

**EFFECT OF REVENUE AUTOMATED DUTY SYSTEM ON EXCISE TAX
PERFORMANCE IN KENYA: A CASE OF NAIROBI NORTH TAX DISTRICT**

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DECLARATION

Student's Declaration

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

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Supervisor's Declaration

This project has been submitted for the review with my approval as university supervisor.

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ABBREVIATIONS AND ACRONYMS

ANOVA	Analysis of Variance
BI	Behavioral Intention
DTD	Domestic Taxes Department
EDA	Excise Duty Act
EGMS	Excise Goods Management System
ICT	Information Communication Technology
KRA	Kenya Revenue Authority
LAN	Local Area Network
NTA	National Tax Administration
PC	Personal Computer
PEOU	Perceived Ease of Use
PIN	Personal Identification Number
QR	Quick Response
TAM	Technological Acceptance Model
TD	Technological Determinism
VAT	Value Added Tax
WAN	Wide Area Network

DEFINITION OF TERMS

Electronic billing	it's a payment method in which a customer can pay billings authority bodies to manage all the excisable goods that are required by the law to be affixed with excise stamp (Barati and Bakhshayesh, 2015).
Electronic filing	it refers to the transmission of tax information directly to tax authorities through internet (Allink and Kommer, 2010).
Electronic monitoring	A type of tool to supervise offenders that allows a parole or probation officer to know exactly where an offender is at any given moment throughout the day (Bales, 2010).
Excise Tax Performance	Excise tax performance means abiding by taxpaying expectations and tax law (James & Alley, 2014). over the Internet to an entity or organization or selling and sending the invoices over the internet and customers pay the bill electronically Dewulf & Sokol, (2005).
Revenue Automated System;	Revenue automated system is an electronic system that helps the taxpayers to file and submit their tax returns online, thus enhancing E-filing. This is an improvement as opposed to submitting manual returns to the tax authorities. (Lymer & Oats, 2015).

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ABSTRACT

Taxes play a major role in the development of a country. Kenya revenue authority (KRA) is mandated to collect taxes on behalf of the government of Kenya. To meet its goal, National Treasury sets target that KRA is expected to meet each year. However, over the past few years KRA experienced mixed fortunes in regards to meeting its targets.. To mitigate against this, KRA has been carrying out reforms through adoption of new systems that can improve efficiency in revenue collection, one of this system being Excisable Goods Management System (Excise duty system). Despite the adoption of these system, little emperical evidence exists on the effect of these system on tax revenue performance at KRA.This study sought to investigate the effect of Revenue automated duty system on Excisable tax performance in Kenya: a case of Nairobi North Tax District. Specifically, the study sought to determine the effect of electronic billing on Excise tax performance; establish effect of electronic monitoring system on excise tax performance and to establish the effect of E-filling on excise tax performance. The study was guided by two theories namely: theory of public expenditure, Adam Smith Canon of Taxation and optimal theory of taxation. Descriptive study design was employed in the study. The target population in this case comprised of the employees of the Kenya Revenue Authority and specifically employees in the DTD departments in Nairobi North tax district. The sample size of the study was 74 respondents. Data was collected from both primary and secondary sources.Questionnaire was used to collect primary data while secondary was collected from KRA website,journals and books that present academic research. Data was analyzed using SPSS and included both descriptive and inferential statistics. The study findings indicated that electronic billing significantly affects excise tax performance.The study also showed that electronic monitoring system significatly affects excise tax performance. Finally, the findings revealed that electronic filling positively affects excise tax .The study results concluded that revenue automated system has an effect on excise tax performance at Nairobi north tax district. The study recommends the need for revenue authorities to automate their revenue systems to enhance excise tax performance.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Public revenue collection is central to the government operations as it enables the funding of such operation (Broadway, 2012). Tax revenue collection should comply with best practices of fiscal management. Just like any other organization, the government continuously looks into way of enhancing revenue collection as a way to meeting government expenditure and national debt. Various tax management systems have over the years been adopted by revenue bodies across the world to enhance revenue collection and performance (Mutisya, 2014).

Tax authorities worldwide are faced with varying country-specific challenges that are major performance determinants of the revenue authorizes. These factors include both external and internal factors affecting the realization of revenue targets by tax agency. While there are no quick-fix solutions for achieving significant improvement in tax administration, adoption of ICT in tax revenue management system play an enabling role in improving tax administration (Mukeshimana, 2012).

Automation based strategies have over the past decades emerged as important practices in enhancing tax performance (UNCTAD, 2006). Efficiency of tax administration is defined as costs, tax clearance time and effectiveness of revenue collection. Over 100 countries have adopted automated revenue system, with revenue bodies from different leading in ICT adoption in tax administration. In Europe, all the countries have adopted the use of revenue management system for its entire revenue stream including excuse duties. India through the

commission of Tax administration reform commission instituted a number of tax reform aimed at improving its tax system through ICT since 2006. In Nigeria, automation and use of ICT in tax system was started in 2009 following the passing of federal inland commission reforms (Isaac & Lilian, 2010).

In early 2000's, the average excise tax collection of most countries in Asia-Pacific region was among the lowest in the world, with average collection less than 15% compared to above 30% in developed countries. Over the same period, countries such as Bangladesh, Pakistan, Iran and Sri Lanka were collecting less than 10%. The extremely low excise tax revenue levels in Asia were attributed to weak revenue systems and lack of revenue automation systems. Most African countries were also performing poorly in the turn of the century, with revenue collection averaging less than 10% except South Africa. Following the introduction of revenue automation system in Asia and Africa from end of 2000s, revenue collection in Asia and Africa improved by average of 30% for countries that had adopted revenue automation systems.

Wang (2014) stated that Uganda tax system has been non-automated since the beginning of 1990, bringing less than 10% of revenue collection up to 2008. Following the implementation of revenue automation system in 2009, Uganda experienced a spike in revenue collection by 40%. A growth of 30% in revenue collection was witnessed in Tanzania after the implementation of first revenue automation system in 2009. Kenya Revenue Authority (KRA) has not been left alone in acceptance of revenue management system. KRA has adopted ICT to enforce tax payment compliance, reconcile tax collection through proper processes to promote transparency and enhance accountability. Furthermore, The Kenya

Revenue Authority has digitized majority of the platforms through the introduction of different MISs including, I tax, Simba system and excisable tax management system (Excise duty system). Excise duty system is the latest revenue management system introduced in Kenya (KRA, 2016).

1.1.1 Revenue Automated System

Revenue automated system is an electronic system that helps the taxpayers to file and submit their tax returns online, thus enhancing E-filing. This is an improvement as opposed to submitting manual returns to the tax authorities. Automated systems also significantly reduces human errors (Lymer & Oats, 2015). Revenue automated system returns has less monetary value to process when contrasted with a manual returns both regarding cost and time to the income tax authorities and also to the citizen (Lemuria, 2016).

Revenue automated system helps taxpayers to submit their tax returns online to the government and it helps to a great extent prevent many mistakes which might occur by taxpayers filing manually (Ramayah, 2017). Advancement in information and communication technology that the world continues to experience makes tax collection and administration a challenge for many authorities. Revenue automated system integrates the processes of registration, tax preparation, tax filing and tax payment. Taxpayers avoid the hassles of visiting the tax office and making long queues, because the returns are filed at their convenience. It is in this regard that several tax authorities have embraced the change and adopted an e-filing approach (Mandola, 2017).

Governments are adopting Information and Communications Technologies (ICT) to improve on service delivery, enhance convenience among citizenry and increase accessibility to government information (Azmi & Kamarulzaman, 2010). Introduction of the electronic tax filing is a major form of electronic government services (Lai & Choong, 2010). The various governments in the world are also introducing electronic tax filing in order to achieve greater tax administrative and compliance efficiency (Mandola, 2013).

Governments around the world are introducing electronic filing of the tax returns due to the various advantages associated with it (Young, 2012). Among these advantages include convenience of the taxpayers as they are able to file tax returns at home or cybercafés, and eliminates or reduces errors associated with manual filing as the system auto checks the application (Osebe, 2013). Other advantages include reduced workload and cost for the tax collector among amongst others (Simiyu, 2013). However, there are challenges associated with the online filing including taxpayer's perception, challenges associated with learning the electronic filing system from service provider, limited accessibility of internet infrastructure and electronic filing system down times (Azmi & Bee, 2011).

Several countries have had different experiences in regards to the electronic filing of tax returns. In Malaysia, the Inland Revenue Board (IRB) introduced the electronic filling of the returns (e filing) (Razak, 2009). The E filling in Malaysia involved four basic steps that is enrollment and verification of the digital signature, the entering of the gross earnings, relief and deductions before the system automatically calculates the tax amount due. The IRB receives the submission electronically and the verified tax form returned emailed back to the taxpayer (Razak, 2009). The author noted that the challenges encountered in the use of the e-filing in Malaysia included technological challenges such as standards, data integration, legacy maintenance, privacy and security.

In Kenya, the earliest form of the online filing of tax returns was through the implementation of the Integrated Tax Management System (ITMS) in 2013. This was to facilitate the online payments of Value Added Tax (VAT), Cooperate Tax amongst others (Lukorito, 2015). The ITMS also connected the Electronic Tax Registers (ETR) devices (registers) to enable simplification of the VAT declarations. The ITMS enabled the taxpayers to undertake electronic filling. Kenya Revenue Authority (KRA) was to later phase out the ITMS and replaced it with the iTax system. The iTax enabled the taxpayer to undertake internet based registration, filing, paying and status inquiries with real time monitoring of the accounts (Mandola, 2017).

1.1.2 Excise Tax Performance

Excise tax performance means abiding by taxpaying expectations and tax law (James & Alley, 2014). Noncompliance is the payment of less tax than due or outright failure to pay (Muturi & Kiarie, 2015). The major causes of this difference are contributed hugely by overstating of expenses and deductions, and understating income. Webley (2014) argue that non-tax compliance encompasses premeditated tax evasion and unintentional noncompliance, these resulting from calculation errors and poor appreciation of tax laws.

According to OECD (2008), compliance is divided into administrative and technical categories. Administrative compliance refers to following tax reporting procedures and regulatory frameworks while technical compliance refers to following the technical dictates on payment of taxes. However, Dome (2013) identifies four key tax compliance dimensions which are; Registering a taxpayer when criteria are met, Submission of tax returns on or before due date or before due date, reporting tax liability accurately through tax payers in a given Country and finally declaring correct income, expenditure and tax relief.

Excise taxes can nevertheless serve the function of controlling externalities, the imposition of corrective excise taxes at rates equal to marginal external damages, noting that doing so restores economic efficiency (Sandmo, 2015) In practice, governments impose heavy excise taxes on energy products, motor vehicles and other transportation, waste management, ozone-depleting substances, and other products and activities that arguably create externalities in degrading the environment (Hines, 2015). Excise taxes performance can also play a role in encouraging consumption of goods that may not have external effects, but are nonetheless harmful to the individuals who consume them (O'Donoghue & Rabin, 2016).

1.1.3 Nairobi North Tax District

KRA has divided Nairobi region into various districts for ease of tax collection and administration. Nairobi north tax district is one of the four districts. Nairobi north district includes: Westland, Parklands, River road Area, Thika Road Area and Moi Avenue Area. It covers Nairobi central business and its environs and it is headed by a Manager.

1.2 Statement of the Problem

Revenue collection in European Union and USA is a preserve of the ministry of finance/national treasury, with most developed countries exhibiting the same. The treasury sets revenue performance targets (Dutkowsky & Sullivan, 2014). However, In Sub-saharan Africa revenue collection is a function of revenue authority or ministry of finance. To date, semi-autonomous revenue authorities, have been established in a number of countries including: Ghana Uganda, Zambia, Kenya, Malawi, Tanzania, South Africa, Rwanda Zimbabwe, Ethiopia, Sierra Leone, Lesotho, Gambia and Mauritius. Revenue Authorities are tasked with meeting tax performance targets (Rahayu, Setiawan, & Troena, 2017).Kenya revenue authority, which is tasked with revenue collection in Kenya has been unable to meet its excise revenue targets in the past three financial years of 2015/2016, 2016/2017 and 2017/2018.

Despite a number of restructuring exercises, the Kenya Revenue Authority (KRA) has undertaken towards improving its excise tax performance in recent years, it has failed to meet the targets set by the treasury. For instance, in the financial year 2015/2016 excise tax collection was Ksh. 142,143 million against a target of Kshs.142,590 million thereby falling short of the target by 447 million (KRA, 2016). Similarly, in the financial year 2016/2017 excise tax collection was Ksh. 163,236 million against a target of Ksh. 169,592 million, again falling short of the target by Ksh 6,356 million (KRA, 2017) Lastly, in the financial year 2017/2018 the excise tax collections were Ksh. 152,199 million against a target of Ksh. 167,504 million, again falling short of the target by Ksh .15,305 million(KRA, 2018). This has raised a concern as the Government seeks to achieve its targets and hence the need for this study. The study focuses on electronic filing system, electronic monitoring system and electronic billing system as it has been seen from previous studies that these variables are key aspects of excise tax performance.

A number of studies have been conducted on tax performance both globally and locally. These studies include: ICPAK (2015) study on revenue performance in Kenya which showed that overall revenue performance has been improving over the past 5 years; Oeta (2017) study on effect of I-Tax on Tax revenue performance revealed that I-tax implementation is associated with improved revenue collection. Mukeshimana (2012) conducted a study on effect of E-tax system on Tax performance of Rwanda Revenue Authority, with the study findings showing that E-tax system improved revenue collection. Although studies have been conducted on tax performance, few studies have investigated the effect of excise duty system on tax performance. This study therefore sought to determine the effect of automated tax system on excise tax performance in Kenya.

1.3 Objectives of the Study

The general objective of the study was to establish the effect of revenue automated system on excise tax performance.

1.3.1 Specific Objectives

- i. To determine the effect of electronic billing system on excise tax performance
- ii. To establish the effect of electronic monitoring system on excise tax performance
- iii. To establish the effect of electronic filing system on excise tax performance

1.3.2 Research Questions

- (i) What is the effect of electronic billing on excise tax performance?
- (ii) What is the effect of electronic monitoring system on excise tax performance?
- (iii) What is the effect of electronic filing on excise tax performance?

1.4 Significance of the Study

The study is useful to a wide range of stakeholders including: policy makers, management and contribution to theory

1.4.1 Contribution to Theory

Theoretically the study contributes to the literature to the scholars and other researchers studying the aforesaid related theories. Understanding the relationship among the variables studied would enable scholars to increase the stock of theoretical and empirical knowledge.

1.4.2 Contribution to Policy Makers

KRA may use this study to set their policies and practices by providing information on Revenue automated system and Excise tax performance the information may enable them to formulate better policies with regards to Electronic billing, electronic monitoring system and electronic filling on excise tax performance

1.4.3 Contribution to Management

This study will be relevant to managers especially Kenya Revenue Authority managers will find this study useful as a point of reference as far as assisting in decision making regarding the Revenue automated system and Excise tax performance.

1.5 Scope of the Study

The geographical scope of this study was in Nairobi North District. It specifically focused on Kenya Revenue Authority. The study also focused on financial years from 2015-2018. These years were selected because the implementation of EGMS commenced in 2015. The target population of the study was 210 the employees of the Kenya Revenue Authority specifically those in the DTD departments.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the reviewed literature theoretically and empirical review in line with the study objectives as follows electronic billing and excise tax performance, electronic tax system and excise tax performance and electronic filling and excise tax performance. Additionally, the chapter presents critique of existing literature, conceptual frameworks that will guide the study.

2.2 Theoretical Review

2.2.1 Theory of Technology Acceptance

Davis et al (2003) point out that Theory of Technology Acceptance Model (TAM) shows that an individual's intention towards using a system is jointly determined by perceived usefulness, the user's "subjective probability that using a specific application system will increase his or her job performance" and Perceived Ease of Use (PEOU), "the degree to which the user expects the target system to be free of effort. According the PEOU also has a direct effect on predicting usage; TAM models might be useful within and across organizations for evaluating applications or technologies, or to make comparisons between user groups or applications. However, TAM has limitations in being applied beyond the work place because its fundamental constructs do not fully reflect the variety of user task environment and constraints (Fu & Chao, 2016).

Paul & John (2003) suggested that TAM is a useful model but has to be integrated into a broader one which would include variables related to both human and social factors. However, tax compliance levels remain low and tax collections are below the targets set by state authorities in Africa (Kumar & Anees, 2014). Despite the increasing need to increase revenue collection and enforcement so as to provide public services, and the introduction of electronic tax systems in most countries across the global divide, developing countries like Kenya, still face the challenges of low tax compliance and tax administration.

Muita (2011) argued that online tax systems are rapidly replacing paper-based tax reporting systems, promising many advantages over the traditional method of hard copy tax filing, these systems promise faster process, lower costs and increased efficiency. Kamau (2014) determine the impact of adoption of technology as a strategic tool in enhancing tax compliance in Kenya. For tax authorities, electronic filing lightens the workload and reduces operational costs such as the costs of processing, storing and handling tax returns.

2.2.2 Adams Smith Canons of Taxation Theory

According to Adam Smith, any tax system goal is to raise revenue and to achieve this certain principles must be applied. In this regards, Adam Smith laid down the following principles as contributing to the goal of tax system: canons of equity, certainty, convenience and economy. Canon of equity principle requires that any burden of taxation meted to tax payer be in line with an individual ability to pay. Ability to pay is determined through the tax policies issued by the government. In the current study the principle will be relevant in understanding how various excise duty policies have impacted revenue collection (Barati and Bakhshayesh, 2015). The principle of certainty argues that tax payer should know how much he ought to pay and at what time. This principle argues that one of the best ways of achieving this is through revenue automation.

Excise duty as a system of revenue automation contributes to the achievement of this principle by helping the taxpayer to know how much they ought to pay and by what time. In doing so, enhancing revenue collection (Dečman and Klun, 2015). The third principle is convenience which states that taxes must be collected in a form and time convenient to tax payer. This principles posit that the use of technology, particularly electronic tax system contributes to the achievement of this principle leading to improved revenue collection. The principle on the other hand views manual system as inconveniencing the tax payers.

The fourth principle states that the cost of tax collection must never exceed the revenue collected through a tax system. This principle posits that tax system implemented must be efficient and effective in order to achieve tax system goal. This is relevant in the study as it will allow the researcher to understand how excisable goods management system contributes to excise duty tax performance at Kenya revenue authority.

2.2.3 Optimal Theory of Taxation

The theory of optimal taxation was developed by Ramsey in 1927 through an article "A Contribution to the Theory of Taxation". The theory was among the first to focus on revenue collection and growth from an economic stand point. Optimal taxation theory is concerned with the designing and implementation of a tax system that reduces inefficiency and market distortion. The theory acknowledges that inequality will always exist in markets but any tax system must strive to eliminate inefficiencies as much as possible.

Optimal tax theory is based on three principles that govern its framework. The first principle is that tax system should encompass a range of models that that eliminates inefficiencies. A major aim of the EGMS system introduced in 2013 was to reduce inefficiencies relating to excise duty system highlighting the significance of this theory. The

second principle argues that based on model of taxation, tax payers will respond to their tax obligation and the third principle states that the government should evaluate regularly the tax policies. In the study context, the theory is suitable to understand how the excise duty 2013 and revised excise duty 2015 have impacted on the excise duty revenue collection. This is because the government goal is to reduce tax inefficiencies and increase revenue collection. The theory will be central in understanding the contribution of excisable goods management system on revenue performance at Kenya revenue authority.

2.3 Empirical Literature Review

2.3.1 Electronic Billing System and Excise Tax Performance

Electronic Billing system represents a potentially important tax administration initiative, aimed at improving tax performance by transmitting transaction records directly to the Kenya Revenue Authority in real time New legislation was introduced in Kenya, to assist firms' book-keeping, to level the playing field amongst all retailers, and, most importantly, to reduce tax evasion for excise tax (Keen and Simone, 2004).

The businesses registered for excise must provide customers, at each sale, a certified VAT receipt generated by an Electronic Billing Machine purchased from an approved vendor and activated by KRA. This electronic billing must consistent with a Certified Invoicing System (CIS) and a Sales Data Controller (SDC) working together. Technology is considered to be an efficient tool when used properly; more so when it is used by properly trained workforce. A number of technologies have been adopted in tax administration, with both hardware and software application used. (De Wulf & Sokol, 2005). Technology application in tax administration has been applied in improving efficiency of tax collection process, enhancing compliance and reducing errors in procedures (Wasao, 2014).

Technology is central in facilitating the task of taxpayers when complying with their tax obligations by aiding information accessibility, tax payment, enhancing customer service and reducing inefficiency associated with time wastage (Kumler et al., 2013). Technology use is key for the tax administration activity given that tax collection involves large data sets which can be simplified through the use of technology. Besides, simplifying the tax collection process, it makes tax administration efficient and cost effective. Effective tax administration is one of main advantages associated with use of technology. Others include less paperwork, elimination of tax audits on companies, enhancing tax compliance and minimizing tax evasion (Bird & Zolt, 2007).

2.3.2 Electronic Monitoring System and Excise Tax Performance

Electronic Monitoring System (EMS) is any technology that records the location of an offender within the a locality at particular places and times without human observation and transmits these data electronically to a central monitoring station, or uses an electronic device to detect the presence of a prohibited substance in the body (or to monitor other physiological functions) of an offender living in community and transmits those data to a central location. This definition includes GPS tracking, logging and emerging drug-testing technologies (Renzema & Mayo-Wilson, 2005).

According to Schultz (1995), EMS provides the highest level of supervision and the greatest restriction of liberty and autonomy of offenders who are not imprisoned, therefore providing the greatest degree of protection to the community. Thus, it is necessary to have a broad range of alternatives to incarceration, such as probation, conditional sentences, and intermediate punishments. Electronic monitoring, along with supervised probation and home

confinement, is an intermediate punishment, which can reduce prison over-crowding, lower the cost associated with offenders in the criminal justice system (Schmallegger, 2000), deter offenders from committing crimes, as well as assist in rehabilitation by using mandatory treatment orders (Pfeiffer & Skkun, 2006)

Ling (2010) in his study discussed about use of electronic monitoring systems in coordinating communication in Malaysia, the study revealed how electronic monitoring system positively influence performance in any organization. The study is important to note that the EGMS in KRA does not constitute to a program and is not meant as a punitive measure. Rather, it is to be used in conjunction with other services or programs to enhance supervision and effectiveness. The project does not replace case management, personal contact, counseling, therapeutic interventions, current supervision policy for auto theft offenders or other services provided by Manitoba Corrections (Apter, 2008)

Various types of monitoring devices are used to monitor offenders, including: Radio Frequency (RF); Field Monitoring Devices (FMD); and Global Positioning Systems (GPS)(Nellis, 2005). The first generation of EM technology relied on RF transmissions. However, GPS systems were later used and were found to be more effective compared to RF systems (Bulman, 2010)

2.3.3 Electronic Filing System and Excise Tax Performance

Electronic Filing is the process of filling your tax documents through internet with the help of software's or by registering yourself to the income tax website (Kumar & Anees, 2014). Wang (2014) in his study discussed about adoption of electronic tax filing systems. His study was able to discuss the various factors affecting the adoption of electronic tax-filing systems

in India. Using the technology acceptance model (TAM) as a theoretical framework, the study introduced perceived credibility as a new factor that reflects the user's intrinsic belief in the electronic tax-filing systems. The findings of the study provided important implications for developing effective electronic government services in general and effective electronic tax-filing systems in particular.

Lu, Huang & Lo (2015) conducted an empirical theory of online tax filing acceptance model. This model would be the reference for establishing e-government, the study used a questionnaire of 200 respondents to find out the result. The study also considered tax equity and norms factors. The study focused on the behavioral control, attitude and subjective norms are the determinants affecting behavioral intention (on-line tax filing intention) and Online tax filing intention affects on-line filing actual behavior and significant positive effect on on-line tax filing behavior control. It can be concluded that majority of the tax payers have own enough facility to use e-Filing system at home or at the workplace and ease of use is the most important reason to file returns online.

Chawla, Jain & Joshi (2016) conducted a study to check the satisfaction level and awareness of the tax payers toward e-filing of income tax returns, 300 filled questionnaires from respondents (162 male and 138 females) were used to analyze the results by using mean score for ranking by using a Likert scale of 5, ANOVA and chi-square test through SPSS was also used. The descriptive design exercising a survey questionnaire to appoint the profile of the respondents. The paper focused of perceived ease of use, usefulness and reduced riskiness of the system to increase adoption of the e-Service. The study conclude the respondents did e-filing due to faster tax refund, 4 percent of respondents did e-filing for special cash rebate and only 7 percent of respondents had said that they were having no motivation for e-filing, rather the reason was forced mental pressure.

2.4 Conceptual Framework

Kothari (2004), explains that conceptual framework gives an explanation on the relationship between study variables. For the purpose of this study, the conceptual framework in figure 2.1 reflected the relationship between independent variable which was revenue automated system and the dependent variable which was excise tax performance. Revenue automated system was measured by electronic billing, electronic monitoring system and electronic filling while Excise tax performance was be measured by returns filled and tax revenue collection.

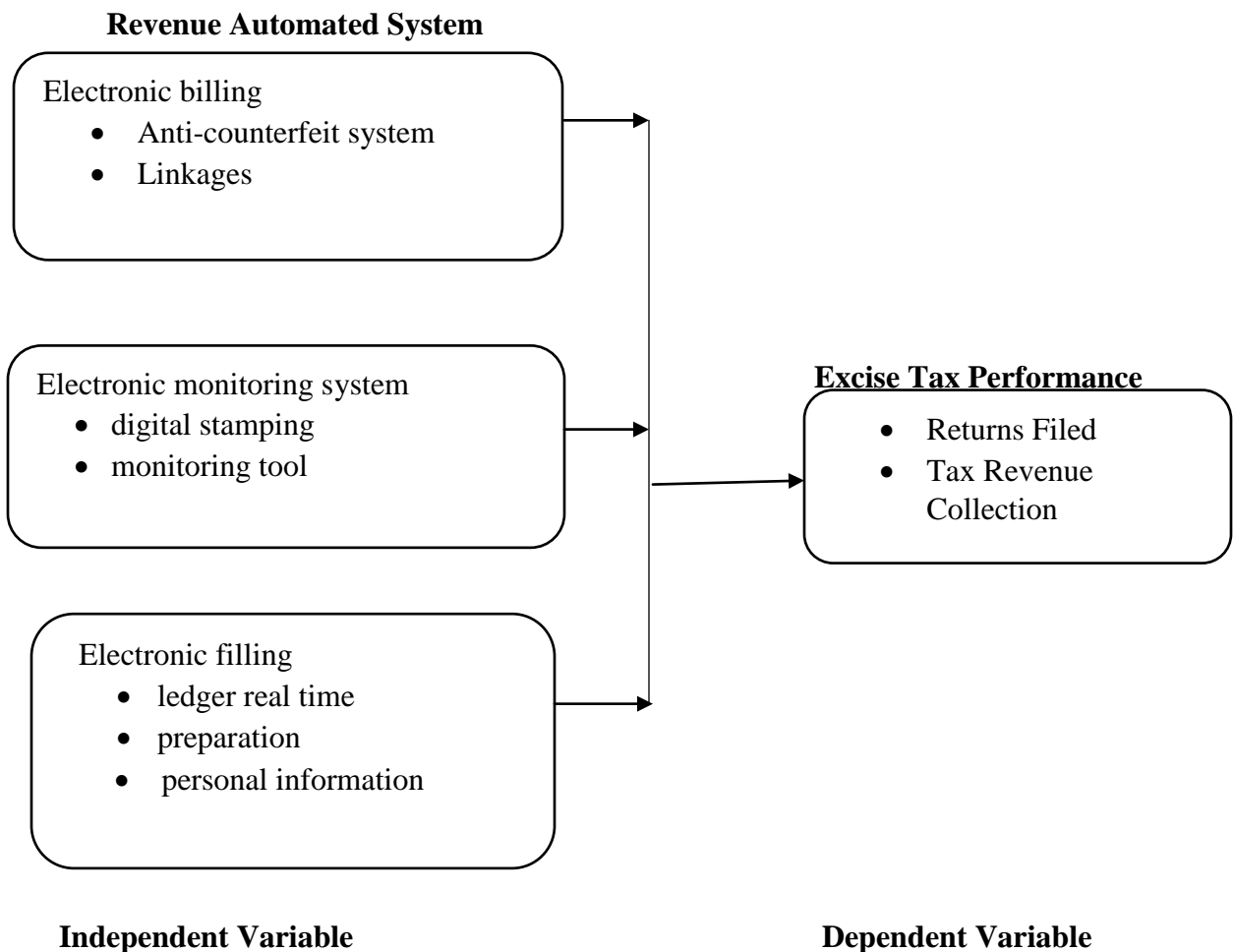


Figure 2.1: Conceptual Framework

Source: Author (2019)

2.5 Summary of the Literature Review

From the reviewed literature there exists significant knowledge on revenue automation systems and its regard to Tax performance. It can be observed that most of the literature focuses on system automation and system modernization in general, with few literatures focusing on i-tax and samba tax system. Literature review also showed that electronic tax system, excise duty reinforcement measures and revenue system automation in different way contribute to Tax performance. This lends credence to the observation by Brown and Mazur (2003) that revenue automation contributes significantly to improved revenue performance.

Mukeshimana (2012) in his study analyzed the effect of electronic tax system on tax revenue performance. The study used a cross-sectional descriptive survey design to collect data from Rwanda revenue authority. Findings showed that the contribution of electronic tax system on revenue performance is characterized by maximizing revenue collections through minimizing time spent by the taxpayers, availing services to the tax payers, reducing costs of compliance, improving tax compliance and adapting new technology. In addition, the findings showed that electronic taxation improved tax revenue performance. The findings recommended the adoption of electronic tax system as a way of improving tax performance.

Monica, Makokha and Namusonge (2017) conducted a study that sought to investigate the effects of the electronic tax system on tax collection efficiency in Domestic Taxes Department of Kenya Revenue Authority in Rift Valley region. Through using descriptive study design the study revealed that the use of electronic tax system had resulted in improved tax collection efficiency. The study recommended the need to adopt electronic tax system across all revenue streams of KRA. Maisiba & Atambo (2016) in their study sought to

investigate the effect of the electronic tax system on revenue collection efficiency at Kenya Revenue Authority through case study design. The study results revealed that most respondents agreed that KRA has good electronic tax payment System and that electronic tax system has contributed to enhanced revenue collection efficiency at KRA.

Bett and Yudah (2017) in their study aimed at examining the contribution of i- Tax system to revenue collection at Kenya Revenue Authority. Based on a descriptive study design the study established that i-Tax system through automation of online taxpayer registration, online tax return processing, online compliance and monitoring activities; and electronic tax payments have contributed significantly to increased revenue collection at KRA. Muthama (2013) sought to study the relationship between system automation and revenue collection at the Kenya Revenue Authority, with special focus on the Simba System. Based on descriptive study design and secondary data the study results showed that following system automation through the Simba system revenue collected increased. From the findings it was also demonstrated that system automation is positively associated with revenue collection at KRA.

Gitaru (2017) investigated the impact of system automation on revenue collection in Kenya revenue authority. This study employed descriptive study design through use of secondary data collection. The study findings established system automation resulted to more processing of transactions. The study also reported that the automation of revenue through Simba system had resulted to increased customs revenue collection. The study recommended that the KRA should take relevant measures to ensure revenue collection system are automated for effective tax performance.

Kanyi (2014) in his study evaluated the effects of Tax Policy Reforms on Tax Revenue in Kenya through a correlation study design. From the results it was established that reforms on punishment or the enforcement interventions resulted to improved tax revenue. The study recommended that enforcement strategies can constitute an effective way of improving tax revenue collection in Kenya. Majiwa (2016) when studying determinants of tax compliance in Kenya through cross-sectional study design of tax payers in Nairobi County. From the findings it was established KRA have used a number of enforcement instrument to ensure compliance. Further the results revealed that enforcement measures had a positive impact on tax compliance while tax rates, compliance costs, nature of tax had a negative impact on tax compliance.

A descriptive study design was carried out by Ndumia (2015) to establish the effect of enforcement measures on Value Added Tax revenue for firms in the large corporate taxpayer category in Kenya. The findings from the study showed that monitoring measures such as audit rate, imposition of penalties, criminal sanctions and another determinant of VAT revenue; the contribution of imports to VAT revenue, had varying degrees of relationship to the Value Added Tax revenue for firms in the large corporate taxpayer category. Audit rate and penalties were established to have positive association on value added tax revenue while criminal sanctions were established to have negative association with value added tax revenue.

2.6 Critique of Existing Literature

The reviewed literature concentrated on specific tax heads and none on excise duty. Most studies have concentrated on VAT and Corporate tax since these two have contributed more to the Total Tax Revenue collection. Studies done on taxation in Kenya have not covered the effect of excise duty tax reforms in Kenya. They have mostly covered general impact of

Tax reforms (Kanyi 2014) and have not examined impact of specific tax reforms. Additionally the existing study has focused on examining impact of Tax revenue performance by examining the factors affecting performance (Nyaga & Omwenga 2016); Effect of ICT on tax performance (Gitaru, 2017;

The study by Ling (2010) on electronic monitoring and tax compliance determinants in Malaysia was also done in a developed country while the current study will be done in a developing country Ndirangu (2014) on effect on electronic tax system on value added tax compliance by motor vehicle part dealers in Nairobi Central Business District used secondary data whereas the current study uses both primary and secondary data.

According to Cornielje, Velema and Finkenflugel (2008), only when the monitoring system is owned by the users the system is it likely to generate valid and reliable information. However, all too often the very same users may be overwhelmed by the amount of daily work which in their view is seen as more important than collecting data and subsequently the system may become corrupted. However, these studies have not explored specific revenue management, with most studies focusing on Simba system and ignored other system such as Excisable Goods management system).This study therefore seeks to address the gap by examining the effect of excise duty system (excisable goods management system) on tax revenue performance in Nairobi north district.

2.7 Research Gaps

A number of studies have been conducted on revenue automated system and tax performance. The most important study in the subject area is the study by Muthama (2013). However, this study was broad in scope and did not focus on specific revenue automation systems. There exists studies with specific focus on different type of revenue automate system (Gitaru, 2017; Bett and Yudah 2017).

Gidisu (2012) did a study on the automation system procedure of the Ghana Revenue Authority on the effectiveness of revenue collection using a case study of customs division. It was established that there was a positive impact of automation system usage and the cost of tax administration, automation and effectiveness of revenue collection. However, these studies have been limited to i-Tax and samba system and its effect on tax performance. Few studies have investigated the effect of EGMS. In addition, none of the existing has investigated the effect of revenue system automation on different tax revenue portfolios.

The literature reviewed shows a number of international studies that have examined the effect of automation on revenue collection for instant Kozak(2005) investigated major effect of modern information & communication technology development on income generated & effectiveness in cost reduction by organization.

Chatama (2013) did a study to examine the means by which ICT has modernized Tax administration methods & hence revenue collection focusing on Tanzania Revenue authority (TRA) Ling & Nawawi (2010) conducted a study in Malaysia on coordination skill in advanced information & communication system & tax software in tax education

Locally the few studies done have concentrated on impact of automation on revenue collection in county & local authority Odoyo,(2005) the above studies on other countries which have different setting from Kenya & those locally have focused only on the county government. This study therefore sought to fill the gap by establishing the effect of Revenue automated duty system on excise tax performance a case study of Nairobi North tax District

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The purpose of this chapter was to provide an outline of the research methodology that was to be used in the study. The section concentrated on data collection methods, research designs and concluded with the analysis and presentation of data that was used in the research.

3.2 Research design

Research design is what guides data collection and analysis (Hair et al ., 2008) The study employed a descriptive research design to meet the research objectives which was effect of excisable goods management system on tax performance at Kenya Revenue Authority, Nairobi tax district. Descriptive study design was employed for the benefits that in offers in collecting large amount of data within a short period of time and low cost, ability to test relationship between variables and ability to describe the study variables as it focuses on what, why, how questions.

3.3 Target Population

The target population refers to the universal set of all members to which sampling is based on (Lavrakas, 2012). The target population in this case therefore comprised of the employees of the Kenya Revenue Authority and specifically employees in DTD department in Nairobi north district. The target population consisted of 210 employees.

3.4 Sample and Sampling Techniques

A sample is a smaller group derived from target population and having similar characteristics as target population (Kothari, 2014). The method that was used is the Fisher formula which aids in sample size determination especially when the number of elements in the population is known. The formula is expressed as:

$$n_f = \frac{z^2 pq}{e^2}$$

In which n_f is the sample size, Z is the standard normal deviation which depends on the confidence interval and at 95 % it is 1.96, P is the percentage of response that is desired and for this study it was 50 %(0.5), q is 1- p , which then is also 0.5 and e is confidence interval. On fitting the values, the sample is obtained as.

$$n_f = \frac{z^2 \times (P) \times (1-P)}{c^2}$$
$$\frac{(1.96)^2 \times (0.5) \times (1-0.5)}{(0.054)^2} = 86.45118$$

New $n_f = 86.45118$

$$1 + n_f = \frac{86.45118 - 1}{210} = 74.04486$$

In line with the result of the formula, this study had a sample size of 74 employees in Nairobi North District. The sampling techniques that were used included stratified sampling in the different categories and simple random sampling within the strata to eliminate bias. The researcher applied purposive sampling technique.

Table 3.1: Sampling Frame

Employees	Population	Sample Size
Domestic Tax Department	210	74
Total	210	74

3.5 Data Collection

The study used both primary and secondary data collection method to answer the research objectives. Primary data was collected through questionnaires which were self-administered. This was because the respondents were literate and knowledgeable on the study area. Secondary data was attained from KRA website, journals and books that present academic research. Questionnaires were the main research instruments that were used in this study. Structured likert based questionnaire was used in the study.

3.6 Reliability Test

Validity is the appropriateness and usefulness of inferences made based on the collected data (Heal & Twycross, 2015). Internal validity was ensured through expert opinion from supervisors whose opinion and feedback was incorporated in the development of research instruments. Reliability refers to a measure of the degree to which research instruments yield consistent results (Mugenda & Mugenda, 2003). In this study, reliability of the questionnaire was done by pre-testing the questionnaire.

Cronbach's alpha test is a statistic which was used to measure the accepted range of consistency or reliability of our variables. Heal & Twycross (2015), propose that a reliability index of a minimum of 0.6 is satisfactory for any research instrument. However, in this study, Cronbach's alpha type of reliability co-efficient of > 0.7 was used for all the three independent variables and results tabulated.

The reliability of the study instrument was tested through Cronbach's alpha. The analysis outcome of reliability scores of the independent variables revealed that all the variables had a score of over 0.7. In confirming reliability, the Cronbach's alpha was used. The findings were found to be acceptable and therefore reflected on the validity of the instrument used. This is supported by (Sekaran, 2003) who pointed out that the commonly acceptable Cronbach alpha value has to be well above 0.70.

Table 3.2: Reliability Results

Variable	Number of Items	Cronbach's Alpha Score	Conclusion
Electronic billing	5	0.818	Reliable
Electronic monitoring system	5	0.802	Reliable
Electronic filling	6	0.749	Reliable
Average		0.789	Reliable

3.7 Validity of the Study

Validity test is used in determination of a measurement if it really reflects the concept under the study. Validity was used to check whether the questionnaire is measuring what it purported to measure (Bryman& Cramer, 1997). In this regard, validity seeks to test whether the tool adopted for data collection is fit to measure the aspects it purports to measure. Accordingly, therefore, validity ensures that information collected is thus fit to answer the research questions and meet the objectives of a particular research. This study used content validity which measures the tool of data collection ability to measure and collect what it is intended (Leung, 2015). This means that gauges the appropriateness of the tool used for data collection is what content validity seeks to achieve. The researcher obtained insights from tax experts and lecturers in order to ensure that the content validity of the tool was upheld. The experts sufficiently agreed on the appropriateness of the contents of the questionnaire in collecting data on Excise tax performance in Nairobi North Tax District.

3.8 Data Analysis

Data collected was cleaned and prepared for analysis. ANOVA and Pearson correlation was used in the study. The study applied the regression model as follows.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y = dependent variable, (Excise Tax Performance)

β_0 = Constant or intercept which is the value of dependent variable when all the independent variables are zero.

β_{1-4} = Regression coefficient for each independent variable.

ε = Error term.

X_1 = Electronic Billing

X_2 = Electronic Monitoring system

X_3 = Electronic Filling

Data was analyzed using Statistical packages for social sciences, (SPSS).

3.9 Measurement of Variables

The study was involved in measurement of three variables namely; electronic billing, electronic monitoring system and electronic filling. A five point Likert scale (5-1) were used for each of the statements corresponding to the various parameters of revenue automated system. The dependent variable for this study which is excise tax performance was measured by returns filed and payments. A five point Likert scale (5-1) was used to collect views on excise tax performance.

Table 3.3: Operationalization of Study Variables

Category	Variable	Indicators	Source	Data collection instrument	Type of analysis
Independent					
	Revenue automated system	• Electronic billing	Dewulf & Sokol, (2005).	Questionnaire 5-Point Likert scale	Multiple Regression Analysis
		• Electronic monitoring	Bales, (2010)	Questionnaire 5-Point Likert scale	Multiple Regression Analysis
		• Electronic filling	Kumar& Anees, (2014).	Questionnaire 5-Point Likert scale	Multiple Regression Analysis
Dependent					
	Excise tax performance	• Returns filed	Bird &Zolt, (2007)	Questionnaire	Multiple Regression Analysis
		• Payment		5-Point Likert scale	

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION OF FINDINGS

4.1 Introduction

This chapter describes the findings from the respondents and which linked them to the objectives of the study. It includes the, descriptive and inferential statistics of the respondents, views of electronic billing system, electronic monitoring system, electronic filing system and Excise tax performance.

4.2 Response Rate

As shown in Figure 4.1, 60 respondents participated in the study. Out of the targeted 74 respondents it means a sample size of 81%. Response rate is a key determinant to the performance of regression analysis, with major effect on whether data met assumption tests or not. 81% was good and it was confirmed by Baruch and Holtom (2008), who contend that a response rate of over 80% is a good. A response rate of 100% is excellent; however it was not achieved in the study. This was imputed to the work interrelated challenges on part of the respondents as the study the questionnaire was self-administered within short time frame based on the 3 day permission granted to collect the data.

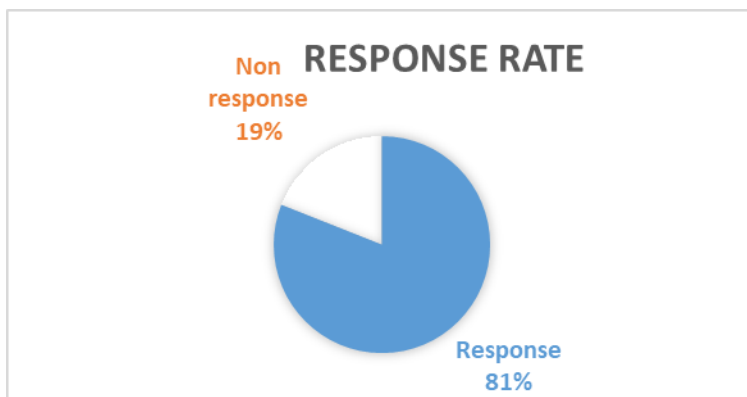


Figure 4.1: Response Rate

Survey Data (2019)

4.3 Demographic Characteristics of the Respondents

4.3.1 Education Level of the Respondents

The table 4.1 shows 65% of respondents had university level of education, while 20% had master level education and 15% had diploma education. From the results it was realized that majority of the respondents has degree level of education. These findings suggest that respondents were literate and knowledgeable to understand the questions and respond to them appropriately.

Table 4.1: Level of Education

Highest level of education	Frequency	Percentage
Diploma	9	15
University Degree	39	65
Master's Degree	12	20
Total	60	100

4.3.2 Years of Service

As shown on Table 4.2, 52% of the respondents had worked at KRA for between 6-10 years, with 27% of respondents having worked at KRA for between 3-5 years while 13% have worked at KRA for less than 3% and 8% have worked for over 10 years. The study results indicates that majority of respondents had worked at KRA for over 3 years, the period within which the EGMS system was implemented.

Table 4.2: Year of Service

Years of operation	Frequency	Percentage
Less than 3 years	8	13
3-5 years	16	27
6- 10 years	31	52
Above 10 years	5	8
Total	60	100

4.3.3 Age of the Respondents

Table 4.3 shows 42% % of the respondents were between 26-35 years, 37% were between 36-45 years, 12% between 46-55 years and 9% above 55 years. These results imply that majority of employees at Nairobi North Tax district domestic tax department are outside the youth bracket age.

Table 4.3: Respondent's Age

	Frequency	Percentage
26-35 years	25	42
36-45 years	22	37
46-55 years	7	12
Over 55 years	6	9
Total	60	100

4.3 Statistical Assumptions

Statistical tests rely upon certain assumptions about the variables used in the analysis. Osborne and Waters (2014), opine that when these assumptions are not met the results may not be valid. They further argue that this may result in a type I or type II error, or over or under-estimation of significance or effect size(s). It is therefore important to pretest for these assumptions for validity of their results. Osborne, Christensen, and Gunter (2001) discovered that few articles report having tested assumptions of the statistical tests they rely on drawing their conclusions.

According to Osborne and Waters (2014), not pretesting for these assumptions has led to a situation where there is rich literature in education and social science, but questions in to the validity of many of these results, conclusions, and assertions still exist. Testing for assumptions is beneficial as it ensures that an analysis meets the associated assumptions and helps avoid type I and II errors (Owino, 2014). Prior to data analysis, assumptions for normality and multicollinearity were checked.

4.3.1 Test of Normality

Parametric statistics by definition assume that the data under test is normally distributed, hence the use of the measure of central tendency (Zikmund, 2010). A number of statistical procedures including correlation, regression, t-test and f-tests are based on the assumption that the data follows a normal distribution (Ghasemi & Zahediasl, 2012). There are several ways of testing normality such as Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson Darling.

According to Razali and Wah (2011) Shapiro-Wilk is the most powerful normality test and this study adopted it. The test was used in testing the data in this study. Shapiro-Wilk test of less than 0.05 implies that there is significant deviation of data from a normal distribution. The study's data set was subjected to a normality test and the results are shown in Table 4.4.

Table 4.4: Tests of Normality

Test for Normality

	<u>Kolmogorov</u>	<u>smirnow</u>	<u>Shapiro-Wilk</u>		
	Statistics	sig	Statistics	sig	
ETP	0.017	0.006	0.961	0.013	
EBS	0.304	0.000	0.867	0.006	
EMS	0.208	0.000	0.764	0.010	
EFS	0.254	0.004	0.880	0.000	

4.3.2 Multicollinearity Test

Multicollinearity is the undesirable situation where the correlation among the independent are strong. It increases the standard errors of the coefficients using collinearity statistics to get tolerance and Variance Inflation Factor (VIF). In order to test for multicollinearity, VIF was computed using statistical packages for social science (SPSS). Multicollinearity increases the standard errors of the coefficients and thus makes some variables statistically not significant while they should otherwise be significant (Osborne and Waters, 2014). Tolerance is the amount of variance in independent variable that that is not explained by the other independent variable.

Bowerman and Connell (2006) stated that lower levels of VIF are more better while higher levels of VIF are known to affect adversely the result associated with a multiple regression analyses. The authors argued that VIF above 2.50 start to indicate relatively high levels of multicollinearity. The Variance Inflation Factor test in the study regression model ranged between 1.278 and 1.514.

These values were lower than the 2.5 level suggested by Allison (2009) as an indicator of muliticollinearity; therefore, multicollinearity was not a problem on this analysis. Thus the study findings were able to fulfill the threshold mainly because Table 4.5 shows that the VIF of the study were all less than 2.

Table 4.5: Multicollinearity Test

Model	Coefficients ^a	
	<u>Collinearity Statistics</u>	
	Tolerance	VIF
(Constant)		
EBS	0.765	1.402
EMS	0.856	1.514
EFS	0.602	1.278

a. Dependent Variable: EXCISE TAX PERFORMANCE

4.4 Descriptive Statistics

4.4.1 Electronic Billing System

The study sought to understand the role of electronic billing on excise duty system as implemented by KRA. The study findings revealed that respondents agreed that tracking of stamps has been made easier with the EGMS with a mean score of (3.71). Further the study found out that respondents were in agreement that system automation has helped the authentication of stamps with a mean score of (3.67) and the accountability of excisable good much easier with a mean score of (4.29). The results showed that the respondents were in agreement that installation of track and trace system has enhanced the deterrence of counterfeiting with a mean score of (3.88). However the findings showed that respondents were neutral to the questions that revenue system automation has led to a decrease in fake stamps use. These findings imply that revenue system automation has brought significant benefits to tax collection at KRA. These findings concur with results of Muthama (2013) who established that revenue system automation is beneficial to tax collection process.

Table 4.6: Descriptive Statistic on Electronic Billing System

	Mean	Std. Dev
The tracking of stamps and excisable goods has been made easier with EGMS.	3.71	0.955
Electronic billing facilitates authentication of stamps and excisable goods by KRA staff.	3.67	0.702
Electronic billing has enabled accounting for production of excisable goods manufactured or imported	4.29	0. 624
Installation of track and trace system enhance deterrence's of counterfeiting	3.88	0.815
Has been decrease in use of fake stamp by manufacturers following implementation of EGMS	3.23	0.976
Electronic Billing	3.76	

Survey Data (2019)

4.5 Electronic Monitoring System

The study also sought to analyse electronic tax system benefits to KRA. The study findings demonstrated that the respondents were in agreement that Electronic monitoring system supervises high risk offenders with a mean score of (4.21). Similar findings were showed on the statement that the Electronic monitoring system has enhanced online tax return processing with a mean score of (4.51). The results also indicated that the respondents were in agreement that Electronic monitoring systems meet security needs with a mean score of (4.13). Further the results also indicated that respondents agreed that Electronic monitoring system is a tool for KRA excise duty tax compliance with a mean score of (3.79) and electronic monitoring system has reduced excise duty revenue leakages with a mean score of (3.69). These findings suggest that electronic tax system has led to positive improvements on tax collection and administration. This concurs with the assertion of Maisiba & Atambo (2016) that electronic tax system positively affects tax administration.

Table 4.7: Descriptive Statistic on Electronic Monitoring System

Dev	Mean	Std.
Electronic monitoring system supervises high risk offenders	4.21	0.588
Electronic monitoring system has enhanced online tax return processing.	4.51	0.780
Electronic monitoring systems meet security needs	4.13	0.608
Electronic monitoring system is a tool for KRA excise duty tax compliance	3.79	0.876
EMS has reduced excise duty revenue leakages	3.69	0.922
Electronic Monitoring System	4.06	

Survey Data (2019)

4.6 Electronic Filing System

Electronic filing enables users to accomplish their tasks more quickly had a mean of 3.69. Electronic filing continuously updates our ledger real time had a mean of 3.52. Electronic filing systems make it easier for users to accomplish income tax return more effectively had a mean of 4.07. Electronic filing systems make it easier for users to prepare income tax return had a mean of 3.43. Electronic filing make users to access online payments during due dates had a mean of 3.81. Electronic filing systems do not divulge users their personal information had a mean of 3.56. Electronic filing had an average mean of 3.68

Table 4.8 : Descriptive Statistic on Electronic Filing System

	Mean	Std. Dev
Electronic filing enables users to accomplish their tasks more quickly.	3.69	0.764
Electronic filing continuously updates our ledger real time.	3.52	0.875
The systems of e-filling make it easier for users to accomplish income tax return more effectively	4.07	0. 657
Electronic filing systems make it easier for users to prepare income tax return	3.43	0.903
Users access online payments during due dates using e-filling	3.81	0.705
Electronic filing systems do not divulge users their personal information	3.56	1.054
Electronic Filling	3.68	

Survey Data (2019)

4.7 Correlation Analysis

Correlation analysis as aforesaid measures the degree of association between variables. Pearson correlation analysis was done to establish the relationship between study variables. A correlation coefficient value (r) in the range of 0.1 to 0.29 is considered weak, 0.3 to 0.49 is considered moderate while 0.5 to 1.0 is considered strong extracts from O'Brien, 2007. Table below indicate that electronic billing had the highest correlation with excise tax performance ($r = 0.535$), electronic monitoring system is positively correlated with excise tax performance ($r = 0.219$), electronic filling is positively correlated with excise tax performance ($r = 0.426$), Thus electronic billing had a more statistically significant strong positive relationship with excise tax performance.

Table 4.9: Summary of Correlations Statistics of Independent and Dependent Variables

	Tax Performance	Automated Billing	Electronic Monitoring System	Electronic Filing
Tax Performance	1			
Automation Billing	0.535**	1		
Electronic Monitoring System	0.219**	0.196**	1	
Electronic Filing	0.426**	0.438**	0.329**	1

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

Survey Data (2019)

4.8 Multiple Regression Analysis

The broad objective of the study was to investigate the effect of revenue automated duty system on excise tax performance a case study of Nairobi north tax district. To achieve this objective, three specific objectives and three corresponding questions were set and developed. Subsequently, to achieve the set objectives and to answer the questions, the study used various inferential statistical tools.

4.8.1 Coefficient of Regression Analysis

The regression equation model used in the study was;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

Y = dependent variable, (Excise Tax Performance) β_0 = Beta coefficient ε = Error term.

X_1 = Electronic billing, X_2 = Electronic Monitoring system, X_3 = Electronic Filing

Thus established regression equation was; $Y = -0.398 + 0.298X_1 + 0.623X_2 + 0.246X_3 + e$

4.9 Model Summary

4.9.1 Regression Analysis between Electronic Billing and Excise Tax Performance

The results in Table 4.10 indicated that electronic billing had a positive correlation with excise tax performance up to 51.9% or ($R = 0.519$). According to study findings the model accounts for 66.5% (R-Square, 0. 665) of variation in excise tax performance. The results further reveal that even if the study adjusts for small samples and high collinearity, the model would still account for 64.5% (Adjusted R Square, 0. 645) of tax performance.

Further ANOVA tests were conducted to determine whether the model works in explaining the relationship among variables as postulated in the conceptual model. The findings it shows an F value of 34.624 with a significance level of 0.001 which is far lower than the confidence level of 0.05, hence establishing the model is statistically significant. The implication is that each independent variable contributes significantly to changes in the dependent variable excise tax performance. This shows that the model works and it accounts for significantly to a greater extent variance in the dependent variable than would be expected by chance.

Table 4.10 : Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.519 ^a	0.665	0.645	0.45246

ANOVA				
Model	Sum of Square	Means F	Sig.	
Regression	4.606	0.921	34.624	.001 ^b
Residual	12.488	0.205		
Total	17.094			

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.764	.518		6.067	.000
EBS	.205	.046	.519	3.110	.001

a. Dependent Variables: Excise Tax Performance

b. Predictor: (Electronic Billing)

4.10 Regression Analysis between Electronic Monitoring System and Tax Performance

The results in Table 4.11 indicated that electronic monitoring had a positive correlation with excise tax performance up to 65.4% or (R= 0.654). According to study findings in Table 4.12, the model accounts for 91.1% (R-Square, 0.911) of variation in tax performance. The results further reveal that even if the study adjusts for small samples and high collinearity, the model would still account for 90.8% (Adjusted R Square, 0.908) of tax performance.

Further ANOVA tests were conducted to determine whether the model works in explaining the relationship among variables as postulated in the conceptual model. The findings it shows an F value of 29.244 with a significance level of 0.000 which is far lower than the confidence level of 0.05, hence establishing the model is statistically significant. The implication is that each independent variable contributes significantly to changes in the dependent variable. This shows that the model works and thus accounts for significantly to greater extent variance in the dependent variable than would be expected by chance.

Table 4.11 : Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.654 ^a	0.911	0.908	0.43216

ANOVA				
Model	Sum of Square	Means F Squares	Sig.	
Regression	11.050	13.683	29.244	.000 ^b
Residual	4.019	0.046		
Total	15.069			

Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
1 (Constant)	3.084	.818		6.207	.000
EMS	.445	.096	.654	6.150	.000

a. Predictors: (Constant), Electronic Monitoring System _mean

b. Dependent Variables: Excise Tax Performance

4.11 Regression Analysis between Electronic Filing and Tax Performance

The results in Table below indicated that electronic monitoring had a positive correlation with excise tax performance up to 42.8% or (R= 0.428). According to study findings in Table 4.14, the model accounts for 95.7% (R-Square, 0.957) of variation in tax performance. The results further reveal that even if the study adjusts for small samples and high collinearity, the model would still account for 95.3% (Adjusted R Square, 0.953) of tax performance.

Further ANOVA tests were conducted to determine whether the model works in explaining the relationship among variables as postulated in the conceptual model. The findings shows an F value of 25.831 with a significance level of 0.000 which is far lower than the confidence level of 0.05, hence establishing the model is statistically significant. The implication is that each independent variable contributes significantly to changes in the dependent variable. This shows that the model works and thus accounts for significantly to a greater extent variance in the dependent variable than would be expected by chance.

Table 4.12 : Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.428 ^a	0.957	0.953	0.1867

ANOVA

Model	Sum of Square	Means F Squares	Sig.
Regression	10.997	6.799	25.831
Residual	1.520	0.046	
Total	12.517		

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	.381	.418		3.162	.000
EFS	.615	.096	.428	4.719	.000

a. Dependent Variable: Excise Tax Performance

b. Predictors: (Constant), Electronic Filling _mean

Joint effect Analysis of Variance between Revenue Automated Duty System and Excise Tax Performance

Table 4.13 explains the relationship between revenue automated duty system and excise tax performance, regression analysis was conducted. The findings below revealed that revenue automated duty system correlate with excise tax performance up to 72.2% ($R=0.722$) and accounts for a variation of 52.3% ($R^2=0.523$). This implies that 47.7% of the change in excise tax performance was caused by other factors which were not included in the model. The findings further reveal that even if the results adjust, the model would still account for 51.9% (Adjusted R^2 , 0.519) variation of excise tax performance.

Table 4.13 : Model Summary

Model	Unstandardized Coefficients		Standard Coefficients	T	Sig.
	B	Standard Error	Beta		
Constant	0.398	0.148		2.19	0.231
Electronic billing	0.298	0.086	1.974	4.413	0.008
Electronic monitoring	0.623	0.095	0.138	1.981	0.004
Electronic filing	0.246	0.069	1.330	3.145	0.000
R	0.722				
R Square	0.523				
Adjusted R Square	0.519				
F Value	27.659				
Sig	0.000 ^b				

a Dependent Variable: Excise Tax Performance

b Independent Variables: (Electronic Billing, Electronic Monitoring System and Electronic Filling)

4.11.1 Analysis of Variance

Further ANOVA tests were conducted to determine whether the model works in explaining the relationship among variables as postulated in the conceptual model. The findings shows an F value of 27.659 with a significance level of 0.000 which is far lower than the confidence level of 0.05, hence establishing the model is statistically significant. The implication is that each independent variable contributes significantly to changes in the dependent variable. This shows that the model works and thus accounts for significantly more variance in the dependent variable than would be expected by chance.

4.11.2 Test of Research Questions

The first question was what is the effect of electronic billing on excise tax performance from Nairobi north tax district? Electronic billing has a positive relationship effect on excise tax performance of Nairobi north tax district. The results on Table above revealed that p value was less than 0.05, $\rho=0.008$ which implies that relationship was statistically significant

The second question was what is the effect of electronic monitoring system on excise tax performance from Nairobi north tax district? Electronic tax system has a positive relationship effect on excise tax performance of Nairobi north tax district. The results on Table above revealed that p value was less than 0.05, $\rho=0.004$ which implies that relationship was statistically significant

The third question was what is the effect of electronic filling on excise tax performance from Nairobi north tax district? Electronic billing has a positive relationship effect on excise tax performance of Nairobi north tax district. The results on Table above revealed that p value was less than 0.05, $\rho=0.000$ which implies that relationship was statistically significant.

4.12 Discussion of the Findings

This chapter presents discussion of the results of various tests carried out on the study. The results of each of the questions in this study will be discussed.

4.12.1 Effect of Electronic Billing System on Excise Tax Performance

The first objective of the study was to determine the effect of electronic billing on excise tax performance of Nairobi north tax district. The objective had a corresponding question which asked what is the effect of electronic billing on excise tax performance? From the findings of the study they pointed out that electronic billing was statistically significant at a p value of

0.008, which is less than 0.05 the convectional probability significance level, $p = 0.00 < 0.05$. The result concurred with Flossy, (2017) whose findings on the electronic billing on tax collection performance in Rift valley region were statistically significant.

Gideon and Alouis (2013) study on electronic billing on revenue collection system in Zimbabwe revealed that the hub of every public administration system and the cornerstone of sound fiscal management should have electronic billing system. It enables governments to finance budget deficits from domestic sources, thus dissuading recourse to offshore sourcing. The results were statistically significant. Basing their study on public revenue collection in Zimbabwe, he recommended the enhancement of an electronic billing system at the national revenue collector Zimbabwe Revenue Authority (Zimra) the study concurred with this study which was statistically significant.

4.12.2 Effect of Electronic Monitoring System on Excise Tax Performance

The second objective of the study was to establish the effect of electronic monitoring system on excise tax performance of Nairobi north tax district. The objective had a corresponding question which asked what is the effect of electronic tax system on excise tax performance? From the findings of the study they indicate that electronic monitoring system was statistically significant at a p value of 0.004 which is less than 0.05 the convectional probability significance level, $p = 0.00 < 0.05$. The result concurred with Kangave, (2005) whose findings on the electronic monitoring system on excise duty performance in Uganda Revenue Authority were statistically significant.

Mibey (2011) study on factors affecting implementation of electronic monitoring tax performance, recommends that capacity building should be added as a major component of tax performance (Kenya), and this calls for enhanced systems in monitoring. Similar findings were revealed by Cyan et al. (2017) who did a study on the effects of electronic monitoring on tax compliance; quasi-experimental evidence from survey data in Pakistan. The study found improved performance towards tax compliance to accurately reconcile of report.

4.12.3 Effect of Electronic Filing System Excise Tax Performance

The third objective of the study was to establish the effect of electronic filing on excise tax performance of Nairobi north tax district. The objective had a corresponding question which asked what is the effect of electronic filing system on excise tax performance. From the findings of the study they indicate that electronic filling was statistically significant at a p value of 0.000 which is less than 0.05the convectional probabality significance level, $p = 0.00 < 0.05$. The result concurred with Lai, (2010) whose findings on the electronic tax system affects excise duty performance in Malaysia were statistically significant.

Kariuki (2013) study reveals similar findings the study was carried out in Nairobi to determine how automated tax system plays a vital role in the revenue administrations through its versatile nature that avails accessible data in both historical and current categories, reduces computation errors, and reduces data processing time and mitigating overall costs. It is further noted in the study that there is improved client service and voluntary tax performance resulting in increased revenue collections and reduced frequency of interaction between the authority staffand the taxpayers thereby facilitating the decision making process.

4.12.4 Overall Effect of Revenue Automated System on Excise Tax Performance

The overall objective of the study was to establishing effect of revenue automated system on excise tax performance. This study was statistically significant at a p value of 0.00 which is less than 0.05 the convectional probability significance level, $p = 0.00 < 0.05$, which means an increase in revenue automated system increases Excise tax performance.

Obure (2008) in a study of automated system on tax compliance in Northern Ghana demonstrates that, there is a positive relationship between automated system and excise compliance. Electronic billing will provide the necessary tax performance, his findings concur with findings from this study. Another study which concurs with the current study was conducted by Mwakeshima (2013) a study on electronic tax system on tax revenue performance: It was found out that automated tax system is an important ingredient in any efficient tax performance.

Contrasting findings was discovered by Lai and Choong (2010), who conducted a study to determine the impact on electronic tax filing on performance among taxpayers in Malaysia. Analyzing the performance of the taxpayers after acquiring electronic filing, there was no improvement on performance.

Similar findings were echoed by Gitaru (2017) who did a study on the effect of system automation on revenue collection performance in KRA: This study employed descriptive study design through use of secondary data collection. The study findings established system automation resulted led to more processing of transactions. The study also reported that the automation of revenue through Simba system had resulted to increased revenue collection. The study recommended that the KRA should take relevant measures to ensure revenue collection system are automated for effective excise tax performance.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter demonstrates summary, implication of the findings and conclusion of the study. In addition, areas of further research and recommendation are also included in this section.

5.2 Summary of Findings

The aim of this study was to establish the effect of revenue automated system on excise tax performance. This was founded on three specific objectives to determine the effect of electronic billing on excise tax performance, to establish the effect of electronic monitoring system on excise tax performance and to establish the effect of electronic filling on excise tax performance. The outcome of the study are summarized and concluded established on the study objectives.

Objective one of the study was to determine the effect of electronic billing on excise tax performance. The study findings demonstrated that the electronic billing is a significant contributor to increase in excise tax performance. The objective two of the study was to establish the effect of electronic monitoring system on excise tax performance. The findings showed that electronic monitoring significantly affects the performance of excise tax performance positively. Respondent also were in agreement that, electronic monitoring has enhanced online excise tax return processing. Objective three of the study was aimed on analysing the effect of electronic filling on excise tax performance and from the findings it was established that electronic filling significantly affects excise tax performance positively.

5.3 Conclusions

The study aimed at investigating the effect of revenue automated system on excise tax performance in Nairobi north district. Based on the findings, the study made the following conclusion, that revenue automated system had influence on excise duty tax performance. This finding suggests that revenue automated system implementation at revenue authorities impacts on excise duty performance. However, the findings also point out that revenue authorities need to pay attention to other factors apart from revenue automated system in order to greatly impact on excise tax performance.

On electronic billing, the study concludes that the use of E-billing has been beneficial to KRA. The study also suggests that electronic billing results to increased excise duty performance. The study concludes that the organizations that use electronic billing have the highest enhanced excise tax performance. The study findings also highlights that electronic billing has enabled accounting for production of excise goods manufactured and this also has a great impact on excise duty performance. In regards to electronic monitoring system, the study findings disclosed that this too affects excise tax performance. The study revealed that electronic monitoring has enhanced online tax return processing and this has lead to better excise tax performance. The study also concludes that organizations that use electronic filing system are most likely to have highest increase in excise tax performance. The study findings also highlights that electronic filling make it easier for users to file and declare income return more effectively and this the impacts positively on excise duty performance.

5.4 Limitations of the Study

The study had some limitations. The study did not attain 100% response rate. One of the reasons for this is that the employees of the Kenya Revenue Authority specifically those in the DTD departments were reluctant to fill the questionnaire for fear that the responses would be used against them or the responses revealed to the management. However, the limitation was mitigated by assuring the respondents that data collected from them were used for academic research only.

5.5 Recommendation

Based on the objectives of the study, efficient electronic billing leads to improved excise duty collection by KRA. From the findings, there exists a positive relationship between electronic billing and excise tax performance. Taken together, the findings suggest that KRA should focus on expanding the use of electronic billing systems to other tax heads as a way of increasing overall tax performance. In this regard the study recommends that KRA embrace electronic billing to increase its excise tax collection.

Electronic monitoring system was found to have effect on excise tax performance. The study thus recommends that KRA places more emphasis on electronic monitoring system as a way of improving excise duty tax performance in Kenya. On electronic filing, the findings demonstrated that revenue system automation positively impacts on excise duty performance. Based on the findings, the study recommends that KRA should strengthen the automated filing. The study suggests the need for the government to increase the use of technology in tax filing.

5.6 Suggestions for Further Research

The study recommends the needs for more studies focusing on other factors not included in the study. The study was only limited to Nairobi North Tax district and these calls for more studies that are national based to understand the effect of revenue automated system on KRA excise tax performance. The study was based on quantitative methodology that has limitation on exploring the study variables in detail. There is need for more qualitative studies to explore the contribution of revenue automated system on excise tax performance in more detail.

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APPENDICES

Appendix 1: Questionnaire

Please respond to the questions as accurately, completely and as honest as possible and tick (✓) one response as appropriate or fill the space provided.

Kindly answer all the questions by ticking in the boxes or writing in the spaces provided.

1. Age Bracket [] 18-25 years [] 26-36 years [] 36-45 years [] 46-55 years [] over 56 years
2. Academic Qualification [] Degree [] Diploma [] Masters [] Phd
3. Position in the organization.....
4. How long have you worked at KRA [] Less than 3 Years [] 3-5 years [] 6 -10 years [] Above 10 years

Section B: Electronic Billing System

The following statement below relates to electronic billing system. Kindly indicate your level of agreement to the following statement where, strongly disagree =1, Disagree = 2, Neutral = 3, Agree = 4, strongly Agree = 5. Tick appropriately.

Statements	1	2	3	4	5
The tracking of stamps and excisable goods has been made easier with EGMS					
Electronic billing facilitates the authentication of the stamps and excisable goods by any KRA staff					
Electronic billing has enabled accounting for the production of excisable goods manufactured or imported					
The installation of track and trace system has enhanced the deterrence of counterfeiting					
There has been a decrease in use of fake stamps by manufacturers following the implementation of EGMS					

Section C: Electronic Monitoring System

The following statement below relates to electronic monitoring system. Kindly indicate your level of agreement to the following statement where, strongly disagree =1, Disagree = 2, Neutral = 3, Agree = 4, strongly Agree = 5. Tick appropriately.

Statements	1	2	3	4	5
Electronic monitoring system supervises high risk offenders					
Electronic monitoring system has enhanced online tax return processing.					
Electronic monitoring systems meet security needs					
Electronic monitoring system is a tool for KRA excise duty tax compliance=					
EMS has reduced excise duty revenue leakages					

Section D: Electronic Filing System

The following statement below relates to electronic filing system. Kindly indicate your level of agreement to the following statement where, strongly disagree =1, Disagree = 2, Neutral = 3, Agree = 4, strongly Agree = 5. Tick appropriately.

Statements	1	2	3	4	5
Electronic filing enables users to accomplish their tasks more quickly					
Electronic filing continuously updates our ledger real time					
The systems of electronic filling make it easier for users to accomplish income tax return more effectively					
Electronic filing systems make it easier for users to prepare income tax return					
Users access online payments during due dates use of e-filing					
Electronic filing systems do not divulge users their personal information					

EXCISE TAX PERFORMANCE

The following statement below relates to excise duty performance. Kindly indicate your level of agreement to the following statement where, strongly disagree =1, Disagree = 2, Neutral = 3, Agree = 4, strongly Agree = 5. Tick appropriately

NO	Statement	1	2	3	4	5
1	KRA provide guide lines on the process of revenue collection by use of automated systems					
2	It's easier to make payment than before					
3	Excise returns filling through excise duty system has improved					
4	Tax laws on automation affect Excise tax performance					

Excise Tax Collection

FIANACIAL YEAR Ksh (millions)	KRA TARGET Ksh (millions)	ACTUAL COLLECTION Ksh (millions)	SHORTFALL Ksh (millions)
2015/2016	142,590	142,143	447
2016/2017	169,592	163,236	6,356
2017/2018	167,504	152,199	15,305

Appendix II: List of the names of the respondents

James Kedoga	Jeinta Nginda
Yusufato Mari	Beuga Kamau
Karimi Janet	Saina Eliud
Jepkemboi peterson	Mwangi Njeri
Grace Mwangi	Abdullahi Waqo
Daniel Ngugi Maina	Murichu Njeri Priscilla
Mwongi David	Munyaka Kauma
Macathy Richard Kipkurui	Kaloki Simon
Shilabukha Jonah	Hannington Otieno
Nganga Kanau Munanau	Onserio Makau
Paul Muema Mutiso	David Okemwa O
Lydia wachira	Levey Maina
Tanui Kipkoech	Duncan Mwangi
Kennedy Alfred Omamo	Mambo Leornard Kanyi
Oray Martin kamau	Cheserek Cherotich
Owen Kwame	David Mutiso
Wilson Kamau	Dinah Mosia
Mulati Peterson	Kabubi Kamau
Kiptoon Simon	Kosgei Jameson
Kirui Paul Kurgat	Onyang Kenneth
Wamalwa Mary	Charles Kito
Kibo Richard Kipkosgei	Emmanuel Korir O
Violet Macharia	Patricia Ngina k
Caroline koech	Charles Kimutai c
Crescent Amani	Kim Itonge Kiteme
Francis Bababi	Mburu Margaret
Philip Kipkorir Chebon	Jackim Muite
Wanjala Fredrick	Paul Kamau
Aggrey Chesoni	

Appendix III: Time Frame

YEAR 2018/2019	April	May	June	July	Aug	Sep	Oct
Proposal writing	****	****	****				
Proposal defense and corrections				**			
Data collection				**			
Data summarizing					*		
Data analysis					**		
Report writing					**		
Defense of full Project						**	
Submission of Research Report							**

Appendix IV: Proposed Research Budget

Items	Details	Cost
Stationery	Printing papers	2,000
	Binders	1,000
Training research assistant	Lunches	3,000
	Allowances	12,000
Transport		4,000
Data collection	Internet	1,000
	Distribution of instruments	3,000
	Collection of instruments	3,000
Production of the documents	Typesetting	800
	Printing	6,000
	Photocopying	1,500
	Binding	2,700
Data analyst		10,000
Total		50,000