study

Growth in FDI in any country, as well as positive spillover effects that increase the productivity and competitiveness of local producers, are among the benefits associated with trade facilitation.

This research was carried out with the assumption that there is significant trade potential between Liberia and other nations, and that trade liberalization via regional cooperation efforts would aid in the fulfillment of this potential to a greater extent. As a result, lowering trade barriers like nontariff and institutional barriers that raise transaction costs for importers and exporters should

be a top priority during the period when policies are being debated and, to some extent, implemented.

Therefore, the study's findings should be used to guide the government of Liberia's policies on free trade agreements (FTAs), customs unions, and trade (or transit) corridors, which is important given the country's rapid economic integration. It should serve as a guide for the creation of a set of policies aimed at encouraging exports and provoking a positive market response. The findings will serve as a starting point for future discussions on the relationship between tax administration, trade facilitation measures, and economic development in Liberia and other developing countries, among other things. Apart from that, it will contribute significantly to the literature on revenue administration and trade performance in developing countries.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter examined key theoretical literature about international trade, both classical and modern. It emphasizes empirical research on revenue and trade facilitation from within and outside the country. A synopsis of the literature review and gaps in knowledge are also provided, as is the conceptual framework.

2.2 Theoretical Review

Some of the specific ideas discussed in this research included the mercantile theory, the Heckscher-Ohlin factors proportions theory, global strategic rivalry theory, and Porter's comparative advantage theory. This part highlighted the fundamentals of international trade theories which helped the researcher better comprehend the reality that global firms must deal with and many trade ideas that emerged over the previous century and remain relevant today.

2.2.1 Mercantilism Theory

One of the Classical or country-based theories, which were established within the 16th century by Adam Smith and David Ricardo, is the notion of comparative advantage (Johnson, 1932). It was one of the first ideas to assert that a nation's affluence was dictated by the quantity of gold and silver it had, and it was also one of the most widely accepted theory. Magnusson (2016) utilized the idea to investigate if Cameralism was indeed the German variant of mercantilism, as claimed by the author. Simply put, mercantilists believed that a country's gold and silver holdings should be increased by stimulating exportation and limiting importation, hence increasing nation's total wealth (Grampp, 1952). The goal for each country was to achieve a trade surplus while avoiding a trade deficit (Magnusson, 2019).

The 1500s saw the rise of new nation-states, whose leaders wanted to strengthen their states by growing military strength and establishing nationwide organizations, among other things (Grampp, 1952). The increase in exports and commerce enabled these kings to collect greater amounts of money and riches for their respective nations (Magnusson, 2016). In order to encourage exports, several of these new countries-imposed import restrictions on a variety of goods. Protectionism is the term used to describe this policy, which is still in use today (Williams, 2019). In an endeavour to dominate more commerce and collect more riches, nations increased their fortune by using their colonies across the globe to do business.

Almost every nation has, at some time or another, imposed some type of protectionist policy in order to safeguard critical sectors in their own economies. While export-oriented businesses often embrace protectionist measures that benefit their own industry or businesses, other businesses and consumers suffer as a result of protectionism (Balassa, 2016). Import limitations result in increased pricing for consumers, who must pay more for products and services produced in other countries. Free trade supporters argue mercantilism's protectionist policies primarily benefit specific industries at the expense of consumers and other firms, both within and outside the global community (Giordani, Rocha & Ruta, 2016).

Because it emphasizes government control of trade, this theory is relevant to the study; hence, mercantilism is an economic theory arguing for government regulation of international trade to boost economic growth and establish national power. Commerce and government officials work together to reduce the trade deficit and generate surpluses. The theory also advocates for government's responsibility in empowering the private owners by means of production against purchases.

Mercantilism suggests the creation of monopolies by levying high duties on imported goods, exemption of favored sectors from taxes, and provision of allowances to favored companies.

Additionally, it halts the emigration of skilled labour, money, and equipment. It forbids things that might be seen as beneficial to foreign enterprises. In return, businesses reinvest revenues generated by foreign expansion in their home nations and contributes the profits to the country's economic prosperity and political strength.

2.2.2 Heckscher-Ohlin Theory (Factor Proportions Theory)

In the early 1900s, Swedish economists Eli Heckscher and Bertil Ohlin developed a theory centered on how a country could gain comparative advantage by manufacturing items using elements abundant in that country (Jones, 1956). Land, labor, and capital are all important production variables in a country, and they all contribute to the revenues required for capital investment in plants and equipment. They came to the conclusion that any item's or resource's cost was determined by the relationship between supply and demand.

As a result of their idea, which was also known as the factor proportions theory, nations could only create and export commodities which needed factors of production or components they had sufficiently because they could produce these commodities at cheaper costs since they had easy access to the factors of production (Leamer, 1995). Contrary to this, nations would purchase commodities that needed factors of production that were in limited supply but are highly demanded, as opposed to exporting such commodities. Countries like China and India, for example, boast of enormous and inexpensive pools of labour. Their exports are competitively priced for customers in poor nations, such as Liberia. As a result, such nations have emerged as the most advantageous sites for labor-intensive sectors such as textiles and clothing.

As Davis (1995) points out, the huge amount of intra-industry trade is often regarded as a significant factor favouring trade theories based on growing returns and imperfect competition over trade theories resulting from constant returns and perfect competition.

The relevance of this theory focuses the position of Liberia in international trade or the ease of doing trade with other countries. The theory may be used to examine the equilibrium of trade between two countries having unique abilities and resources. Nations are urged to export excess resources and products whereas purchasing just what they would require. Currently, due to the limited capacity of Liberia to manufacture finished products, the country is one of the leading exporters of mineral resources and raw materials, while importing other finished products in demand. Therefore, it also supports government regulation of international trade and promote social protection.

2.2.3 Global Strategic Rivalry Theory

This theory of global strategic rivalry was developed by Paul Krugman and Kelvin Lancaster in the 1980s and it is still in use today (Krugman, 1983; Lancaster, 1990). They focused their research on multinational corporations (MNCs) and their efforts to gain a competitive advantage over other international corporations in their respective markets. According to Colaresi and Thompson (2002), enterprises would face worldwide rivalry in their sectors, and in order to succeed, they will need to create competitive advantages over their competitors.

The barriers to entry for a certain sector refer to the essential ways in which corporations might gain a long-term competitive advantage in the market (Jogarathnam, 2017). The phrase "barriers to entry" refers to challenges that a firm's startup encounter in its attempt to break into a new market or industry. Some of the barriers to entry that corporations may seek to reduce or eliminate are innovation, intellectual property rights, economies of scale, unique corporate processes or

techniques, and extensive industry expertise. Other entry barriers that firms will seek to reduce or eliminate include resource control or preferential access to raw materials from one country to another (Colaresi & Thompson, 2002).

The theory is pertinent to this research since it hypothesizes that in order for a country's enterprises to gain a competitive edge, government regulatory techniques such as the establishment of monopolies are necessary. According to the idea, barriers assist if a company is optimising few aspects that will lead the brand in successfully conquering all obstacles and achieving a large appreciation in the worldwide market. This is consistent with the third objective of our research, which is to determine the effects of revenue administration in social protection on trade facilitation performance in Liberia.

2.2.4 Porter's National Competitive Advantage Theory

In 1990, Michael Porter of Harvard Business School devised a new way to describe the national competitive advantage and published it in the Journal of Business Research, continuing the legacy of international trade theories (Porter, 1990). A country's competence in a specific sector is defined by the industry's capacity to develop and upgrade its operations (Porter, 1990; Grant, 1991). The factor proportions hypothesis, which takes into account a country's resources, such as natural resource availability and available labor are important considerations in choosing which items it would import or export, was identified by Porter as having merit (Ren & Ma, 2018).

However, Porter further introduced additional factors, comprising skilled manpower, educational investments, technological investments, and infrastructural investments. As a result of these technological advancements, he believes a nation may gain a durable competitive edge. Porter argued that a sophisticated home market was essential for assuring continued innovation, and for

generating a durable competitive advantage in the local market when considering local market demand circumstances (Porter & Kramer, 2019).

Powerful, well-connected, supporting and organized sectors are essential for a significant multinational firm in order to remain competitive in today's global economy. Particular sectors are physically clustered, which increases competence and productivity in the process. Local company characteristics, on the other hand, include business strategy, industry structure, and industry competition, among other things determines the competitiveness of a company which is influenced by its local strategy. According to Vogel (2018), governments have the ability to boost the competitiveness of enterprises and, in some cases, whole sectors via their actions and policies. When considered in conjunction with other contemporary, firm-based theories, Porter's thesis gives a fascinating explanation of international trade patterns and how they might be used to enhance commerce.

Despite all the theories reviewed having relevance to the study, the research angles on Porter's National Competitive advantages theory, because it is the most contemporary theory discussing competitive advantages in the context of trade facilitations. Furthermore, the theory is relevant because it identifies important actions that the government should take to increase the local companies' ability to compete in countries like Liberia.

2.3 Determinants of trade facilitation performance

Several factors have been associated with the performance of trade facilitation within Liberia. They include revenue administration in tax collection, revenue administration in controlling the flow of goods and revenue administration in social protection. These determinants and the role of governance structures are discussed in details as presented in sections 2.3.1, 2.3.2, 2.3.3 and 2.3.4.

2.3.1 Revenue administration in tax collection

The administration of revenue serves as a primary point of interaction between the government and the general public. As a result, effective revenue management becomes a critical component of successful government.

The effectiveness of this approach may be judged both strategically and operationally. This reality has made policymakers more conscious of the importance of promoting compliance with tax laws by minimizing the expenses that taxpayers must bear in order to meet their tax responsibilities (World Bank, 2010). In so doing, many nations have merged their revenue administrations in an attempt to standardize operations and eliminate the need for individuals to react to various authorities. This has been done through uniting tax and customs administration, integrating tax and social security payments, or merging the two methods (United Nations, 2019). Based on their experiences, it seems that Linking collections seems to demand upgrading tax management system as well such that, the relationship between the tax office and the taxpayer, as well as the extensive use of information and communication technology is now virtual rather than physical. Institutions tasked with revenue collection have the aim of collecting legal taxes in a professional, fair, transparent, and effective manner; to enable legitimate commerce and social protection for their people. (Adomaviiitis & Daujotaitis, 2017; Trade Law Centre, 2020; Trade Law Center, 2020).

Customs revenue is currently primarily comprised of duties, import VAT, consumption tax, and vessel tonnage tax which are all imposed and collected by most countries' customs departments. Besides being an important source of national fiscal revenue, customs revenue also serves as a tool for national macro-control as well as a tool for protecting and promoting the sound development of domestic industries, among other functions (Gnangnon, 2017).

As a result, the study employed indicators such as VAT reforms, reforming management system, Risk control, and prevention of commercial frauds to measure the effects of revenue administration in tax collections.

2.3.2 Revenue administration in controlling the flow of goods

Under customs department of the LRA for example, the cargo manifest is the prime requirement for the control of imported properties. It gives enough information to permit identification of the goods, the names of the consignee and consignor, and certain other information (such as weight and container number) (Zake, 2011). In many customs administrations, this information is available electronically from the carriers or transportation agents. The streamlining and rationalisation of customs procedures during clearing should strive to prevent superfluous processing steps for declarations, define the roles of customs clearance officers, reduce potential for collusion with merchants, and enhance efficiency in customs clearance operations (Ahmed, 2018). To that end, the principle of self-declaration should be the norm, and penalties should be in place to help ensure that good-quality information is presented to customs. The profession of customs agents/brokers should, ideally, be organized and supervised by the tax administration through an accreditation system of licenses to ensure quality service to the trade community and to facilitate clearance formalities (Schlotterbeck, 2017).

The payment of customs duties and taxes in revenue administration by importers (or the provision of adequate assurance that they will be paid) is a precondition for the release of imported goods (Addo & Avgerou, 2020). This is in accordance with the principle by which the goods serve as a guarantee for payment of duties and taxes. Provisional advanced payment should be authorized to allow the quick release of perishable goods that justify urgent delivery. Parameters like the Control of manifests, assessments and verification procedures, payment and collection procedures, and

paperless processing of imports were adopted to measure the influence of revenue administration in controlling the flow of goods in this study.

2.3.3 Revenue administration in social protection

The major purpose of trade policy is to define the general rules aimed at protecting domestic economic activities and consequently changing the system of incentives (UNCTAD, 2021).

If markets are in some way imperfect, tariffs may have a corrective role to play. For instance, if the consumption of some good generates pollution, increasing its price by imposing a tariff on imports may increase social welfare (Liu et al., 2020). However, the advisability of other exemptions granted for social or economic purposes is more debatable and depends on their economic effects. Following up on a previous report by Sakyi et al. (2018), improvements in the social welfare of developing countries remain a primary goal of the global development agenda, especially in light of the efforts of governments and collaborating nations to achieve the MDG by 2030. In their opinion, efficient trade facilitation reforms, focused in particular on strengthening infrastructural development, institutional reform, and efficient markets, will almost certainly be connected with increases in social well-being in Africa in the long run. Various indicators, including industry protection, dumping, infrastructural protection, and human resource protection, were utilised to assess the effectiveness of revenue administration in social protections.

2.3.4 Governance Structures

Trade facilitation must take place on three different levels: national, regional, and international. While regional and international standards are developed and adopted, trade promotion initiatives, including these guidelines, are implemented at the national rather than regional and global levels. (González & Jouanjean, 2017). In order to improve trade facilitation measures, they must be modernised and reformatted. This process will be aided by a favorable environment that is based

on assistance from the government, well-managed programs, and successful change management skills, and a commitment to innovation. Many trade facilitation measures are in need of reform and modernization (United Nations, 2019). There are many different sorts of interventions and activities that address the many aspects (legal, organisational, technological, process, and people) of the government in this enabling environment (Hosein, Gookool & Saridakis, 2021).

Trade facilitation delays are attributed to administrative obstacles, according to the World Bank. These obstacles are encountered in revenue administration and they include customs and tax processes, clearing procedures, and cargo inspections, among other things. In this scenario, governance structures were assessed utilising indicators such as legal, organisational, technological, and process-related characteristics as moderating variables.

2.4 Empirical Review

Using data from Adam City, Shiberu and Tamene (2021) conducted research to establish the impact of the customs procedures for facilitating trade. The descriptive and explanatory research designs were utilised in this study, and a mixed-method was applied throughout.

The study adopted a random sampling approach to choose a sample of 110 responders from a larger pool of potential candidates. The statistical methods utilised were descriptive and inferential. The data set was analyzed using a statistical analysis programme, SPSS version 24. When the following factors were considered: customs automation systems, customs risk management, customs human resource management, and development, it was discovered that trade facilitation was both beneficial and statistically significant. While customs law and regulation had a significant influence on trade facilitation, it was shown to be negatively associated with it, and collaboration

and cooperation between customs and other state agencies had a small impact, however it was found to be positively associated.

Bezabih (2018) investigated tariff evasion in Sub-Saharan Africa and its impact on promoting commerce. Over the years, tariff evasion in SSA has grown and stayed greater than in developed nations, while the rest of the world's tax evasion is generally maintained. Imports from the BRIC nations have boosted tariff evasion, whereas imports from the OECD countries have lowered it. Corruption in both importing and exporting countries facilitates tariff evasion according to the research. Smuggling is decreased as a consequence of the findings, which show that trade facilitation increases customs efficiency. Noncompliance with customs regulations and tariff rates, corruption, inefficiency in customs processes, and trade facilitation assistance has been proven to be strongly linked to SSA. Customs compliance may be improved via regional customs procedural and trade facilitation improvements, according to the study's primary conclusions.

Lubos et al. (2016) conducted an investigation to examine the effect Russian's farming import embargo had on the importation of different agricultural commodities from European nations. It was concluded that, application of the import restriction resulted in a considerable decrease in the value of Russian's agricultural imports. The Russian's agricultural trade's overall competitiveness was bolstered by the import restriction, while the competitiveness of certain product groupings was harmed.

Biljan and Trajkov (2012) published research in the Republic of Macedonia that looked at risk management and improvements in Customs performance. The adopted linear Regression analysis via two step regression for the analysis of the study data. According to their findings, the most important element of a customs risk management system is selecting the individuals, products, and modes of transportation that should be inspected and to what degree they should be studied. High-

risk individuals, products, and modes of transportation are subject to high-level regulations and interventions, despite the fact that low-risk individuals, goods, and modes of transportation enjoy high-level trade facilitation. However, the study never specifically focused at developing countries and failed to consider performance of trade facilitation.

Regression analysis was utilized by Vijil and Wagner (2012) to examine if institutional and infrastructure (two possible transmission channels) are major drivers of export success. Their research also looked at how trade sectoral flows assistance affected previously known factors of export performance and their relationships. Developing countries' export performance seems to be positively impacted somewhat by the institution channel, according to their research, which found that infrastructure is an important driver of export success. In additions, they found that the extent of infrastructure development has a considerable and positive impact on export success.

Iwanow and Kirkpatri (2009) undertook research in order to analyze the World Bank's new indexes of trade restrictiveness and trade facilitation. For this study, researchers used comparative analysis to examine how border trade limitations and domestic policy changes influence domestic trade costs. This projection implies that, despite preferential access programs, tariffs and non-tariff measures will continue to be a major source of trade restrictions for low-income countries. This is due to the low value of trade preferences. The study establishes an innovative degree of comparative favorite margin, which reveals that it is very small for the great majority of nation pairings. The majority of nations with outstanding (duty-free) market access also have excellent (duty-free) market access, and vice versa.

Puertas, Mart, and Garca (2014) conducted research in order to estimate the possible benefits in trade performance that might result from the adoption of trade facilitation legislation in European nations. To examine the influence of trade facilitation and other trade-related limitations on export

performance, the researchers utilized gravity model supplemented with regulatory quality and infrastructure indices. According to the study's quantitative conclusions, every 10% improvement in trade facilitation would raise exports by roughly 5%. Expansions in the monitoring environs and the worth of substructure provision of the same percentage would result in increases in the economy's worth of 9–11% and 8%, respectively. Furthermore, while trade facilitation can help improve export performance, the study's findings show that improvements in regulatory environments, basic transportation and communication infrastructures are equally or more important in facilitating export growth. They eventually concluded that trade facilitation alone would not result in a significant increase in export performance.

Using a gravity model, Shinyekwa and Othieno (2013) compared Uganda's intra-East African Community trade performance to that of other trading blocs. It investigated the variables influencing Uganda's trade flows, comparing the impact and performance of various trade blocs on the country's trade patterns and flows, as well as the impact and performance of various trade blocs on Uganda's trade flows. Two analytical techniques were used: trade indicators and gravity model estimation, both of which were based on panel data from COMTRADE for the period 2001–2009. Researchers were able to isolate the elements affecting export and import trade flows using static random, dynamic random, and IV GMM models. According to the statistics, there seems to be a strong correlation between participation in a trading bloc and trade flows. Similarly, as the East African Community's (EAC) integration process developed, Uganda's import and export trade flows shifted significantly in response to the EAC's gravitational pull.

Kollie (2018) performed a study in Liberia in order to identify the elements that affect the country's trade balance. Vector Error Correction Model Approach was used by the researcher. To address the issue of over-parameterization in the estimates, the Impulse response function (IRF) and Forecast Error Variance Decomposition (FERD) were used to examine the VECM estimates.

He found that GDP and the lending interest rate have a positive long-term influence on the Balance of Trade (BoT), whereas the exchange rate and trade openness, as well as the money supply, have a negative long-term effect on the BoT. As a result, he determined that temporary and longstanding changes in the balance of trade were influenced by imports and exports.

Wanjala (2004) utilized the gravity model to investigate the influence of the Common Market for Eastern and Southern Africa (COMESA) on the flow of Kenyan exports. According to the research, COMESA has a favorable influence on the creation of new trade possibilities. Therefore, COMESA has contributed to the improvement of the country's export performance, which has in turn aided the country's efforts to attain the Millennium Development Goals. Additionally, it was discovered that the nominal GDP of importing nations, the distance between them, the adjacency between them, and the usage of a shared official language has a positive impact on the development of new trade opportunities with Kenya.

Raballand and Cantens (2017) discovered an unusual but balanced reaction by customs to insecurity during cross-border commerce in their investigation. While customs services are sometimes seen purely as national bureaucracies, they play a critical role in wealth redistribution, particularly in Liberia, where cross-border trade income is the primary economic resource. Although this literature tries to give findings from war zones' boundaries, there are several evident of shortcomings, such as the absence of quantitative analysis of data. However, it demonstrates the characteristics of borders and how a military solution will not result in their growth.

Alberto and John (2012) performed an empirical literature analysis for Trade Facilitation performance reform which aggregates the influence of "soft" and "hard" infrastructure factors on the export performance of developing countries. The study was able to assess the effect of various components of trade facilitation on export performance as measured by the indicators using a gravity model. Estimates based on data from 101 countries from 2004 to 2007 show that trade facilitation measures increase developing countries' export performance, particularly when it comes to physical infrastructure investment and regulatory reform to improve the business climate. Additionally, the data demonstrate that improving substructure indicates negligible effect on shipments, lowering per capita income. In comparison, the influence of ICT on exports looks to be more critical for prosperous nations.

According to empirical study (Trade Facilitation and Development) conducted by the United Nations Conference on Trade and Development (UNCTAD), trade facilitation measures improve a country's trade competitiveness and the performance of border agencies. Additionally, it contributes to the advancement of development objectives such as governance strengthening and formalization of the informal sector. The report outlines strategies that will enable the full development advantages of trade facilitation changes to be realized. According to UNCTAD's research and experience with technical assistance programs, such changes should be broad and ambitious in order to promote countries' trade and development goals. It underlines the need of linking trade facilitation with investments in transportation infrastructure, ICT, and other trade-promotion activities. Because many trade facilitation issues and solutions are geographical in character, their implementation should be incorporated into regional integration programs. Given the links between trade facilitation reforms and implementation capacity, development partners must ensure that their assistance does not exclude the most vulnerable economies and that they

fully utilize the promises and opportunities for technical and financial assistance made by the World Trade Organization's (WTO) Agreement on Trade Facilitation, which was signed in Bali, Indonesia in 2013. (United Nations Organization, 2016).

The research assesses the potential consequence of measures on trade facilitation competitiveness, tax collection and public policy goals, as well as human and institutional development, including many Sustainable Development Goals. One of the ways in which this study differs from existing studies is in its methodological approach. No expressive quantitative data analysis approaches were used in this investigation.

However, UNCTAD secretariat calculations conducted a correlation analysis, on the basis of the Human Development Index, individual category "A" notifications (WTO, 2015b), International Telecommunication Union data on Internet use, Transparency International's Corruption Perceptions Index, and UNCTAD estimates of GDP per capita in 2014. As a consequence, the study identified a dynamic link among trade facilitation and development. Countries with more capacity, higher trade capabilities, and significant financial resources are better positioned to participate in trade reforms that increase commerce's speed, accessibility, and transparency. Simultaneously, a developing country that invests in modernizing its customs administration and trade processes may profit from greater commerce, revenue collection, and institutional growth, among other things. Additionally, a country's ability to execute trade facilitation changes is intimately related to its degree of development. Prior to the Agreement on Trade Facilitation, negotiators expressed concern about the expenses and challenges related to applying trade facilitation procedures. (United Nations, 2016).

Marcus et al. (2018) studied the significance of trade facilitation measures in maximizing economic value using the Belt and Road Initiative's investment in infrastructure (BRI). They examined the performance of trade facilitation in BRI economies, with a focus on nations connecting to six key land corridors.

This overview is based on international trade facilitation performance indicators such as the Logistics Performance Index, the Enabling Trade Index, and the OECD Trade Facilitation Indicators; publicly available literature and analysis on the BRI corridors; and research conducted through World Bank projects involving BRI economies. Out-of-sample simulations were run for two components of the Enabling Trade Index (ETI): border administration and transportation and communications infrastructure, in order to quantify the effect of prospective improvements in trade facilitation among the Belt and Road countries (Kahn and colleagues, 1975).

A significant result from worldwide perspective, trade facilitation along the BRI corridors is ineffective, with performance for the majority of halls falling short of world standards on most parameters. Additionally, there is considerable difference in performance across nations along each corridor, posing a substantial impediment to the effective use of the galleries for dependable, on-time cross-border freight traffic. The paper outlines key trade facilitation measures for the BRI economies and provides guidance on how to execute these reforms based on international experience.

2.5 Summary of Literature reviews and Knowledge Gaps

In this section, four theoretical literatures were reviewed to include; Mercantilism- One of the traditional theories, established in the 16th century by Adam Smith and David Ricardo, is the notion of comparative advantage (Johnson, 1932). It was one of the first theories to assert that a country's

wealth was determined by the amount of gold and silver it possessed, and it was also one of the most widely accepted. Each country's goal in the global market was to achieve a trade surplus while avoiding a trade deficit (Magnusson, 2019). Heckscher-Ohlin factor Proportions Theory- In the early 1900s two Swedish economists, Eli Heckscher and Bertil Ohlin, devised a theory that centred on how a nation might acquire comparative advantage by manufacturing items using elements that were abundant in that country. Land, labour, and capital are all important production variables in a nation, and these factors help to generate the revenues necessary for capital investment in plants and equipment. They came to the conclusion that the price of any item or resource was determined by the relationship between supply and demand.

Global Strategic Rivalry Theory- was established in the 1980s as a consequence of Paul Krugman and Kelvin Lancaster's work and today, it is still in use (Krugman, 1983; Lancaster, 1990). A significant portion of their study focused on multinational companies (MNCs) and their efforts to gain an advantage over other global firms in their respective sectors. According to Colaresi and Thompson (2002), enterprises would face worldwide rivalry in their sectors, and in order to succeed, they will need to create competitive advantages over their competitors.

Porter's National Competitive Theory- In 1990, Michael Porter of Harvard Business School devised a new way to explain national competitive advantage, which he published in the Journal of Business Research, thus continuing the legacy of international trade theories (Porter, 1990). According to Porter's thesis, a country's competitiveness in a particular sector is determined by the industry's ability to innovate and update its operations (Porter, 1990; Grant, 1991).

Despite all the theories reviewed have relevance to the study, the research angles on the Porter's National Competitive advantages theory because it is the most contemporary theory discussing competitiveness advantages in the context of trade facilitations. Furthermore, the theory is relevant

because it identifies important actions that the government should take through the Liberia Revenue Authority to increase the competitiveness of local firms in Liberia. In addition to the theoretical literatures review, several empirical literatures were reviewed to enhance the study findings. These literatures comprise of study drawn from both policy and academic research as summarized in table 2.1. This study therefore, filled empirical as well as methodological gaps in establishing econometric relationship between revenue administrations and trade facilitation performance in Liberia.

Table 2.1: summary of Literature reviews and Knowledge Gaps.

Author	Study	methodology	Findings	Gaps
Shiberu and Tamene (2021)	The impact of the import customs process on the ease of doing business in Adam city	The research designs adopted were descriptive and explanatory in nature. A sample of 110 people was selected using a basic random sampling method. Descriptive and inferential statistics were used in the study through SPSS for the analysis.	Positive and substantial effects on trade facilitation were seen in the implementation of customs automation systems, customs risk management, customs human resource management, and customs development.	The major drivers of export diversification in developing countries have not been identified.
Bezabih (2018)	Tariff evasion in Sub-Saharan Africa, as well as the role of assistance in trade facilitation	Used a linear regression model and pooled regression model	A significant association was found between non-compliance with customs laws in SSA and tariff rates, corruption, and efficiency in customs proceduress aid for trade facilitation.	The result may not provide clear indications about the existence and trend of evasion and allow to compare between blocks and countries. It may also not reflect the true extent of evasion in the region and

				the comparison is subject to these limitations
Lubos, et al., (2016)	The effect of Russia's agrarian import prohibition on specific agricultural goods imported from Europe, Norway, Canada, the United States of America, and Australia	Time series analysis	The import band also helped boost the general effectiveness of Russian agricultural commerce, but other commodity groupings saw their competition decline as a result.	The study used time series model which is not suitable in analyzing cross sectional data. Our study employed regression analysis model
Biljan & Trajkov (2012)	Risk management and Customs performance improvements in the Republic of Macedonia.	Regression analysis via two-step regression analysis	The primary element of a customs risk management method is selecting which individuals, products, and modes of transportation should be inspected and to what degree they should be studied.	Never specifically focused at developing countries further failed to consider performance of trade facilitation,
Vijil & Wagner (2012)	Impact of aid for trade sectoral flows on the previously detected determinants of export performance.	Two- step regression analysis	When it comes to export performance in developing nations, the infrastructure channel is a very important predictor, but the institutional channel has only a modest positive influence on export performance in	The study leaves a space for more research into the same in a variety of contexts.

			emerging countries.	
Iwanow & Kirkpatri (2009)	Indices of trade restrictiveness and trade facilitation that have been developed at the World Bank.	regression analysis via two- step regression analysis,	A large number of nations that have excellent (duty-free) access to a market often also have rivals that have the same level of access to the market.	The findings might not be a real indicator of the situation in the developing countries, thus need for actual study within these countries
Puertas, Martí & García (2014)	The adoption of trade facilitation reform in European nations has the potential to improve the performance of the trade sector.	used a gravity, quantitative regression analysis via two- step regression analysis	According to the findings, It is just as important as enhancing trade facilitation to improve the quality of the regulatory environment and the basic transportation and communication facilities	Did not specifically focused at developing countries further failed to consider performance of trade facilitation
Shinyekwa & Othieno (2013)	Factors that determine Uganda's trade flows	Regression analysis via two-step regression analysis, ordinary least squares (OLS), static random, dynamic random and IV GMM models	Apparently, there is a considerable association between membership to a trading bloc and trade flows, according to the data. Similarly, Uganda's import and export trade flows have notably adjusted to the gravitational influences of the EAC as the integration process progressed.	Did not clearly explore underlying factors that explains how trade facilitation improves performance of trade.
Kollie (2018)	Determinants of trade balance in Liberia	ordinary least squares (OLS),	Gross domestic product (GDP) and loan interest rate have a	In order to better understand the conditions in diverse contexts,

			favourable effect on the Balance of Trade (BoT) in the long term, but the rate of conversion, open trade and the supply of money have a adverse impact on the Balance of Trade (BoT).	it is necessary to use alternate dependent and independent variables, distinct nation samples, and other econometric approaches.
Wanjala (2004)	Composition and flow of Kenyan exports in the context of the Common Market for Eastern and Southern Africa (COMESA).	regression analysis via two- step regression analysis	COMESA has the impact of stimulating the formation of new commerce. There was no proof of trade diversion discovered. As a result, COMESA has contributed to the improvement of the country's export performance, which has in turn aided the country's efforts to attain the MDGs	Improved trade facilitation has been demonstrated to increase export diversification in developing nations, although the underlying factors remain unknown.
Cantens and Rabaland (2017)	Cross border Trade insecurity and the role of customs	The study identifies an uncharacteristic but balanced approach of responses of customs to insecurity during cross-border trade	Explanatory and descriptive research designed, with no quantative analysis	Methodological, and contextual gaps
Portugal-Perez and Wilson (, n.d)	Export Performance and Trade Facilitation Reform for Hard and Soft Infrastructures	Gravity and two stage sample selection model	Trade facilitation reforms could improve the export performance of developing counties especially investment in physical	Methodological and contextual gaps

			infrastructure and regulatory reform	
UN Conference on Trade and Development (UNCTAD)	Competitiveness, Border Agency Effectiveness, and Enhanced Strengthening of Trade Facilitation and Development	Adopted exploratory and descriptive designed with a cross-sectional nature with no gregarious quantitative data analysis.	Economic growth is intimately tied to trade facilitation's ability to be implemented in a country, and the two are intertwined in many ways.	Methodological and Contextual gaps
John, Clack, Kerswell and McInden (September 2018)	The relevance of trade facilitation reforms in maximizing the economic impact of infrastructure connectivity investments through the Belt and Road Initiative (BRI	The gravity model for global bilateral trade, and an out-of-sample simulation was performed.	In a global context, trade facilitation along the BRI corridors is weak, with performance for most falls below global averages according to most indicators.	Methodological and contextual gaps.

2.6 Conceptual Framework

This conceptual framework indicates the link between the various variables (dependent and explanatory variables). The dependent variable is trade facilitation performance and its indicators are Advance rulings, Fees and charges, Technology integration and Cooperation. The independent variable is revenue administration broken down to the following sub objects; revenue administration in tax collection, revenue administration in controlling flow of goods, revenue administration in social protection. Revenue administration in tax collection indicators include VAT reforms, Reforming management system, Risk control and preventing commercial frauds.

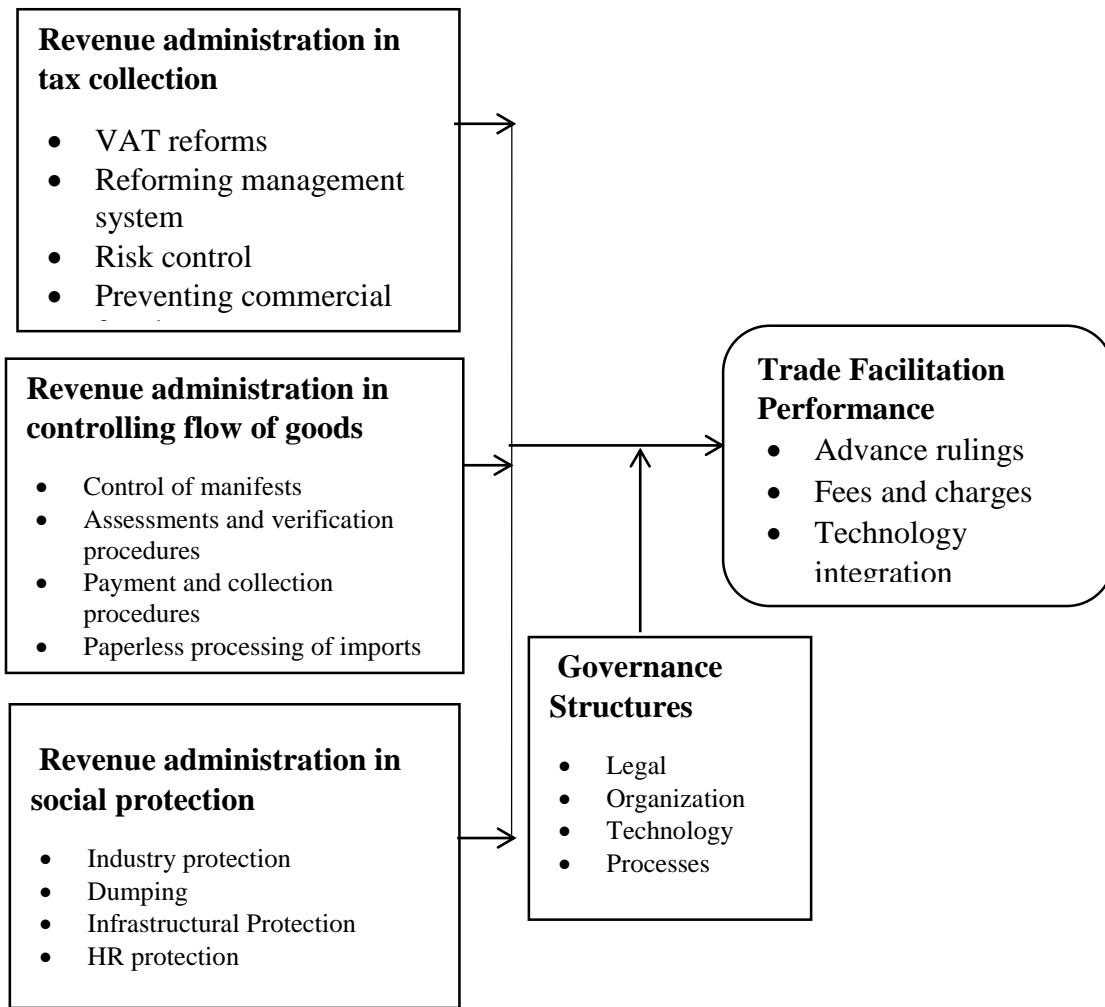
The indicators of revenue administration in controlling flow of goods are control of manifests, assessments and verification procedures, payment and collection procedures and paperless processing of imports. While revenue administration in social protection indicators are, industry

protection, dumping, infrastructural protection and HR protection. Governance structures has been adopted as the moderating variable and its indicators are Legal, Organization, Technology and Processes.

Independent Variables

Dependent Variable

Revenue Administrations



Moderating Variable

Figure 2.1: Conceptual Framework,

Source: Researcher (2021).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The research design, data collection, processing techniques, method of analysis and presentation, validity and reliability testing, and ethical considerations are all discussed in this chapter.

3.2 Research Design

Cross-sectional descriptive research design, which allowed the researcher to examine the correlations between the study variables and the variables themselves, was used in this study. The choice of this strategy was influenced by the fact that LRA and the research respondents are dispersed around the country at various entrances and departure locations.

3.3 Data Collections

This study used questionnaires to collect primary data. As shown by Oso and Onen (2011), survey research is an accurate and quick method of obtaining data on a populace and is particularly useful in situations when secondary data is unavailable, as in the case of a census (2005). As per Liberia Revenue Authority (LRA) report, there are 180 managers across all entry points working under Customs department in the country as at 30th June 2019. 57 of these managers are working across airports, 36 of them work across sea ports and 87 work at Land border points (LRA Annual report, 2020). As it was proposed the study targeted staff in the three category of entry points (Airports, Sea ports and Land border points). In addition, staffs in management positions in the department of customs working within the three categories of entry points served as respondents.

3.4 Piloting Testing

As suggested by Mshelia (2017) pilot test of a sample of 10-15% of sampled population is appropriate. The study randomly selected 10% of the respondents (that is 18 respondents) in the

non-participating respondents (staff not in any management position) purposively selected for piloting test to ascertain reliability as well as validity of the research instrument.

3.4.1 Validity of the Research Instruments

Questionnaire used in this study was validated by having it pre-tested, inspected and authorised by the researcher's supervisors before it was utilised in the research. The validity of the questionnaire was improved after a pilot test with a sample of 10% of those who answered the questionnaire. A Kaiser-Meyer-Olkin (KMO) analysis was performed utilizing SPSS version 24 and the results revised by both the supervisor and the researcher.

3.4.2 Reliability of the Research Instruments

Respondents' replies were examined and the results of the reliability test published in order to evaluate the questionnaires' dependability. The computed Cronbach's Alpha estimated the internal consistency of data while assessing a specific construct (Kölln et al., 2018). The higher the score, the more trustworthy the designed scale is considered to be. Polit and Beck (2006) posited that a 0.5 and above Cronbach's alpha indicates an acceptable level of reliability for a survey instrument.

3.5 Operationalization of Variables:

Variables	Measurements	Source
Trade Facilitation Performance	<ul style="list-style-type: none"> • Advance rulings • Fees and charges • Technology integration • Cooperation 	Adomavičiūtė & Daujotaitė (2017) OECD (2018)
Revenue administration in tax collection	<ul style="list-style-type: none"> • VAT reforms • Reforming management system • Risk control • Preventing commercial frauds 	Adomavičiūtė & Daujotaitė, 2017; Schlotterbeck, 2017
Revenue administration in controlling flow of goods	<ul style="list-style-type: none"> • Control of manifests • Assessments and verification procedures • Payment and collection procedures • Paperless processing of imports 	Nayan, 2019; Addo & Avgerou, 2020; Shiberu & Tamene, 2021
Revenue administration in social protection	<ul style="list-style-type: none"> • Industry protection • Dumping • Infrastructural Protection • HR protection 	Peterson & Ketners, 2013; Sakyi, Bonuedi & Opoku, 2018; Abrego et al., 2020
Governance structures	<ul style="list-style-type: none"> • Legal • Organization • Technology • Processes • People 	González & Jouanjean, 2017; Hosein, Gookool & Saridakis, 2021

3.6 Diagnostic Tests:

Before developing a regression equation by using Ordinary Least Square (OLS) estimation technique, assumptions of OLS were evaluated. These assumptions are that data should be normally distributed, there should exist a linear relationship between the dependence variable and the independence variables, the independence variables should not be collinear and that the regression residual error variance must be constant. Normality was evaluated using Shapiro-Wilk test. Data are considered normally distributed if the P-values are greater than alpha default 0.05 in this test. In evaluating linearity, the significance of regression model was used. When the P-value is less than alpha value of 0.05 the regression is considered to be significant.

In testing for collinearity among the predictor variables, variation inflation factor (VIF) was used. Presence of multi-collinearity is evident if the VIF values will be above 10 and a tolerance of less than 0.1. In testing for heteroscedasticity of the residual errors, Breusch-Pagan/Cook-Weisberg test was used. For a regression model to be considered for further analysis, the probability value should be greater than 0.05 to meet the assumption of homoscedasticity. Quantify multicollinearity, Variance Inflation Factor (VIF) and Tolerance ($1/VIF$) was used in this research and the ceiling for severe multicollinearity was set at 0.8 in this study (Gujarati & Porter, 2003). The existence of severe multicollinearity is indicated by a correlation coefficient more than 0.8 in the data. Omae (2016) indicates that coefficients of variables with 0.8 or VIF of 10, inferred the presence of multicollinearity. The remedy to multicollinearity is to drop the variable depicting the high collinearity value (Assaf, Tsionas & Tasiopoulos, 2019). The inability to examine and include the consequence of serial correlation throughout the research, may result in an unjustified standard error and inefficient measurement, as stated by Mukras (1993).

The Durbin Watson test or a similar test was performed to determine its existence. If the null hypotheses of this test were found to have any serial autocorrelation in the data, then robust standard errors would be utilised instead of the standard errors. A regression model that does not take into consideration heteroscedasticity would result in unbiased parameter values as well as erroneous standard errors (Mukras, 1993).

The study assumed that the error term has constant variance or that it is homoscedastic. It was confirmed by the use of the residual plot. If there is a systematic pattern in the scatter plots, then heteroscedasticity is present in the data. If the heteroscedasticity presence is verified, robust standard errors are used to prevent the generation of false estimates (Gujarati & Porter, 2003).

3.7 Data Analysis and Presentation

The gathered data was cleaned, encoded, and analyzed both descriptively and inferentially. The descriptive statistics included measures of central tendency. The inferential statistics were conducted by computing correlation analysis via Pearson correlation coefficient then through simple and multiple linear regression which indicated the impact of revenue administration on trade facilitation performance in Liberia.

3.8 Empirical Models

The study employed simple linear regression (for objectives one to three) and multiple linear regression (for objective four) models represented below.

a) Direct Association:

$$TFP = \beta_{01} + \beta_{11}RATC \dots\dots\dots \text{Equation 3. 1}$$

$$TFP = \beta_{02} + \beta_{12}RACFG \dots\dots\dots \text{Equation 3. 2}$$

$$TFP = \beta_{03} + \beta_{13}RASP \dots\dots\dots \text{Equation 3. 3}$$

Where;

TFP = Trade Facilitation Performance

$\beta_{01} - \beta_{03}$ = Coefficient for the null model

$\beta_{11} - \beta_{13}$ = Coefficient for the respective independent variable

RATC = Revenue Administration in tax collection

RACFG = Revenue administration in controlling flow of goods

RASP = Revenue administration in social protection

b) Moderation

Stepwise regression was conducted to check for moderation (Baron & Kenny, 1986). The first step checked for a direct significant association among the predictor variable (RA) and the response variable (TFP). In the second step, the moderator (GS) was introduced to the first model in step one and its significance evaluated. In the third step, the interaction among the predictor variable (RA) and the moderating variable (GS) was introduced to the model in step two and its significance also tested. The 3-step regression was as presented below.

Step 1

$$TFP = \beta_{04} + \beta_{14}RA \dots\dots\dots \text{Equation 3. 4}$$

Step 2

$$TFP = \beta_{05} + \beta_{15}RA + \beta_{25}GS \dots\dots\dots \text{Equation 3. 5}$$

Step 3

$$TFP = \beta_{06} + \beta_{16}RA + \beta_{26}GS + \beta_{36}RA * GS \dots\dots\dots \text{Equation 3. 6}$$

Where;

TFP = Trade Facilitation Performance

RA = Revenue Administration

GS = Governance Structure

$\beta_{04} - \beta_{06}$ = Coefficient for the null model

$\beta_{14} - \beta_{16}$ = Coefficient for Revenue Administration

β_{36} = Coefficient for the interaction between Revenue Administration and Governance Structures

$\beta_{14} - \beta_{16}$ = Coefficient for Revenue Administration

Decision Criteria for Moderation

Stepwise regression	Outcome	Conclusion
Step 1	β_{14} is significant in model 3.4	No Moderation
Step 2	β_{15} is significant in model 3.5	
Step 3	β_{16} and β_{26} and β_{36} are not significant in model 3.6	
Step 1	β_{14} is significant in model 3.4	Partial Moderation
Step 2	β_{15} and β_{25} are significant in model 3.5	
Step 3	β_{16} , β_{26} and β_{36} are significant in model 3.6	
Step 1	β_{14} is significant in model 3.4	Complete Moderation
Step 2	β_{15} and β_{25} are significant in model 3.5	
Step 3	β_{16} and β_{36} are significant but β_{26} is not significant in model 3.6	

Source: Baron and Kenny (1986)

The study results are presented using frequency tabulation, and figures (pie charts and bar graphs).

3.9 Ethical Considerations

All respondent engaged in the research were asked for permission, and also guaranteed that the data provided will only be utilized for academic reasons. The researcher obtained official permission from the University of Nairobi, and Liberia Revenue Authority.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, AND INTERPRETATIONS

4.1 Introduction

In this chapter, descriptive and inferential analytics are presented. Both Simple and multiple linear Regressions models' outputs are presented.

4.2 Response Rate

As per Liberia Revenue Authority (LRA) report, there are 180 managers across all entry points working under Customs department in the country as at 30th June 2019. 57 of these managers are working across airports, 36 of them work across sea ports and 87 work at Land border points (LRA Annual report, 2020). As it was proposed the study targeted staff in the three category of entry points (Airports, Sea ports and Land border points). In addition, staffs in management positions in the department of customs served as respondents, thereby maintaining a hundred percent response rate.

4.3 Demographic Characteristics

Table 4. 1 Gender.

Gender	Frequency	Percentages
Female	49	27
Male	126	70.
Total	175	97

The questionnaire was distributed to one hundred and eighty respondents in this research. As indicated in table 4.1 above a descriptive analysis was done on respondent's gender identities. According to the analysis five of the respondents (3%) did not disclose their gender identities.

However, a total of 175 persons (97%) responded as males or females. The analysis further revealed that 49 persons (27%) of the valid respondents were recorded as females were as 126 persons (70%) were males. This indicates that there are more males in managerial positions within the LRA as compare to their female colleagues. Graphically, Figure 4.1 depicts the analysis.

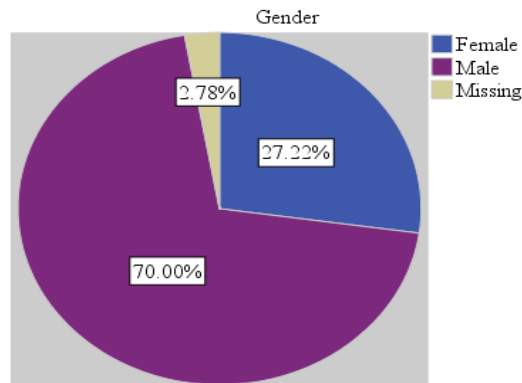


Figure 4.1 Gender analysis of study's respondents.

Source Primary Data (2022).

4.3.1 Education Level

The one hundred and eighty Respondents were also requested to provide information on their educational levels. According to the results, 8 persons (4%) obtained Diploma as the highest level of education, 66 person (37%) attained Undergraduate degrees, and 85 persons (47%) earned Postgraduate degrees in various diciplines. However, 21 persons (12%) did not disclose their educational background as indicated in table 4.2.

Table 4. 2 Educational Level.

Level of Educations	Frequency	Percentages
Diploma	8	4
Undergraduate	66	37
Post Graduate	85	47
Total	159	88

-

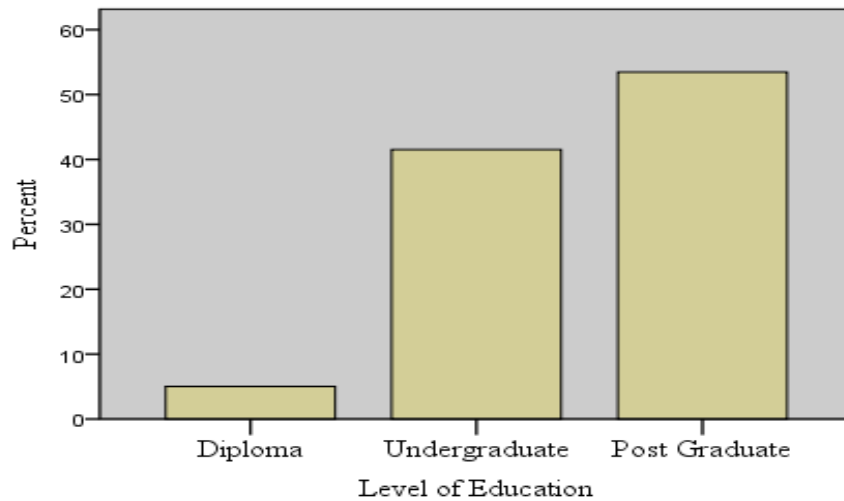


Figure 4. 2 Educational background of respondents.

Source Primary Data (2022).

4.3.2 Length of Service

This survey endeavoured to find out the experiences of each of the one hundred and eighty respondents. The result show that on average, the respondents had worked for 6 years with a standard deviation of 3 years. The data also show that the minimum tenure of service observed was 1 year and the maximum 17 years as indicated in Table 4. 3.

Table 4. 3 Length of Service.

Mean	6
Std. Deviation	3
Minimum	1
Maximum	17

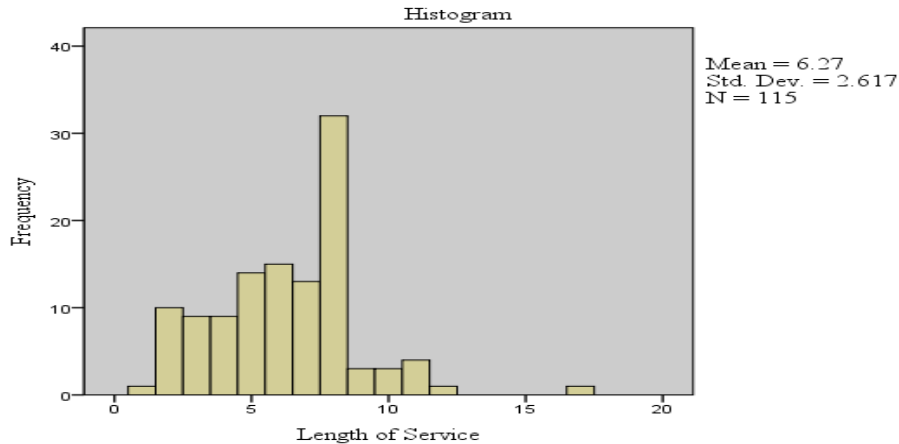


Figure 4. 3 Tenure of Service for Respondents, Source Primary Data (2022).

4.4 Descriptive Analysis

4.4.1 Revenue administration in tax collection

The study attempted to ascertain the extent to which respondents were agreeing or disagreeing on the postulated statements on revenue administration in tax collection. Revenue administration in tax collection was described using a five points Likert Scale Table 4.4 shows the mean and standard deviation for likert scale responses.

Table 4. 4 Revenue Administration in Tax Collection.

Variables	Mean	STD
VAT Reform and goods management.	3.66	0.764
Strengthened oversight of duty reductions or exemptions.	3.66	0.710
Intensifying the control of logistics and improving monitoring of bonded goods.	3.66	0.806
Revenue analysis, risk management control, and enforcement evaluation are used to guard against potential revenue collection risks.	3.702	0.821
Preventing and cracking down on commercial frauds	3.83	0.729
Carry out nationwide customs revenue collection verification	3.88	0.566
Average	3.73	0.47

Results shows that respondents disagreed with the statement that VAT reforms and the management of goods whose processing is forbidden or restricted was completed. The mean and standard deviation in table 4.4 are 3.66 and 0.764, respectively. Similarly oversight of duty reductions or exemptions and the principles of revenue collections was not strengthen as shown by mean and standard deviation of 3.66 and 0.710 respectively.

Furthermore, results in table 4.4 show that respondents moderately disagree that revenue analysis, risk management control and enforcement assessment are necessary to protect against potential revenue collections risk in key critical industries, enterprises and commodities (Mean= 3.702, Standard Deviation = 0.821).

Again, respondents moderately disagree with the statement that prevention and combating commercial fraud through revenue audits on priority customs goods and commodities existed (Mean=3.83, Standard Deviation= 0.729). The assumption that the LRA carry out nationwide customs revenue collection, verification of essential sectors of sensitive commodities in critical area during the period of policy adjustments was also moderately rejected by the study respondents (Mean= 3.88, Standard Deviation=0.47). On average, respondents were generally disagreeing with the postulated statements on revenue administration in Tax collection as illustrated by the mean of 3.73 and a standard deviation of 0.47.

4.4.2 Revenue administration in controlling the flow of goods

Likewise, Revenue administration in controlling the flow of goods was described using a five points Likert Scale. Table 4.5 shows the mean and standard deviation for the likert scale responses.

Table 4.5 Revenue Administration in controlling the flow of Goods.

Control flow of goods	Mean	S. D
Specific customs forms meet the information needs of the customs administration.	3.68	0.811
Computer applications enhance automated reconciliation of manifested goods	3.08	1.23
Assessment and verification procedures include tariff classification of goods, customs duties and tax computation, and application of other legislation.	3.98	0.694
There is minimal arrears in customs duty and tax payments.	3.063	1.114
The automated system's data is analyzed to address structural problems that delay import clearance processing.	3.878	0.566
Average (Mean)	3.57	0.65

As shown in table 4.5, respondents moderately disagreed that revenue administration in Controlling the Flow of Good within the LRA have specific customs forms (bill of lading, airway bill) that meet the information needs of customs administrators (Mean 3.68, Standard Deviation=0.811). In addition, respondents remain neutral about LRA Computer applications' enhancement of automated reconciliation of manifested goods with the goods shown in the declaration's documents and for rapid information retrieval to allow the investigation of discrepancies and excesses (Mean=3.08, Standard Deviation=1.23). Accordingly, respondents disagree that assessment and verification procedures include the tariff classification of goods, customs duties and tax computation, the application of other legislation, and the subsequent examination of documents and goods (Mean= 3.98, Standard Deviation=0.694). Respondents were neutral on minimal arrears in customs duty and tax payment within the LRA (Mean= 3.063, Standard deviation 1.114). Moreover, respondents moderately disagreed that automated system's data is analyzed to address structural problems that delay import clearance processing (Mean=3.9 and Standard Deviation=0.566).

On average, respondents were generally disagreeing with the postulated statements on revenue administration in controlling the flow of goods as shown by a mean of 3.59 and a standard deviation of 0.65.

4.4.3 Revenue administration in social protection

Five-point Likert scale was used to determine whether respondents agreed or disagreed with the proposed statements on revenue administration in social protection. Table 4.6 depicts the mean and standard deviation of the Likert responses.

Table 4.6 Revenue Administration in Social Protection.

Social protection	Mean	S. D
If some good (s) consumed generates pollution, increase their price.	4.207	0.842
The advisability of other exemptions granted for social or economic purposes is more debatable and depends on their economic effects.	3.809	0.808
Due to different levels of competitiveness, control the potential for dumping.	3.835	0.779
Protected domestic firms not to be driven out of business.	2.848	1.354
LRA moderate measures for trade facilitation.	4.136	0.821
Average (Mean)	3.57	0.68

As it is in table 4.6 above, respondents disagreed that if some good (s) consume generates pollution, the LRA should increase their price by imposing additional tariffs on imports in other to increase social welfare (Mean= 4.207, Standard deviation= 0.842). Furthermore, respondents moderately disagreed that the advisability of other exemptions granted for social or economic purposes is more debatable and depends on their economic effects (mean of 3.809, Standard Deviation of 0.808). Due to different levels of competitiveness, the LRA controls

the potential for dumping was rejected (mean= 3.84, Standard deviation=0.779). Respondents were neutral on the protection of domestic enterprises from being forced out of business by exporting employment to other nations, as reflected by the mean and standard deviation of 2.848 and 1.354, respectively. The study found that the LRA moderates measures for trade facilitation in protecting infrastructural and human resource as indicated by (Mean =4.136 and Standard Deviation = 0.821). On average, respondents were generally disagreeing with the postulated statements on revenue administration in social protection as depicted by the mean of 3.57 and a standard deviation of 0.68.

4.4.4 Governance Structures

Five-point Likert scale was also utilized to determine how respondents agreed or disagreed with the proposed statements on governance models. Table 4.7 depicts the mean and standard deviation for the likert scale responses.

Table 4.7 Governance Structures.

Governance Structures	Mean	S. D
Regulatory reforms are being implemented in order to provide a legal framework that is clear, succinct, and transparent.	4.040	0.711
LRA promotes institutional growth, dialogue with the private sector, and inter-agency cooperation.	4.062	0.676
LRA has established and upgraded infrastructure for electronic processing of trade documents and data exchanges.	4.182	0.749
LRA advocates for changes in business processes and procedures.	4.141	0.724
The revenue authority has a capacity-building program.	4.046	0.770
Average (Mean)	4.100	0.550

Table 4.7 indicates that the respondents were disagreeing that Regulatory reforms are being implemented in order to provide a legal framework that is clear, concise, and transparent (Mean = 4.04 and Standard deviation = 0.711). In addition, the respondents disagreed that LRA promotes institutional growth, dialogue with the private sector, and inter-agency cooperation, see Mean 4.061 and Standard deviation = 0.676. Likewise, the respondents disagreed that LRA has established and upgraded infrastructure for electronic processing of trade documents and data exchanges, including the ICT system (Mean=4.182 and Standard Deviation=0.749). The results of the analysis show that the LRA do not advocate for changes in business processes and procedures (Mean=4.141 and Standard Deviation 0.724). Moreover, revenue authority does not have a capacity-building program for implementing managers and officers (Mean = 4.046 and Standard deviation = 0.770). On average, respondents were generally disagreeing with the postulated statements on governance structures as depicted by a mean of 4.10 and a standard deviation of 0.55.

4.4.5 Trade facilitation performance

The mean and standard deviation for the likert scale responses indicated in in table 4.8 suggest the extent to which the respondents were agreeing or disagreeing with the postulated statements on trade facilitation performance (Dependent Variable).

Table 4.8 Trade Facilitation Performance.

Trade Facilitation	Mean	S. D
The LRA provides prior statements by the administration to the requesting traders concerning the classifications, origin, and valuation method.	3.06	1.31
Increased possibility and modalities to appeal administrative decisions by the border agencies.	3.10	1.35
Increased cooperation with neighboring and third-party countries.	3.78	0.844
Penalties are imposed on imports and exports goods if they become overdue	4.30	0.702
The authority embraces the electronic exchange of data, automated border procedures, and the use of risk management.	4.17	0.714
Simplified trade documents, harmonized by international standards, and accepted copies within the LRA.	3.75	0.76
Average (Mean)	3.69	0.65

In Table 4.8, respondents were neutral that the LRA provides prior statements to the requesting traders concerning the classifications, origin, and valuation method of imported or exported goods (Mean=3.06 and Standard Deviation=1.35). In addition, they were also neutral about the increased possibility and modalities to appeal administrative decisions by the border agencies of the LRA (Mean =3.10 and Standard Deviation=1.35). It was moderately disagreed (Mean =3.78 and Standard Deviation=0.844) that there is increased cooperation with neighboring and third-party countries for trade facilitation. There no imposition of penalties and interest on import and export goods that become over due (Mean=4.30 and Standard Deviation=0.702). The LRA do not embrace the electronic exchange of data, automated border procedures, and the use of risk management programs (Mean=4.17, and Standard Deviation=0.714). It was moderately disagreed that there are simplified trade documents harmonized to

international standards and accepted copies with in the LRA (Mean=3.75 and Standard Deviation=0.76). On average, respondents were generally disagreeing with the postulated statements on trade facilitation performance as shown by a mean of 3.69 and a standard deviation of 0.65. Furthermore, according to 57% of the respondents, bribery was identified as the major challenge facing Liberia's trade facilitation performance.

4.5 Inferential Analysis

4.5.1 Diagnostic Tests

Prior to developing the regression models, assumptions of OLS were tested to ensure that the eventual data to be subjected to analysis will be following normal distribution, the predictor variables will be linearly related to the response variable, there should be absence of multicollinearity among independent variables and also absence of Heteroscedasticity in residual errors. As follows in sections 4.5.2.1, 4.5.2.2, 4.5.2.3 and 4.5.2.4 the diagnostic tests are presented.

4.5.1.1 Normality Test

Normality was evaluated using Shapiro-Wilk test. This test's null hypothesis is that data are normally distributed when the respective P- values are greater than alpha default of 0.05. As is represented in table 4.9 below, trade facilitation performance with a pvalue of 0.975, revenue administration in tax collection with a pvalue of 0.984, revenue administration in controlling the flow of goods with a pvalue of 0.90, revenue administration in social protection a pvalue of 0.803 and governance structures with a pvalue of 0.98 were normally distributed as the respective pvalues are greater than 0.05 level of significance. This imply that the assumption for normality is upheld.

Table 4.9 Shapiro-Wilk Test.

Variable	Shapiro-Wilk test for Normality					
	Observation	W	V	z	Prob>z	
Trade Facilitation Performance	180	0.99690	0.422	-1.977	0.97597	
Revenue Administration in Tax Collection	180	0.99711	0.393	-2.137	0.98371	
Revenue Administration in Controlling the Flow of goods	180	0.97137	3.897	3.113	0.90093	
revenue administration in social protection	180	0.99494	0.689	-0.853	0.80328	
Governance Structures	180	0.98602	1.904	1.474	0.07029	

4.5.1.2 Linearity

In evaluating linearity, the significance of regression model was used. When the P- value is less than alpha value of 0.05 the regression is considered to be significant. As is illustrated in figure 4.4 below, there existed a significant linear relationship between Revenue Administration in Tax Collection, Revenue Administration in Controlling the Flow of goods, revenue administration in social protection and trade Facilitation performance as evidence by pvalue = 0.000 which is less than $\alpha = 0.05$.

```

Number of obs      =          180
F(4, 175)          =          41.42
Prob > F           =          0.0000
R-squared          =          0.4863
Adj R-squared     =          0.4746
Root MSE          =          .26198
    
```

Figure 4. 4 Linearity Test.

4.5.1.3 Multicollinearity

In testing for collinearity among the predictor variables, variation inflation factor (VIF) was used. Presence of multi-collinearity is evident if the VIF values will be above 10 and a tolerance of less than 0.1. As is reported in figure 4.5, VIF values for Revenue Administration in Tax

Collection, Revenue Administration in Controlling the Flow of goods, governance structures and revenue administration in social protection were 0.5921, 0.6077, 0.9638 and 0.9997 respectively. Tolerance values for Revenue Administration in Tax Collection, Revenue Administration in Controlling the Flow of goods, governance structures and revenue administration in social protection were 1.69, 1.65, 1.04 and 1.0 respectively. VIF values were less than 10 and tolerance (1/VIF) values were above 0.1, indicating that multicollinearity was absent, thus the third assumption was upheld.

Variable	VIF	1/VIF
RATC2	1.69	0.592060
RACFG3	1.65	0.607696
GS5	1.04	0.963846
RASP4	1.00	0.999705
Mean VIF	1.34	

Figure 4.5 Multicollinearity Test.

4.5.1.4 Heteroscedasticity

In testing for heteroscedasticity of the residual errors, Breusch-Pagan/Cook-Weisberg test was used. For a regression model to be considered for further analysis, the probability value should be greater than 0.05 to meet the assumption of homoscedasticity. From study results, the p_{value} of 0.3438 was greater than 0.05 level of significance, implying that the study fails to reject the null hypothesis of constant variance. Thus, there was no evidence that heteroscedasticity was present, leading to the fourth assumption for OLS to being upheld.

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of TFP1

chi2(1) = 0.90

Prob > chi2 = 0.3438

Figure 4. 6 Heteroscedasticity.

4.5.2 Correlation Analysis

The study evaluated whether there exist an correlation between the predictor variables (revenue administration in tax collection, revenue administration in controlling the flow of goods, revenue administration in social protection, and governance structure) and the response variable (trade facilitation performance), and whether the correlation was significant. Pearson correlation was computed to evaluate the bivariate association, as presented in table 4.10 below.

Table 4.10 Correlations.

		Trade Facilitation Performance	Revenue Administration in Tax Collection	Revenue Administration in Controlling the Flow of Goods	Revenue Administration in Social Protection	Governance Structure
Trade Facilitation Performance	Pearson Correlation	1	.690**	.429**	.098	.136*
	Sig. (2-tailed)		.000	.000	.019	.006
	N	180	180	180	180	180
Revenue Administration in Tax Collection	Pearson Correlation	.690**	1	.626**	-.005	.188*
	Sig. (2-tailed)	.000		.000	.946	.011
	N	180	180	180	180	180
Revenue Administration in Controlling the Flow of Goods	Pearson Correlation	.429**	.626**	1	-.008	.099
	Sig. (2-tailed)	.000	.000		.920	.184
	N	180	180	180	180	180
Revenue Administration in Social Protection	Pearson Correlation	.098	-.005	-.008	1	.014*
	Sig. (2-tailed)	.189	.946	.920		.004
	N	180	180	180	180	180
Governance Structure	Pearson Correlation	.136*	.188*	.099*	.014*	1
	Sig. (2-tailed)	.006	.011	.001	.004	
	N	180	180	180	180	180
**. Significant at 0.01.						
*. Significant at 0.05.						

From table 4.10 above, there exist a moderate positive correlation between revenue administration in tax collection and trade facilitation performance ($r = 0.690, p_{value} = .000$), and the moderate positive correlation was significant. In terms of revenue administration in controlling the flow of goods and trade facilitation performance, a positive significant correlation was evident ($r = 0.429, p_{value} = .000$). Revenue administration in social protection was weakly but positively correlated to trade facilitation performance and the weak positive correlation was significant ($r = 0.098, p_{value} = .019$). Furthermore, there existed a weak significant positive

correlation between governance structures and trade facilitation performance ($r = 0.136, p_{value} = .006$). Overall, all the independent variables (revenue administration in tax collection, revenue administration in controlling the flow of goods, governance structures and revenue administration in social protection) were positively correlated to the dependent variable (trade facilitation performance) and the correlations were significant. The significant of the relationships were further subjected to hypothesis testing in order to respond to the specific objectives of the study as presented in section 4.6 that follows.

4.5.3 Hypothesis Testing

In responding to the objectives of the research, which was to determine the impact of revenue administration on trade facilitation performance in Liberia, the study carried out hypotheses testing where the null hypothesis was rejected or was upheld at 95% level of confidence. The rejection of the null hypothesis imply that the regression equation to be developed was significant and so at 0.05 level of significance (obtained from 95% level of confidence), the study conclude that there was an significant cause-effect relationship of the predictor variables on the response variable being evaluated. This section was presented in order of the objectives as in sections 4.6.1, 4.6.2, 4.6.3 and 4.6.4.

4.5.3.1 Revenue Administration in Tax Collection on Trade Facilitation Performance

The study sought to evaluate the effect of revenue administration in tax collection on trade facilitation performance in Liberia. The hypothesized relationships were that;

H₀₁: No significant relationship between revenue administration in tax collection and trade facilitation performance in Liberia and

H₁₁: There is a significant relationship between revenue administration in tax collection and trade facilitation performance in Liberia.

The study computed the composite indices for Revenue Administration in Tax Collection and Trade Facilitation Performance. Correlation (r), coefficient of determination (R^2) and standard error of the estimates were computed, after which analysis of variance (ANOVA) statistic (p_{value}) and regression coefficient were developed. Correlation coefficient (r) was computed to describe the direction and strength of the effect on trade facilitation performance from revenue administration in tax collection. Coefficient of determination (R^2) described the proportion of variation in trade facilitation performance that has been accounted for by revenue administration in tax collection, which was the regressor. From the model summary in table 4.11 below, revenue administration in tax collection was positively correlated to trade facilitation performance ($r = .690$). 47.6% of the variation in trade facilitation performance in Liberia, was accounted for by revenue administration in tax collection ($R^2 = .690$) with a standard error of .262.

Table 4.11 Model Summary for Revenue Administration in Tax Collection.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.690 ^a	.476	.473	.26239

a. Predictors: (Constant), Composite Index for Revenue Administration in Tax Collection.

Furthermore, in the decision to adopt the alternative hypothesis and reject the null hypothesis, ANOVA was used, where the F-statistic and the associated p_{value} were used. From table 4.12, $F_{statistic} = 161.624$ and the associated $p_{value} = .000$, leads to the study rejecting the null hypothesis of no significant association between revenue administration in tax collection and trade facilitation performance in Liberia, in favour of the alternative hypothesis. In essence the research concludes that there was significant association between revenue administration in tax collection and trade facilitation performance in Liberia.

Table 4.12 ANOVA for Revenue Administration in Tax Collections.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.128	1	11.128	161.624	.000^b
	Residual	12.255	178	.069		
	Total	23.383	179			
a. Dependent Variable: Composite index for Trade Facilitation Performance.						
b. Predictors: (Constant), Composite Index for Revenue Administration in Tax Collection.						

Further, the effect of Revenue Administration in Tax Collection on Trade Facilitation Performance was quantified as represented in table 4.13 by the regression coefficients developed. Revenue Administration in Tax Collection had a significant direct effect on Trade Facilitation Performance ($\beta_1 = .677$, $p_{value} = .000$). The eventual regression is as presented in equation 4.1.

Table 4.13 Coefficients for Revenue Administration in Tax Collections.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.698	.127		13.337	.000	1.447	1.949
	Composite Index for Revenue Administration in Tax Collection	.677	.053	.690	12.713	.000	.572	.783
a. Dependent Variable: Composite index for Trade Facilitation Performance.								

$$TFP = 1.698 + .667RATC \dots\dots\dots \text{Equation 4. 1}$$

Equation 4.1 indicates that for a one percent increase in Revenue Administration in Tax Collection, there will be an associated direct increase in Trade Facilitation Performance by 67.7%, holding other factors constant.

4.5.3.2 Revenue Administration in Controlling Flow of Goods:

The research sought to establish the influence of revenue administration in controlling flow of goods on trade facilitation performance in Liberia. The hypothesized relationships were that;

H₀₂: There is no significant relationship between revenue administration in controlling flow of goods and trade facilitation performance in Liberia and

H₁₂: There is an significant relationship between revenue administration in controlling flow of goods and trade facilitation performance in Liberia.

The study computed the composite indices for revenue administration in controlling flow of goods and Trade Facilitation Performance. Correlation coefficient (r) was computed to describe the direction and strength of the effect on trade facilitation performance from revenue administration in controlling flow of goods. Coefficient of determination (R^2) described the proportion of variation in trade facilitation performance that has been accounted for by revenue administration in controlling flow of goods, which was the regressor. From the model summary in table 4.14 below, revenue administration in controlling flow of goods was positively correlated to trade facilitation performance ($r = .429$). 18.4% of the variation in trade facilitation performance in Liberia, was accounted for by revenue administration in controlling flow of goods ($R^2 = .184$) with a standard error of .327.

Table 4.14 Model Summary for Revenue Administration controlling the flow of goods.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.429 ^a	.184	.179	.32744
a. Predictors: (Constant), Composite Index for Revenue Administration controlling the flow of goods.				

Furthermore, in the decision to adopt the alternative hypothesis and reject the null hypothesis, ANOVA was used, where the F-statistic and the associated p_{value} were used. From table 4.15, $F_{statistic} = 40.091$ and the associated $p_{value} = .000$, leads to the study rejecting the null hypothesis of no significant association between Revenue Administration controlling the flow of

goods and trade facilitation performance in Liberia, in favour of the alternative hypothesis. In essence the research concludes that there was significant association between Revenue Administration controlling the flow of goods and trade facilitation performance in Liberia.

Table 4.15 ANOVA for Revenue Administration controlling the flow of goods.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.298	1	4.298	40.091	.000 ^b
	Residual	19.084	178	.107		
	Total	23.383	179			
a. Dependent Variable: Composite index for Trade Facilitation Performance.						
b. Predictors: (Constant), Composite Index for Revenue Administration controlling the flow of goods.						

Further, the influence of Revenue Administration controlling the flow of goods on Trade Facilitation Performance was quantified as represented in table 4.16 by the regression coefficients developed. Revenue Administration controlling the flow of goods had a significant direct influence on Trade Facilitation Performance ($\beta_1 = .517, p_{value} = .000$). The eventual regression is as presented in equation 4.2.

Table 4.16 Coefficient for Revenue Administration controlling the flow of goods.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.722	.250		6.889	.000	1.229	2.216
	Composite Index for Revenue Administration controlling the flow of goods	.517	.082	.429	6.332	.000	.356	.678
a. Dependent Variable: Composite index for Trade Facilitation Performance.								

$$TFP = 1.722 + .517RACFG \dots\dots\dots \text{Equation 4. 2}$$

Equation 4.2 indicates that for a one percent increase in Revenue Administration controlling the flow of goods, there will be an associated direct increase in Trade Facilitation Performance by 51.7%, holding other factors constant.

4.5.3.3 Revenue Administration in Social Protection on Trade Facilitation Performance

The study sought to investigate the effect of Revenue Administration in Social Protection on trade facilitation performance in Liberia. The hypothesized relationships were that;

H₀₃: No significant relationship between Revenue Administration in Social Protection and trade facilitation performance in Liberia and

H₁₃: Existence of an significant relationship between Revenue Administration in Social Protection and trade facilitation performance in Liberia.

The study computed the composite indices for Revenue Administration in Social Protection and Trade Facilitation Performance. Correlation coefficient (r) was computed to describe the direction and strength of the effect on trade facilitation performance from Revenue Administration in Social Protection. Coefficient of determination (R^2) described the proportion of variation in trade facilitation performance that has been accounted for by Revenue Administration in Social Protection, which was the regressor. From the model summary in table 4.17 below, Revenue Administration in Social Protection was positively correlated to trade facilitation performance ($r = .098$). 1% of the variation in trade facilitation performance in Liberia, was accounted for by revenue administration in controlling flow of goods ($R^2 = .010$) with a standard error of .361.

Table 4.17 Model Summary for Revenue Administration in Social Protections

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.098 ^a	.010	.004	.36068
a. Predictors: (Constant), Composite index for Revenue Administration in Social Protection.				

Furthermore, in the decision to adopt the alternative hypothesis and reject the null hypothesis, ANOVA was used, where the F-statistic and the associated p_{value} were used. From table 4.18, $F_{statistic} = 47.404$ and the associated $p_{value} = .019$, leads to the study rejecting the null hypothesis of no significant association between Revenue Administration in Social Protection and trade facilitation performance in Liberia, in favour of the alternative hypothesis. In essence the research concludes that there was significant relationship between Revenue Administration in Social Protection and trade facilitation performance in Liberia.

Table 4.18 ANOVA for Revenue Administration in Social Protections.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.930	1	4.930	47.404	.019 ^b
	Residual	18.453	178	.017		
	Total	23.383	179			
a. Dependent Variable: Composite index for Trade Facilitation Performance.						
b. Predictors: (Constant), Composite index for Revenue Administration in Social Protection.						

Further, the effect of Revenue Administration in Social Protection on Trade Facilitation Performance was quantified as represented in table 4.19 by the regression coefficients developed. Revenue Administration in Social Protection had a significant direct influence on Trade Facilitation Performance ($\beta_1 = .117$, $p_{value} = .019$). The eventual regression is as presented in equation 4.3.

Table 4.19 Coefficient for Revenue Administration in Social Protections.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	2.980	.242		12.301	.000	2.502	3.458
	Composite index for Revenue Administration in Social Protection	.117	.035	.029	3.320	.019	-.058	.292
a. Dependent Variable: Composite index for Trade Facilitation Performance.								

$$TFP = 2.980 + .117RASP \dots\dots\dots \text{Equation 4. 3}$$

Equation 4.3 indicates that for a one percent increase in Revenue Administration in Social Protection, there will be an associated direct increase in Trade Facilitation Performance by 11.7%, holding other factors constant.

4.5.3.4 Governance Structure as a Moderator

The fourth objective was to determine the effect of governance structure on revenue administration and trade facilitation performance in Liberia. In doing so, the study conducted a three step, simple linear and multiple linear regressions to ascertain whether governance structure had an moderating effect on the association between revenue administration and trade facilitation performance in Liberia.

The study computed the composite indices for Revenue Administration, governance structure and Trade Facilitation Performance. Again, the study computes an interaction term between revenue administration and governance structure. Correlation coefficient (r) was computed to describe the direction and strength of the effect on trade facilitation performance from Revenue Administration or governance structure or the interaction term. Coefficient of determination (R²) described the proportion of variation in trade facilitation performance that has been accounted for by Revenue Administration or governance structure and the interaction, which are the regressors.

Step 1

In step 1, the study tests whether there exists a relationship between the composite index for revenue administration and trade facilitation performance. The hypothesized relationships were that;

H_{04a}: No significant relationship between Revenue Administration and trade facilitation performance in Liberia and

H_{14a}: There is an significant relationship between Revenue Administration and trade facilitation performance in Liberia.

From the model summary in table 4.20 below, Revenue Administration was positively correlated to trade facilitation performance($r = .613$). 37.5% of the variation in trade facilitation performance in Liberia, was accounted for by revenue administration ($R^2 = .375$) with an standard error of .287.

Table 4.20 Model Summary for Step 1.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.613 ^a	.375	.372	.28650
a. Predictors: (Constant), Composite Index for Revenue Administration.				

In the decision to adopt the alternative hypothesis and reject the null hypothesis, ANOVA was used, where the F-statistic and the associated p_{value} were used. From table 4.21, $F_{statistic} = 106.877$ and the associated $p_{value} = .000$, leads to the study rejecting the null hypothesis of no significant association between Revenue Administration and trade facilitation performance in Liberia, in favour of the alternative hypothesis. In essence the study concludes that there was significant association between Revenue Administration and trade facilitation performance in Liberia.

Table 4.21 ANOVA for Step 1.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.772	1	8.772	106.877	.000 ^b
	Residual	14.610	178	.082		
	Total	23.383	179			
a. Dependent Variable: Composite index for Trade Facilitation Performance.						
b. Predictors: (Constant), Composite Index for Revenue Administration.						

Furthermore, the effect of Revenue Administration on Trade Facilitation Performance was quantified as represented in table 4.22 by the regression coefficients developed. Revenue Administration had a significant direct influence on Trade Facilitation Performance ($\beta_1 = .987, p_{value} = .000$). The eventual regression is as presented in equation 4.

Table 4. 22 Coefficient for Step 1.

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.627	.259		2.420	.017	.116	1.139
	Composite Index for Revenue Administration	.987	.095	.613	10.338	.000	.798	1.175

a. Dependent Variable: Composite index for Trade Facilitation Performance.

$$TFP = .627 + .987RA \dots\dots\dots \text{Equation 4. 4}$$

Equation 4.4 shows that for an one percent increase in Revenue Administration, there will be an associated direct increase in Trade Facilitation Performance by 98.7%, holding other factors constant. In step one, the study concludes that there is an significant effect of revenue administration on trade facilitation performance.

Step 2

In the second step, governance structure (the moderator) is introduced to equation 4.4. The individual significance of revenue administration and governance structure on trade facilitation performance was then evaluated. The hypothesized relationships were that;

H_{04a}: There is no significant cumulative relationship of Revenue Administration and governance structures on trade facilitation performance in Liberia and

H_{14a}: There is a significant cumulative relationship of Revenue Administration and governance structures on trade facilitation performance in Liberia.

From the model summary in table 4.23 below, 37.7% of the variation in trade facilitation performance in Liberia, was accounted for by revenue administration and governance structures ($R^2 = .377$) with an standard error of .287.

Table 4.23 Model Summary for Step 2.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.614 ^a	.377	.370	.28688
a. Predictors: (Constant), Composite Index for Governance Structure, Composite Index for Revenue Administration.				

Furthermore, in the decision to adopt the alternative hypothesis and reject the null hypothesis, ANOVA was used, where the F-statistic and the associated p_{value} were used. From table 4.24, $F_{statistic} = 53.555$ and the associated $p_{value} = .000$, leads to the study rejecting the null hypothesis of no significant cumulative relationship of Revenue Administration and governance structure on trade facilitation performance in Liberia, in favour of the alternative hypothesis. In essence the research concludes that there was a significant cumulative association of Revenue Administration and governance structure on trade facilitation performance in Liberia.

Table 4.24 ANOVA for Step 2.

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.815	2	4.408	53.555	.000 ^b
	Residual	14.567	177	.082		
	Total	23.383	179			
a. Dependent Variable: Composite index for Trade Facilitation Performance.						
b. Predictors: (Constant), Composite Index for Governance Structure, Composite Index for Revenue Administration.						

Moreover, the effect of Revenue Administration and governance structure on Trade Facilitation Performance was quantified as represented in table 4.25 by the regression coefficients developed. Revenue Administration had a significant direct influence on Trade Facilitation Performance ($\beta_1 = .976, p_{value} = .000$), also governance structure had a significant effect on Trade Facilitation Performance ($\beta_1 = .218, p_{value} = .042$). The eventual regression is as presented in equation 4.5.

Table 4.25 Coefficients for Step 2.

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.505	.310		1.626	.106	-.108	1.117
	Composite Index for Revenue Administration	.976	.097	.606	10.091	.000	.785	1.167
	Composite Index for Governance Structure	.218	.080	.193	2.721	.042	.140	.221

a. Dependent Variable: Composite index for Trade Facilitation Performance.

$$TFP = .505 + .606RA + .193GS \dots\dots\dots \text{Equation 4. 5}$$

Equation 4.5 shows that for a one percent increase in Revenue Administration, there will be an associated direct increase in Trade Facilitation Performance by 60.6%, holding other factors constant. Also, for a one percent increase in Governance Structure, there will be an associated direct increase in Trade Facilitation Performance by 19.3%, holding other factors constant. In the second step, both revenue administration and Governance Structure have a significant effect on trade facilitation performance.

Step 3

In the third step, interaction between revenue administration and governance structure (the moderator) is introduced to equation 4.5. The individual significance of revenue administration,

governance structure and the interaction on trade facilitation performance was then evaluated. The hypothesized relationships were that;

H_{04a}: There is no significant cumulative relationship of Revenue Administration, governance structures and the interaction on trade facilitation performance in Liberia and

H_{14a}: There is a significant cumulative relationship of Revenue Administration, governance structures and the interaction on trade facilitation performance in Liberia.

From the model summary in table 4.26 below, 38% of the variation in trade facilitation performance in Liberia, was accounted for by revenue administration, governance structures and the interaction term ($R^2 = .380$) with a standard error of .287.

Table 4.26 Model Summary for Step 3.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.617 ^a	.380	.370	.28694
a. Predictors: (Constant), Interaction Effect, Composite Index for Revenue Administration, Composite Index for Governance Structure.				

In the decision to adopt the alternative hypothesis and reject the null hypothesis, ANOVA was used, where the F-statistic and the associated p_{value} were used. From table 4.27, $F_{statistic} = 35.997$ and the associated $p_{value} = .000$, leads to the study rejecting the null hypothesis of no significant cumulative association of Revenue Administration, governance structure and interaction term on trade facilitation performance in Liberia, in favour of the alternative hypothesis. In essence the research concludes that there was significant cumulative association of Revenue Administration, governance structure and the interaction term on trade facilitation performance in Liberia.

Table 4.27 ANOVA for Step 3.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.892	3	2.964	35.997	.000 ^b
	Residual	14.491	176	.082		
	Total	23.383	179			
a. Dependent Variable: Composite index for Trade Facilitation Performance.						
b. Predictors: (Constant), Interaction Effect, Composite Index for Revenue Administration, Composite Index for Governance Structure.						

In addition, the effect of Revenue Administration, governance structure and the interaction term on Trade Facilitation Performance was quantified as represented in table 4.28 by the regression coefficients developed. Individually, Revenue Administration had a significant direct influence on Trade Facilitation Performance ($\beta_1 = 2.122$, $p_{value} = .025$), governance structure had a insignificant effect on Trade Facilitation Performance ($\beta_1 = 1.130$, $p_{value} = .313$) and the interaction term had an significant effect on trade facilitation performance in Liberia. The eventual regression is as presented in equation 4.6.

Table 4.28 Coefficients for Step 3.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-2.311	2.942		-.785	.433	-8.116	3.495
	Composite Index for Revenue Administration	2.122	1.083	1.250	1.959	.025	-.124	4.151
	Composite Index for Governance Structure	1.130	1.118	.848	1.011	.313	-1.075	3.336
	Interaction Effect	-.806	.411	-1.107	-1.962	.037	-1.205	.415
a. Dependent Variable: Composite index for Trade Facilitation Performance.								

$$TFP = -2.311 + 1.250RA - 1.107RA * GS \dots\dots\dots \text{Equation 4.6}$$

Equation 4.6 indicates that for a unit increase in Revenue Administration, there will be an associated direct increase in Trade Facilitation Performance by 1.25, holding other factors constant. Also, for one percent increase in the interaction term (Revenue administration *

Governance Structure), there will be an associated decrease in Trade Facilitation Performance by 80.6%, holding other factors constant. In the third step, Governance Structure solely did not have an significant effect on trade facilitation performance.

Decision Criteria for Moderation:

As indicated in table 4.29, for moderation to occur, the interaction term should be significant. According to the current study, revenue administration was significant in step one, two and three. Governance structure was significant in step two only. The interaction was significant in step three.

Table 4.29 Moderation Criteria.

Stepwise regression	Outcome	Conclusion
Step 1	β_{14} is significant in model 4.4	No Moderation
Step 2	β_{15} is significant in model 4.5	
Step 3	β_{16} and β_{26} and β_{36} are not significant in model 4.6	
Step 1	β_{14} is significant in model 4.4	Partial Moderation
Step 2	β_{15} and β_{25} are significant in model 4.5	
Step 3	β_{16} , β_{26} and β_{36} are significant in model 4.6	
Step 1	β_{14} is significant in model 4.4	Complete Moderation
Step 2	β_{15} and β_{25} are significant in model 4.5	
Step 3	β_{16} and β_{36} are significant but β_{26} is not significant in model 4.6	

Source: Baron and Kenny (1986).

Thus, from the table above, the study observes that governance structure has a complete moderating effect on the association between revenue administration and trade facilitation performance in Liberia.

4.6 Summary and Interpretation of Findings

One hundred and eighty respondents were identified for this study and obtained hundred percent response rate. The research used a census approach to collect primary data. During analysis, the study utilized both simple linear regression and multiple linear regression for inferential

analysis. Correlation results showed that there exist a positive correlation between Revenue Administration in Tax Collection and trade facilitation performance, and the positive correlation was significant. A positive significant correlation was evident between Revenue Administration in Controlling the Flow of Goods and trade facilitation performance. Revenue Administration in Social Protection was positively correlated to trade facilitation performance and the positive correlation was significant. Furthermore, there existed a significant positive correlation between governance structures and trade facilitation performance. Table 4.30 gives the summary of each of the research objectives, hypotheses and test results.

Table 4.30 Summary of Hypothesis Testing.

Study Objectives	Hypotheses	Decision
Determine the effect of revenue administration in tax collection on trade Facilitation performance in Liberia.	No significant i relationship between revenue administration in tax collection and trade facilitation performance in Liberia	Null hypothesis was rejected
Establish the influence of revenue administration in controlling flow of goods on trade facilitation performance in Liberia	No significant relationship between revenue administration in controlling flow of goods and trade facilitation performance in Liberia	Null hypothesis was rejected
Investigate the effect of Revenue Administration in Social Protection on trade Facilitation performance in Liberia.	No significant relationship between Revenue Administration in Social Protection and Trade facilitation performance in Liberia.	Null hypothesis was rejected
Establish the effect of governance structure on the association between revenue administration and trade facilitation performance in Liberia.	There is no significant cumulative relationship of Revenue Administration, governance Structures and the interaction on trade facilitation performance in Liberia.	Null hypothesis was rejected

The results in table 4.30 presents a summary of the analysis. On revenue administration in tax collection and trade facilitation performance, $F_{\text{statistic}} = 161.624$ and the associated $p_{\text{value}} = .000$, led to the study rejecting the null hypothesis of no significant link between revenue administration in tax collection and trade facilitation performance in Liberia. On revenue administration in controlling the flow of goods and trade facilitation performance, $F_{\text{statistic}} = 40.091$ and the associated $p_{\text{value}} = .000$, led to the study rejecting the null hypothesis of no significant association between revenue administration controlling the flow of goods and trade facilitation performance in Liberia. Regarding revenue administration in social protection and trade facilitation performance, $F_{\text{statistic}} = 47.404$ and the associated $p_{\text{value}} = .019$, led to the study rejecting the null hypothesis of no significant association between revenue administration in social protection and trade facilitation performance in Liberia.

In testing for a moderation effect from governance structures on the relationship between revenue administration and trade facilitation performance, $F_{\text{statistic}} = 53.555$ and the associated $p_{\text{value}} = .000$, led to the study rejecting the null hypothesis that there was no significant cumulative association of revenue administration and governance structure on trade facilitation performance in Liberia. Thus, revealing that governance structures was a moderator with effect on the relationship of revenue administration and trade facilitation performance in Liberia.

The main aimed of the research was to establish the impact of revenue administration on trade facilitation performance in Liberia. Specifically, the research sought to determine the effect of revenue administration in tax collection on trade facilitation performance in Liberia, establish the influence of revenue administration in controlling the flow of goods on trade facilitation performance in Liberia, investigate the effect of Revenue Administration in Social Protection on

trade facilitation performance in Liberia, and establish the effect of governance structure on the association between revenue administration and trade facilitation performance in Liberia.

According to the results, there is a positive and significant association between revenue administration in tax collection and trade facilitation performance in Liberia, there is a positive and significant association between revenue administration controlling the flow of goods and trade facilitation performance in Liberia, there is a positive and significant relationship between revenue administration in social protection and trade facilitation performance in Liberia, and finally the study established that governance structure has a complete moderating effect on the association between revenue administration and trade facilitation performance in Liberia.

Most of the reviewed studies never specifically focused at developing countries (Puertas, Martí & García, 2014; Lubos, et al., 2016). They further failed to consider performance of trade facilitation, instead they explored trade performance among countries that were involved in bilateral or multilateral trading. Studies that were reviewed examining trade performance via export and import trade flows as well as trade facilitation, where factors that led to their growth was determined (Wanjala, 2004; Biljan & Trajkov, 2012; Shiberu & Tamene, 2021). The economic impact of trade facilitation was examined, as well as the association between trade facilitation and trade flows, government revenue, and foreign direct investment (FDI) (Biljan & Trajkov, 2012; Shinyekwa & Othieno, 2013).

Additional studies looked at trade facilitation and export diversification in developing countries, as well as whether possible routes of transmission are key predictors of export success in developing countries (Shinyekwa & Othieno, 2013; Kollie, 2018). Other studies considered; Insecurity in cross-border trade and the role of customs on six field studies in Chad, Sudan Tunisia,

Libya, Cameroon, and Mali. The analysis of these literatures shows that empirical expositions were not highly robust to estimation as they failed to employ various dependent and independent variables, several nation samples, and various econometric methodologies. Improved trade facilitation has been shown to promote export diversification in developing countries however, the key determinants were not established. Models employed include regression analysis via two step regression analysis, ordinary least squares (OLS), static random, dynamic random, and IV GMM and gravity models. More to these, most studies did not focus on developing country like Liberia. Additionally, in Liberia, there are no specific studies linking Revenue administration (LRA) through its department of custom to either trade performance or trade facilitation performance. This study therefore filled empirical as well as methodological gaps in establishing econometric relationship between revenue administrations and trade facilitation performance in Liberia.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary:

As a result of the growing recognition of the importance of trade facilitation, governments all over the world have signed a flurry of trade facilitation-inclusive agreements at the bilateral, sub-regional, and regional levels. Nevertheless, despite the fact that most of these initiatives are robust and ambitious, the majority of them have yielded only marginal benefits (Buyonge & Kireeva, 2008; Bartley et al., 2018). Specifically, trade facilitation has measured the influence of four key procedures in West Africa, namely: port efficiency, the customs environment, the regulatory environment, and the use of electronic commerce. This area, on the other hand, has seen its fair share of difficulties in fostering trade facilitation. For instance, Liberia had a dismal rating in the World Bank's 2019 ease of doing business study, coming in at 175th place out of 190 countries evaluated. According to the World Bank, Liberia dropped from 174th place in 2018 to 175th place in 2019 out of 190 nations.

Therefore, the overall objective of this research was to determine the impact of revenue administration on trade facilitation performance in Liberia. In doing so, the study specifically, determined the effect of revenue administration in tax collection on trade facilitation performance, the influence of revenue administration in controlling the flow of goods on trade facilitation performance, the effect of revenue administration in social protection on trade facilitation performance and the effect of governance structure on the association between revenue administration and trade facilitation performance in Liberia. To enhance the researcher understanding and the study findings, several theoretical and empirical literatures were reviewed as indicated in chapter two.

A cross-sectional descriptive research design, which allowed the researcher to examine the correlations between the study variables and the variables themselves, was used in this study. The respondent of this study consist of 180 revenue administration staff under customs department working at all the thirteen (13) customs entry points of Liberia which includes two (2) airports, four (4) seaports and seven (7) land borders entry points. The study used a census approach to collect primary data by administering questionnaires. During analysis, the study utilized both simple and multiple linear regression for inferential analysis.

Correlation results indicated that there exists a significant positive correlation between revenue administration in tax collection and trade facilitation performance. A positive significant correlation was evident between revenue administration in controlling the flow of goods and trade facilitation performance. Revenue administration in social protection was positively correlated to trade facilitation performance and the positive correlation was significant. Further, there existed a significant positive correlation between governance structures and trade facilitation performance. On revenue administration in tax collection and trade facilitation performance, there was a significant association between revenue administration in tax collection and trade facilitation performance in Liberia. On revenue administration in controlling the flow of goods and trade facilitation performance, there was a significant association between revenue administration controlling the flow of goods and trade facilitation performance in Liberia. Regarding revenue administration in social protection and trade facilitation performance, there was a significant relationship between revenue administration in social protection and trade facilitation performance in Liberia.

In evaluating a moderation effect from governance structures on the relationship between revenue administration and trade facilitation performance, there was a significant cumulative association between revenue administration and governance structure on trade facilitation performance in Liberia. Thus, in Liberia, the governance structure acted as a moderator in the association between revenue administration and trade facilitation performance.

5.2 Conclusion

The following are the study's findings. Based on the first objective, the study concludes that there was a positive and significant relationship between revenue administration in tax collection and trade facilitation performance in Liberia. The second objective of the study found a positive and significant relationship between revenue administration controlling the flow of goods and trade facilitation performance in Liberia. Furthermore, the study concludes that there was a positive and significant relationship between revenue administration in social protection and trade facilitation performance in Liberia on the third objective. Furthermore, the study concludes that, in the fourth objective, governance structure has a complete moderating effect on the relationship between revenue administration and trade facilitation performance in Liberia.

5.3 Recommendations

5.3.1 Recommendations to Theory

To modernize tax administration, one must design a system that encourages taxpayer compliance while adhering to good governance principles. Governments must first understand the behavior of tax evaders and government officials who fail to perform their duties. Understanding this type of behavior can help determine which type of tax administration model is required. Modernizing the tax administration system can increase an economy's tax capacity and serve as an indicator of taxpayer compliance improvement. Although Liberia's tax capacity remains low, this study shows

that tax reform or tax administration modernization can assist the country in increasing its tax capacity.

5.3.2 Recommendations to Policy

In the history of trade facilitation, one of the most critical instruments is the Harmonized System (HS) developed by the World Customs Organization. Through the creation of a single worldwide standard and of an actual international commerce language, it breaks down obstacles. It is the goal of the WCO Council to ensure the uniform interpretation and application of the HS, which is why it has adopted a wide range of HS-related recommendations encouraging member revenue administration like the LRA to implement them. Therefore, policymakers in Liberia's Revenue Authority (LRA) should consider reforming and modernizing tax administration approaches grounded on the conclusions of this study if the country will improve its trade facilitation performance in the ECOWAS region, as indicated by a World Bank survey of 190 countries on ease of doing business. Such modifications should consider the following; Information and communication technology (ICT) reforms, Value Added Tax (VAT) reforms, management system reforms, risk control, and commercial fraud prevention which are all part of the tax collection processes. Furthermore, bribery is one of the key challenges facing Liberia's trade facilitation performance according to this study. Thus, policy makers should consider measures to mitigate this faceless scourge.

5.3.3 Recommendations to Practice

Although there have been significant advancements in the operation of international trade in recent years, many countries, particularly developing and transitional countries like Liberia, Significant barriers to the free flow of goods and services remains. Realistically, the study highlighted bad road network as the second most challenge facing Liberia in implementing trade facilitation

measures. These roadblocks add unnecessary costs and complications to international transactions, preventing countries and businesses from realizing the complete profits of global trade. Commercial partners trading electronically are encouraged to implement these measures (Commercial Measures, International Payments Measures, Officials Control Measures, and Transported related Measures) to reduce or avoid any unnecessary delay in the delivery of their consignments, according to recommendation 18 of UN/CEFACT (2012). The LRA should consider adopting an internationally accepted modeling technique proposed by UN/CEFACT (2012) to model the international supply chain, in light of the current study findings.

5.4 Limitations of the Study

This study had the following limitations:

COVID-19- The global spread of the COVID-19 pandemic had a significant impact on higher education, with universities closing their doors and countries closing their borders as a result of lockdown measures. The crisis did have an impact on the continuity of learning for international students in host countries, as well as their perception of the worth of their degrees. Students had to decide whether to return home with no idea of when they would be able to return or to stay in their host country with limited employment and international student mobility. As an international student of the University of Nairobi, I have faced my fair share of these and other challenges during my stay in Kenya and the course of this research project. Critical of them were the financial constraints that would have made this study a failure if it had not been mitigated. Travel restrictions and the pandemic's global financial effects could not permit cross-border movement to collect data. However, this was mitigated through the generosity of professional colleagues who volunteered to collect the field data amid all the mobility constraints.

Digital Literacy -Digital literacy is one of the significant challenges every learning curve faces globally during the pandemic. Attending classes online or communicating with supervisors and technical advisors via digital means will necessitate a certain level of technological proficiency, this includes logging in successfully, participating in classes, submitting work, and communicating with classmates. Understanding online communication manners, as well as student rights and responsibilities in an online learning environment, is essential examples of these challenges. The digital learning system is a new phenomenon globally, especially in learning institutions in Africa and the University of Nairobi is no exception. This was mitigated by the robust interaction with the supervisor. Prof. Josiah O. Aduda always checked his emails in time for messages concerning the thesis project and acted promptly where necessary.

Time Limitations. - As it is often said, time is man's worst enemy, is not an enemy of weaponry or physical opponent. Limited time refers to the challenges faced to begin and complete a task or process as scheduled or planned. Whatever limits one to performing their assigned duty is an enemy of time in this context. The study process has been characterized by several time challenges, including the delay caused by the COVID-19 outbreak. The data collection coordinator has been a full-time employee of the Liberia Revenue Authority and was faced with the challenge of time to collecting data from respondents in hard-to-reach border points and being on his job at the same time. This affected the data collection plan and completion of the research project as scheduled. None withstanding, this was address with his ability to engage respondents through digital platforms and work extensively during weekends and overnights.

5.5 Future Research

Revenue authorities, parliament, the judicial system, taxpayers, the media, and academia are just a few of the stakeholders that Civil Society Organizations (CSOs) interact with. Approximately

half of CSOs working on tax issues report engaging in awareness and literacy activities, there is little evidence documenting CSOs' efforts on administrative topics like tax compliance and the link to public service provision. In fact, there is circumstantial evidence of CSOs collaborating with revenue authorities on public awareness and compliance, however, this does not necessarily imply that they contribute to more equitable tax systems. With these and other reasons, the study strongly recommends future research to look into the role of civil society organizations in tax administration.

One effective way to facilitate legitimate trade among countries is through an effective border agency corporation. This can be achieved through; Intra-agency corporations, Inter-agency cooperation and One-Stop Border Posts (OSBPs) management. Effective border management through (intra, inter, and external) agency corporations has proven to boost trade and foster economic growth. Therefore, future research should investigate, the impact of effective border management on trade facilitation performance of Liberia with other neighboring countries.

The COVID-19 crisis generates negative economic shocks, resulting in business and household liquidity crises. As a result, many businesses find themselves in a financial situation marked by a lack of cash or easily convertible to cash assets. This affects revenue collection because these companies will be unable to repay their public debt. Individuals face similar dangers because they may be unable to pay the taxes that they have self-assessed. As a result, in this post-covid-19 era, future research should look into how alleviating cash flow problems for businesses and individuals, particularly small and medium-sized businesses, can boost domestic revenue mobilization and facilitate national development agendas.

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APPENDICES

Appendix 1: Introduction Letters



UNIVERSITY OF NAIROBI
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FACULTY OF BUSINESS AND MANAGEMENT SCIENCES

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P.O. Box 30197
Nairobi, KENYA

07 February 2022

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

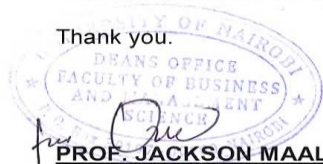
INTRODUCTORY LETTER FOR RESEARCH
DENNIS MOSES BOLAY REGISTRATION NO. D63/36412/2020

This is to confirm that the above named is a bona fide student in the Master of Science in Finance (MSc. Finance) option degree program in this University. He is conducting research on "*Influence of Revenue Administration on Trade Facilitation Performance in Liberia*"

The purpose of this letter is to kindly request you to assist and facilitate the student with necessary data which forms an integral part of the Project. The information and data required is needed for academic purposes only and will be treated in **Strict-Confidence**.

Your assistance will be highly appreciated.

Thank you.



PROF. JACKSON MAALU
DEAN, FACULTY OF BUSINESS AND MANAGEMENT SCIENCES

JM/jo



Asst. Com. Human Resource Division



LRA/CWGH/gaps/HR-0650/22

February 15, 2022

Prof Jackson Maalu
Dean, Faculty of Business and Management Sciences
University of Nairobi.

Ref: Request for Data Permission/Research

Dear Professor Maalu:

The administration of the Liberia Revenue Authority (LRA) has granted Mr. Dennis Moses Bolay permission to collect data to complete his research in *"Influence of revenue administration on trade facilitation performance in Liberia"*.

Kind regards,

Chupee W. G. Howe
Assistant Commissioner Human Resource
Liberia Revenue Authority
Paynesville, Liberia
Email: chupee.howe@lra.gov.lr
Cell: +231 886 524 542



0888-572-572
0770-572-572



www.lra.gov.lr
info@lra.gov.lr



ELWA Junction,
Paynesville, Liberia

Appendix 2: Research Questionnaire

Dear Respondent,

This research seeks to study “*Influence of revenue administration on trade facilitation performance in Liberia*”. To accomplish this goal, pertinent questions have been included to collect data for analysis. Please take a moment to provide the requested information as precisely as possible. Please be aware that the information you provide will be used solely for academic purposes and will be treated with the strictest confidentiality.

SECTION 1: BACKGROUND INFORMATION

1. What is your Gender? (Please tick one)
 Female Male
2. What is your Highest Level of Education?
 Secondary Primary
 Postgraduate Undergraduate Diploma
3. How long have you been working for LRA in years?

SECTION B: REVENUE ADMINISTRATION

Revenue administration in tax collection

4. Please indicate your level of agreement with various statements on revenue administration in controlling the flow of goods in the organisation ion. Use a scale of 1 to 5 where 1= Strongly Agree, 2= Agree, 3 = Neutral, 4 =Disagree and 5 =Strongly Disagree.

Revenue collections	1	2	3	4	5
We have completed the implementation of the Value Added Tax (VAT) Reform and the management of goods whose processing is forbidden or Restricted.					
We have strengthened our oversight of duty reductions or exemptions and the principles of revenue collections.					

Intensifying the control on logistics by reforming the management system of the bills, regulating work at control stations, strengthening manual inspection, and improving all the way monitoring of the bonded goods.					
Comprehensive application of such means as revenue analysis control of risk management and enforcement assessment to guard against possible revenue collection risk in key industries, enterprises, and commodities.					
Preventing and cracking down on commercial frauds through revenue auditing on priority customs administration and commodities					
Carrying out nationwide customs revenue collection variation on important sectors and sensitive commodities and key areas during the period of policy adjustments.					

Revenue administration in controlling the flow of goods

5. Please indicate your level of agreement with various statements on revenue administration in controlling the flow of goods in the organization. Use a scale of 1 to 5 where 1= Strongly Agree, 2= Agree, 3 = Neutral, 4 =Disagree and 5 =Strongly Disagree

Control flow of goods	1	2	3	4	5
We have specific customs forms of the customs or the commercial forms (bill of lading, airway bill) that meet the information needs of the customs administration.					
We use computer applications to enhance automated reconciliation of manifested goods with the goods shown in the declarations and for rapid information retrieval to allow the investigation of discrepancies and excesses					
We have assessment and verification procedures that include such activities as the tariff classification of goods, customs duties and tax computation, the application of other legislation, and the subsequent examination of documents and goods.					
We have minimal arrears in customs duty and tax payment					
Data generated by the automated system is always analyzed to address structural problems that delay import clearance processing.					

Revenue administration in social protection

6. Please indicate your level of agreement with various statements on revenue administration in controlling the flow of goods in the organization ion. Use a scale of 1 to 5 where 1= Strongly Agree, 2= Agree, 3 = Neutral, 4 =Disagree and 5 =Strongly Disagree.

Social protection	1	2	3	4	5
If the consumption of some good (s) generates pollution, we increase their price by improving a tariff on imports to increase social welfare.					
The advisability of other exemptions granted for social or economic purposes is more debatable and depends on their economic effects.					
Due to different levels of competitiveness, we control the potential for dumping.					
We protected domestic firms being driven out of business by way of exporting employment to other countries					
We moderate measures for trade facilitation to protect infrastructural and human resources.					

Governance Structures

7. Please indicate your level of agreement with various statements on revenue administration in controlling the flow of goods in the organization ion. Use a scale of 1 to 5 where 1= Strongly Agree, 2= Agree, 3 = Neutral, 4 =Disagree and 5 =Strongly Disagree.

Governance Structures	1	2	3	4	5
We have regulatory reforms aiming at a clear, concise, and transparent legal framework.					
We embrace institutional development, private sector consultation, and inter-agency cooperation.					
The revenue authority has introduced and modernized infrastructure for the electronic processing of trade documents and related data exchange, including the IT system.					
We advocate for changes in business processes and procedures.					

The revenue authority has a capacity-building program for implementing managers and officers.					
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Trade facilitation performance

8. Please indicate your level of agreement with various statements on trade facilitation performance in your organization. Use a scale of 1 to 5 where 1= Strongly Disagree, 2= Disagree, 3 = Neutral, 4 =Agree and 5 =Strongly Agree.

Trade Facilitations	1	2	3	4	5
The authority provides prior statements by the administration to the requesting traders concerning the classifications, origin, valuation method, etc. applied to specific goods at the time of importation, the rules and process applied to such statements					
There is an increased possibility and modalities to appeal administrative decisions by the border agencies.					
There is increased cooperation with neighboring and third-party countries.					
There are penalties on fees imposed on imports and exports goods if they become overdue					
The authority embraces the electronic exchange of data, automated border procedures as well as the use of risk management.					
We have simplified trade documents, harmonization by international standards as well as acceptance of copies.					

9. Please highlight the challenges you encounter in the day-to-day implementation of trade facilitation measures in your country:

Thank you for your time.

Appendix 3: Indicators of Trade Facilitation

Indicator	Descriptions
Advance Ruling	Prior statements by the administration to requesting traders concerning the classification, origin, Valuation method, etc. applied to specific goods at the time of importation, the rules and process applied to such statements
Appeal Procedure	The possibility and modalities to appeal the administrative decision by borders agencies.
Co-operation- External	Co-operating with neighboring and third-party countries.
Co-operating-Internal	Co- operation between various border agencies of the country; control delegation to the customs authority.
Fees	Disciplines on the fees imposed on imports and exports
Formalities- Automation	Electronic exchange of data; automated border procedures; use of risk management.
Formalities- Documents	Simplification of documents; harmonization by international standards; acceptance of copies.
Formalities- Procedure	Streamlining of border controls; single submission points for all required documents (single window); post-clearance audit; authorized economic operators.
Governance and Impartiality	Customs structure and functions; accountability; ethic policy
Information Availability	Publication of trade information, including on the internet; equity points
Involvement of the Trade Community	Consultation, including on the internet, inquiry points.

Source: Adapted from *OECD Trade Facilitation Indicators*