DETERMINANTS OF TAX COMPLIANCE AMONG COMMERCIAL PROPERTY OWNERS IN DAGORETTI NORTH, NAIROBI COUNTY, KENYA

BY

MARYANNE WANGARI

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DECLARATION

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

Sign…………………………………   Date………………………………

MARYANNE WANGARI

KESRA105/0018/2020

Declaration by the Supervisors

I confirm that this research project has been carried out under my supervision as the University supervisor.

Sign…………………………………   Date………………………………

DR. BRUCE OGAGA

Lecturer

Kenya School of Revenue Administration

Sign…………………………………   Date………………………………

DR. JOHN K. TARUS

Department of Accounting and Finance

School of Business and Economics

Moi University, Kenya

DEDICATION

This research project is dedicated to my family for their unconditional support and constant encouragement throughout my entire period of study.

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ABSTRACT

Taxation on rental income by the Kenya Revenue Authority has been in existence since implementation of income tax act of 1973. However, majority of commercial property owners have not been complying with the Act due to lack of government mechanisms to identify and bring landlords into the tax net. The key aim of the study was to find out determinants of tax compliance among commercial property owners in Dagoretti North Nairobi County, Kenya. The specific objectives were to establish the effect of taxpayer education, system automation and enforcement measures on tax compliance among commercial property owners in Dagoretti North Nairobi County while Age and Gender were used as a Control variable. The choice of Dagoretti North, Nairobi was due to the high number of commercial properties. The study was anchored on the following theories: Ability to pay Theory, Theory of Technology Acceptance, fiscal exchange theory and Economic Deterrence Theory. The study adopted an explanatory research design. The target population was 4021 commercial property owners in Dagoretti North, Nairobi County. A sample size of 433 was drawn from this population using Yamane's formula. The study used primary data, collected through questionnaires administered through a drop and pick later method. The data collected was analyzed using both descriptive and inferential statistics. Multiple linear regression model was used to establish the strength of the relationship between independent and dependent. The study found that Tax payer education had a positive and significant effect on tax compliance among commercial property owners in Dagoretti North, Nairobi County $\beta1 = .355$ p $= 0.002<0.05$. The study also found that System automation had a positive and significant effect on tax compliance among commercial property owners in Dagoretti North, Nairobi County $\beta2 = .614$ p $= 0.000<0.05$. Further the study found that enforcement had a positive and significant effect on tax compliance among commercial property owners in Dagoretti North, Nairobi County $\beta3 = .305$ p $= 0.000<0.05$. The study finally found that Age and Gender had a positive and statistically significant control effect on the relationship between tax payer education, system automation, enforcement measures, and tax compliance among commercial property owners in Dagoretti North, Nairobi County. The study recommends that KRA and the government should adopt and implement policiespo that put more emphasis on ssystems automation.tax payer education and enforcement measures, in order to enhance tax compliance .It is recommended that academic institutions and research organizations such as KESRA should conduct further studies. It was recommended that further research should be conducted using other variables such as influence of compliance cost on rental income tax compliance.

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LIST OF ABBREVIATIONS AND ACRONYMS

EAC   East African Community

GDP   Gross Domestic Product

GoK: Government of Kenya.

ICT   Information Communication Technology

KIPPRA   Kenya institute for public policy research & analysis

KRA   Kenya Revenue Authority

NACOSTI   National Commission for Science, Technology and Innovation

OECD   Organization for Economic Co-operation and Development

SPSS: Statistical Package for Social Sciences

VAT   Value Added Tax

VIF   Variance Inflation Factor

OPERATIONAL DEFINITION OF TERMS

Commercial Rental Income: Commercial rental income tax is the tax imposed on income from rent of commercial buildings. Berhane & Yesuf, (2013).

Enforcement Measures: In the context of this study, this is the application of laws that   govern remission of tax and compliance (OECD, 2019).

Performance: is the ability of a company to achieve goals in terms of sales volume, revenue turnover and net profit growth targets (OECD, 2016). Commercial rental income tax is the tax imposed on income from rent of commercial buildings.

System Automation: Refers to a tax filing and payment system that use tools of Information and Communication Technology particularly computers and the internet technology (Syed, Cassy, & Gaurav, 2017).

Taxpayer Education - The process whereby taxpayers are educated by tax authority and their agents with the goal of obtaining knowledge through tax conferences, taxpayers' week and seminars (UNCTAD, 2018).

Property owners This are owners who rents or leases a site-built commercial property that is intended for profit generating activities rather than regular residential purposes OECD, 2016).

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter introduces the study; it contains the background of the study, statement of the problem, objectives of the study, hypothesis, and significance of the study and the scope of the study.

1.1 Background of the Study

Taxation is the major source of government revenue in developed and developing economies. It also gives a significant avenue for monetary objective of nations from peripheral assistance (OECD, 2009). According to Pope and Abdul-Jabbar, (2008), states that are unable to clearly develop the encouraging factors for their tax payers to completely comply with the tax desires and ensure they pay their taxes excellently. If this dilemma could be fixed, then many states that are struggling financially will gain their financial independence. This will ultimately lead to an efficient way of raising the countries revenue point which in turn raises the financial aptitude of the country in financing the countrywide development.

Understanding the compliance of commercial rental income taxation is very important (Berhane & Yesuf, 2013). Commercial Rental income taxes are a fundamental source of revenue to government and local authorities (Ross & McGee, 2012). However the amount of revenue to be generated from these sources depends on many factors. According to Kirchler (2007), the factors may be individual, institutional and economic. With regard to rental income tax payers, Rizal (2011) and Kuria (2013) established attitudinal and knowledge difference, high tax rate, taxation system, dishonesty of rental tax payers, lack of awareness, complexity of tax law and

regulation may lead to high levels of tax noncompliance. Tax compliance is viewed as the degree to which a taxpayer obliges to tax rules and regulations (Sapiei & Kasipillai, 2013).

Property tax is cited as one of the earliest form of tax (Bird & Slack, 2002). According to Carlson (2005), the earliest known tax records, dating from approximately 6,000 years B.C., are in the form of clay tablets found in the ancient city-state of Lagash in modern day Iraq, just northwest of the Tigris and Euphrates Rivers. Records also have it that, Property taxation was a thriving culture in Ancient Egypt around 5,000 B.C. where taxes were levied against the value of grain, cattle, oil, beer and land.

The Organization for Economic Co-operation and Development (OECD) defines property tax as a "recurrent and non-recurrent taxes on the use, ownership or transfer of property"1. These include taxes on immovable property or net wealth, taxes on the change of ownership of property through inheritance or gift and taxes on financial and capital transactions.

Globally, as indicated by Riahi-Belkaoui (2014), the most elevated consistence rate is from created nations like Singapore, New Zealand, Australia, the UK and Hong Kong. He additionally noticed that shockingly, among the most minimal compliance lists are from European nations like Italy, Sweden, Turkey, Portugal and Poland. In spite of the fact that the consequences of Riahi-Belkaoui's investigation are vital, noteworthy and fascinating the unwavering quality is faulty on the grounds that he was utilizing subjective estimations and markers which affect every nation. Notwithstanding, it has turned into a benchmark and key pointer instrument in tax compliance.

According to Boamah (2013) property rate is the most dependable, sustainable and lucrative

source of local government revenue across the globe. In many OECD countries like Australia, United States and Canada, property rate constitute more than 70 per cent of local government revenue annually. For instance, property rate constitutes 100 per cent of local tax revenue in Australia and Ireland, 99 per cent in the United Kingdom, 93 per cent in Canada and 72 per cent in the United States. It is estimated that property tax contributes more than 2 per cent of their GDP. Available data suggests that in 2015, property rate contributed 2.8 per cent, 4.1 and 3.5 per cent to the GDP of the United States, the United Kingdom and Belgium respectively (OECD, 2017).

India offers a well-structured tax system for its population. Taxes are the largest source of income for the government. This money is deployed for various purposes and projects for the development of the nation ((Keen, 2014). Taxes are determined by the Central and State Governments along with local authorities like municipal corporations. The government cannot impose any tax unless it is passed as a law. Taxes are classified under two categories namely direct and indirect taxes. The largest difference between these taxes is their implementation. Direct taxes are paid by the assesse while indirect taxes are levied on goods and services (Laffer, 2014)

Developing economies are worst affected by this challenge. While Developing countries record relatively higher tax compliance levels (35%), African countries report less than 23% (GIZ, 2010). Budgetary shortfalls and taxation gaps prevail in fiscal plans, resorting to dependence on unsustainable financial sources such as Bank loans and multilateral donors. Developing countries therefore need to develop and implement policies that reduce prevailing shortfalls and unhealthy dependence on

donor funds. The motivations for tax evasion are complex and have challenged taxation authorities throughout the world.

In Africa and many of the developing countries, the story is however different. Property rate potential is still underexploited accounting for less than 0.54 per cent of GDP (Ahmad, Brosio, & Pöschl, 2014). Property rate proportion of local govenrnment revenue relative to OCED countries can best be describe as poor. For instance, Tahiru, Agbesi, & Osei-Owusu (2014) noted that between 2005 and 2010 property rate contributed approximately only 9.9 per cent annually to the total revenue of the Accra Metropolitan Assembly (AMA). Data from the Kumasi Metropolitan Assembly (KMA) and the Kasena Nankana District Assembly (KNDA) also indicates that in 2006, property rate accounted for only 5.6 per cent and 0.3 per cent respectively of their total revenue. Property rate also accounted for 18.7 per cent and 12.4 percent of local revenue of the Wa Municipal Assembly (WMA) in 2004 and 2008 respectively (Boamah & Okrah, 2016). In the Ga East Municipality, it contributed only 11.8 per cent and 7.8 per cent in 2012 and 2013 respectively to the Internally Generated Fund (Ga East Municipal Assembly, 2014).

Owing to the growing interest to strengthen tax institutions in developing countries for effective tax mobilization with specific emphasis on property rate (Keen, 2012; Norregaard, 2013), a scientific analysis of factors affecting property tax compliance in Ghana has become very necessary. It is anticipated that scientific examination of socio-economic characteristics, tax knowledge and perception of non-compliance sanctions and their influence on tax compliance will better inform authorities to streamline policies to address the ailing property tax administration system.

In Kenya, various studies have been done to provide an in depth understanding on the key motivators to tax evasion (Marti, 2010; Pope & Abdul-Jabbar, 2008; Ouma et.al.2007 & Kirchler, 2007). Despite this, the problem continues to bit the economy in Kenya. Evidence suggests that lack of appropriate tax policy, low compliance and poor tax administration are linked to high levels of tax evasion and avoidance reported in developing countries (GIZ, 2010). However, taxpayer knowledge, perceptions and the cost of compliance have not been studied. KRA (2012) revealed that less than 40 per cent of the landlords and developers had complied with tax requirements, and government went in to reinforce the rental income tax provisions. Taxation on rental income by the Kenya Revenue Authority has been in existence since implementation of income tax act of 1973.

Thananga *et al*., (2013) assessed the factors affecting compliance on Rental Income Tax Policy by landlords in Nakuru Municipality. He argued that cost of compliance played a key role in determining the level of compliance. Lucinde (2017) examined the determinants of compliance levels with residential tax income tax among property owners in nairobi county. She concluded tha tax compliance is dependent on penalties imposed for non compliance and also audits.She cited that cases of high compliance to tax by taxpayers are due to fears of being sanctioned.

1.1.1 Commercial rental income tax compliance

Tax Compliance is a multi-faceted measure and theoretically, it can be defined by considering three distinct types of compliance such as payment compliance, filing compliance reporting compliance (Brown and Mazur 2003). According to Russel (2010), improving tax compliance needs to have long-term reform efforts, that starts with strengthening the organization as well as management of the revenue agency, implementing robust collection systems notwithstanding building capacity in core tax

administration functions (registration, filing and payment enforcement, debt collection, audit, taxpayer services, and processing of appeals).

Globally, tax compliance is such a huge problem among most nations. The primary objective of most countries is to be able to fund their expenditure by utilizing its domestic revenues. Kenya is not different, and this is evident in the fact that it has constantly tried making sure it boosts tax compliance. In attempt to achieve this, some of the measures embraced by Kenyan government include embracing electronic monitoring, shutting down non-compliant business, prosecution of tax evaders, imposing heavy fines, as well as having compliance checks (KRA, 2018).

Gordon (2010), further argues that the technology issue for tax authorities is regarded to be different to that of their taxpayers. One of the measures that have been implemented in order to increase revenue collection in Kenya was the introduction of self-assessment systems (SAS) in 1992. The objectives of this system was to increase voluntary compliance, reduce tax authorities' burden of assessing tax returns and increase tax collection efficiency (reduce tax collection costs) (Masinde and Makau, 2010).

1.1.2 Dagoretti North

Dagoretti North Constituency is one of 17 electoral constituency of Nairobi County. It was created by the Independent Electoral and Boundaries Commission before the 2013 general election. The constituency has an area of 29 km^2 (11.2 sq mi). Most of the area that forms Dagoretti North constituency was part of Westlands Constituency. A smaller portion of it was hived off from Dagoretti Constituency. The choice of Dagoretti North, Nairobi was due to the high number of commercial properties.

1.2 Statement of the Problem

Despite the tremendous growth from commercial property owners for the past few years, the corresponding tax collection from the sector has remained very low .Tax is the most important sources of the government revenue; however, most developing countries are more dependent on external financial resources to finance their development activities (Albert Kyle and Wei Xiong 2001).

In most third world countries, house rental taxation has been classified as economic transactions, which a bit difficult to detect given the large number of citizens involved (OECD, 2012). Taxation on rental income by the Kenya Revenue Authority has been in existence since implementation of income tax act of 1973. However, majority of landlords have not been complying with the Act due to lack of government mechanisms to identify and bring landlords into the tax net. From the available evidence it is clear that absence of suitable tax policy, low compliance and poor tax administration are connected to high levels of tax avoidance in developing nations (GIZ, 2010).

KRA (2012) stipulated that less than 40 percent of property owners as well as developers are tax complaints and have complied to the requirements and government went in to fortify the rental tax provisions. Based on the findings of his study tax compliance levels with commercial rental income tax in Nairobi County were low. Many property owners are not disclosing full and correct information regarding their rental properties to avoid payment of rental income (KRA 2019). Reference to the 8th Corporate Plan 2021/2022-2023/2024 (Kenya Revenue Authority, 2020) demonstrates that the targets set in the 7th Corporate Plan with respect to the narrowing of the rental income compliance gap have not yet been realized.

In 2017 rental income tax compliance rate was low at 40% in Nairobi County. Nairobi County lost an approximated Kshs.19 million in 2017 from non-compliant rental property owners and property developers (Serem, Kinanga & Ondiba, 2017; KRA, 2017). Rental income tax remitted by property owners has been dismal notwithstanding all the efforts to enforce rental income tax policies. There has been little improvement in rental tax compliance in the region. Kenya Revenue authority recently in the 2021/2022 Financial Year achieved its tax target by surpassing the 2 Trillion. Kenya Revenue Authority collected 2.031 Trillion an increase from 2020/2021 financial years 1.669 Trillion, but for the rental income, Revenue Authority did not meet its target in 2020/2021 financial year, Kenya Revenue Authority collected 10,758.03 billion as compared to the target of 12,444.11 billion,(KRA report, 2021).

Cyton (2021) further indicated that In Nairobi area, Kilimani, Ngong Road were the best-performing retail nodes recording rental yields of 9.9%, 9.2% and 9.2%, respectively, in 2021. The performance has been attributed to the move by the government to fix the law on tax collection on rental income in the midst of high business cost in Kenya has gotten mixed responses from real estate sector because of their effect on business. This underscores the need to investigate determinants of tax compliance among commercial property owners in Dagoretti North Nairobi County.

1.3 Objective of the study

The study was guided by main objective and specific objectives.

1.3.1 General Objective

The purpose of the study was to establish the determinants of tax compliance among commercial property owners in dagoretti north, nairobi county,kenya

1.3.2 Specific Objectives

This study sought to achieve the following specific objectives:

i)   To determine the effect of taxpayer education on Tax compliance among commercial property owners in Dagoretti North Nairobi County

ii)   To establish the effect of system automation on Tax compliance among commercial property owners in Dagoretti North Nairobi County

iii) To establish the effect of tax enforcement measures on Tax compliance among commercial property owners in Dagoretti North Nairobi County

1.4 Research Hypotheses

The hypotheses of this study were as follows-

H_{01} Taxpayer education has no significant effect on Tax compliance among commercial property owners in Dagoretti North Nairobi County

H_{02} System automation has no significant effect on Tax compliance among commercial property owners in Dagoretti North Nairobi County

H_{03} Enforcement measures have no significant effect on Tax compliance among commercial property owners in Dagoretti North Nairobi County.

1.5. Significance of the Study

The results from this study will be of great significance to a number of parties that include the following: The results from this study will be of significance to the KRA and other policy makers in Kenya administration as it will provide detailed information on how tax compliance impact the overall government revenue in the country. In addition, the recommendations suggested in the study will be critical to KRA in making improvements to promote tax compliance among commercial property owners

Researchers and scholars may also use this study to identify further areas of study as well as related areas through identifying topics which require further research and through identification of gaps in the study from the review of existing empirical literature. The study added to the body of knowledge of attention to researchers who pursue to discover or examine the determinants of tax compliance among commercial property owners or any other area. It laid the basis of other studies to be carried out. Finally the findings will help will be of great importance to KRA as it will help the authority better understand the taxpayers, which will help the revenue in meeting its set revenue collection target

1.6 Scope of the Study

The study sought to examine the determinants of tax compliance among commercial property owners in Dagoretti North Nairobi County, Kenya. The variables of the study were taxpayer education, system automation and enforcement measures and tax compliance as the dependent variable additionally.Age and gender were used in the study to ascertain indicators with control role. The study targeted commercial property owners in Dagoretti North. The target population was 4021 commercial property owners and a sample size of 433 commercial property owners, the study was done between May 2022 - June 2023

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Literature review encompassed discussion of concepts of the study. It is mathematically arranged to capture key variables and variables that were assessed. The subheading in this section is review of concepts, theoretical review, empirical review, research gaps and conceptual framework.

2.1 Review of concepts

This section contains review of concepts studies related to the variable of the study

2.1.1 Concept of Tax Compliance

Tax compliance is the full payment of all taxes due (Braithwaite, 2009). According to Jones (2009) tax compliance is the timely filling and reporting of required tax information, the correct self-assessment of taxes owed, and the payment of those taxes without enforcement action. Tax noncompliance is referred to as any difference between the actual amount of taxes paid and the amount of taxes due (Geremew, 2017). This difference occurs because of overstating expenses or deductions and understating income. Non-compliance comprises both intentional evasion and unintentional non-compliance, which is due to calculation errors and an inadequate understanding of tax laws (Robben *et al.,* 1990 & Webley, 2004).

One suggestion is that the degree of non-compliance may be measured in terms of the „tax gap. Tax gap represents the difference between the actual revenue collected and the amount that would be collected if there was 100% compliance (James 1999). The exact meaning of tax compliance has been defined in various ways. For example,

Andreoni *et al*, (1998) defined tax compliance as the taxpayers willingness to obey tax laws in order to obtain the economy equilibrium of a country. Kirchler (2007) perceived a simpler definition in which tax compliance is defined as the most neutral term to describe taxpayers" willingness to pay their taxes.

A wider definition of tax compliance, defined in 1978 by Song and Yarbrough suggested that due to the remarkable aspect of the operation of the tax system in the United

States and that it is largely based on self-assessment and voluntary compliance, tax compliance should be defined as taxpayers" ability and willingness to comply with tax laws which are determined by ethics, legal environment and other situational factors at a particular time and place.

Similarly, tax compliance is also defined by several tax authorities as the ability and willingness of taxpayers to comply with tax laws, declare the correct income in each year and pay the right amount of taxes on time (Internal Revenue Service (IRS), 2009; Australia Tax Office (ATO), 2009; Inland Revenue Board of Malaysia (IRB), 2009). Alm (1991)) defined tax compliance as the reporting of all incomes and payment of all taxes by fulfilling the provisions of laws, regulations and court judgments. According to Mohd *et al* (2011) tax compliance is defined as the taxpayer"s willingness to comply with tax laws, declare the correct income, claims the correct deductions, relief and rebates and pays all taxes on time.

2.1.2 Concept of Taxpayer education

Taxpayer education is an essential element in a voluntary tax compliance system (Kasipillai,, 2014). Taxpayer education as one of the determinants of tax compliance is related to the taxpayers' ability to understand taxation laws, especially regarding

tax registration, filing requirements and their willingness to comply (Abdu & Wondimu,, 2019). Therefore, understanding taxpayers' knowledge and compliance behaviour is an important issue for any government and tax collecting authority particularly in a self-assessment environment. Commonly Citizens have limited knowledge on government true expenditures and the cost of public services provided by the government. Therefore, taxpayers without taxpayer education are compelled to solicit the service of tax professionals. Taxpayer education can be learnt by self-learning, taking formal education, and taking the informal ones. The government also takes many actions to socialize tax rules and policies where taxpayers can learn from

Educated taxpayers may be aware of non compliance opportunities, but their potentially better understanding of the tax system and their higher level of moral development promotes a more favorable taxpayer attitude and therefore greater compliance (Chan et. al. 2000). Chan *et. al.* also suggested that those with a higher education level are more likely to have a higher level of moral development and higher level attitudes toward compliance and thus will tend to comply more. One of the measures to increase voluntary compliance is by assuring that taxpayers have a certain level of qualifications, ability and confidence to exercise their tax responsibility (Mohani, 2001).

 Taxpayers who have attended a tax course would be expected to have better tax knowledge and tax compliance attitude in comparison with taxpayers who have never attended a tax course (Mohd, 2010). Hite and Hasseldine (2001) highlighted that tax authority need to emphasize teaching tax courses because of impact of education on compliance.

The influence of knowledge on compliance behaviors has been assessed in various researches.

Knowledge as one of the factors in compliance is related to the taxpayers' ability to understand taxation laws, and their willingness to comply. The aspect of knowledge that relates to compliance is the general understanding about taxation regulations and information pertaining to the opportunity to evade tax (Kasipillai, Norhani, and Noor, 2003).

2.1.3 Concept of System Automation

Globally, studies have been executed on tax system and tax compliance. In a research on the, the determinants of tax evasion in Gumbo State Nigeria, Mansor and Gurama (2016) assessed the factors motivating tax evasion in Gombe state in Nigeria finding a positive relationship between tax system, income level, education level, corruption, tax rate and tax evasion. The study used a sample of 303 randomly selected public and private sector personal taxpayers in Gombe. The results of the analysis showed that the tax system, income level and education level have a significant direct relationship with tax evasion. On the other hand, the tax rate and corruption have a positive but insignificant relationship with tax evasion. The article concluded that the factors affecting tax evasion are Tax Rate, Tax saving, corporate social responsibility, income level, education level.

Generally, ICT is used to enhance performance in revenue administrations by reducing human error and processing times, providing readily accessible data for tax officers, promoting voluntary compliance thereby minimizing tax evasion and facilitating better decision making by tax authorities. According to Nyambo as cited in Chatama (2013) ICT help to maintain consistent record keeping, timely access of

such records, fast processing of return which together improved the performance of tax revenue.

In support of that, Bird and Zolt (2008) posed that ICT technologies are used to speed up the decision-making process and Machupa, Otaigo, Koloseni, and Shimba (2011) claimed that computers facilitate service delivery, customer satisfaction, information accessibility, efficiency, and effective administrative gain as well as information sharing among various units of the government. Based on these reviews, it is found that the ICT problem includes new technologies was not supported by state/district because of the cost, new technologies implemented were complex, installation and maintenance of new technologies challenge, employee's perception towards the technologies were negative and users not well trained to use the technologies.

According to Whait (2012) opined that property administration staff all over the world are not efficient in the way they organize their business due to improper planning. They lacked the skills in strategy development, ICT policy, information management and consequently not contributing to good management such as keeping registers and maps up to date. In support of that, Ding (2003) in his study on land policy reform in China revealed that land use taxes were difficult and costly to collect because of the lack of trained staff in land registration.

2.1.4 Concept of Enforcement Measures

Deterrence can have a positive or negative effect on compliance. The question therefore is not whether revenue bodies should use deterrence, but how it can be used most effectively. (Muoki & Osebe, 2018) argues that taxpayers, when made to pay higher fines for evading taxes, deters them from future evasion. Tax penalties may have both positive and negative impact on taxpayers. If tax penalties are fair and

acceptable, they strengthen taxpayers' compliance. If they are perceived as oppressive, they are likely to create resistance and result in even more non-compliance (Ali et al., 2017).

Deterrence can strengthen the moral obligation to pay tax as it points out what is the right thing to do, unfortunately deterrence can also create resistance from the taxpayer by feelings of oppression. Thus, deterrence can have a positive or negative effect on compliance. The question therefore is not whether revenue bodies should use deterrence, but how it can be used most effectively. (Muoki & Osebe, 2018) argues that taxpayers, when made to pay higher fines for evading taxes, deters them from future evasion. Tax penalties may have both positive and negative impact on taxpayers. If tax penalties are fair and acceptable, they strengthen taxpayers' compliance. If they are perceived as oppressive, they are likely to create resistance and result in even more non-compliance (Ali *et al*., 2017).

Enforcement measures are imbued in the economic models that have deterrence effects on Tax compliance which in effect raises tax revenue. The economic models predict that higher penalties and audit probabilities should discourage noncompliance. Enforcement measures are based on the concept that the risk of detection and punishment will improve compliance behaviour (OECD, 2010). Deterrence can be achieved through some approaches, punitive and persuasive which may take the form of increasing the chances of detection, increasing tax rates or by imposing higher penalties (Ahmed & Kedir, 2015). The relationship between deterrence and tax compliance is complex. Research on the effect of deterrence conducted by revenue bodies and academic research show different results. (Braithwaite, 2008) describes deterrence as a double-edged sword.

2.2 Theoretical Review

The study was based upon the theory of technological acceptance,Ability to pay
Theory, fiscal exchange theory, and Economic Deterrence Theory.

2.2.1 Theory of Technology Acceptance

This is an information system theory that models how users come to accept and use
technology. This theory was developed from the Theory of Reasoned Action (TRA)
by Azjen and Fisbein These theories have been developed over the years and resulted
from the extension of each other. Thus, the most important and famous used ten
theories are reviewed as follows: The Theory of Reasoned Action (TRA) (Ajzen and
Fishbein, 1980), which was extended to the Theory of Planned Behavior (TPB)
(Ajzen, 1985), which also had an extension to the Decomposed Theory of Planned
Behavior (DTPB) (Taylor and Todd, 1995c). The information systems had a
contribution to the existence of the Technology Acceptance Model (TAM) (Davis,
1986), which is an extension of TRA; that also has an extension to TAM2 (Venkatesh
and Davis, 2000). In addition to combination form of TAM and TPB (C-TAM-TPB)
(Taylor and Todd, 1995a). The Model of PC Utilization (MPCU) (Triandis, 1979), the
Innovation Diffusion Theory (IDT) (Rogers, 1983), the Motivational Model (MM)
(Deci and Ryan, 1985), and the Social Cognitive Theory (SCT) (Bandura, 1986) are
developed in several scientific and social fields and are reviewed as well. All
technology acceptance theories are designed to measure the degree of acceptance and
satisfaction to the individual users against any technology or information system but
from different view-points

AM model developed by Davis is the most used framework in predicting information
technology adoption (Paul, John and Pierre, 2013). Lee and Jun (2018) argued that

TAM should be able to analyze factors affecting adoption intentions beyond perceptions of convenience and usefulness. Though TAM had received much support (Yang, 2018), it focused on the effects of perceptions of the technology's usefulness and convenience on adoption intentions (Luarn and Lin, 2018; Lai and Zainal, 2019). Thus, it is favorable for the use of determining the novelty technology like the single platform E-payment System.

In fact, TAM has become so popular that it has been cited in most of the research that deals with users' acceptance of technology (Lee, Kozar and Larsen, 2019). TAM attempts to help researchers and practitioners to distinguish why a particular technology or system may be acceptable or unacceptable and take up suitable measures by explanation besides providing prediction. Even though TAM has been tested widely with different samples in different situations and proved to be valid and reliable model explaining information system acceptance and use (Mathieson, 1991; Davis and Venkatesh, 1996,), many extensions to the TAM have been proposed and tested (Venkatesh and Davis, 2000; Venkatesh, Speier and Morris 2002; Henderson and Divett, 2003; Lu, Yu, Liu, and Yao, 2003; Lai and Zainal, 2019; 2015; Lai, 2019).

Davis (1986) Mentioned that behavior intention to use was being mediated by attitude Nevertheless, attitude was excluded as its mediator in Venkatesh and Davis (2000) TAM2 and theorized a direct relationship between the constructs and intention to use. TAM initially included attitude, but this was later dropped due to its weak role as a mediator between the constructs and intention to use (Mun, Joyce, Jae & Janice, 2018). Thus, in this paper the study has adapted the Venkatesh and Davis' (1996) version of TAM to measure consumers' behavior intention to use instead of Davis'

(1986) version by omitting the attitude towards use and actual usage for the novel technology of single platform E-payment (Lai and Zainal, 2019). In addition, the study will extend the 1996 version of Technology Acceptance Model by including security factors and use the mediator with the direct and indirect relationship of the factors and consumers' intention to use the single platform E-payment System (Lai, 2019).

This theory develops a framework to establish the effects of external variables on the system usage. According to this model, individuals accept a particular system if they believe in the system (Jullie, 2019). When taxpayers understand or learn the on-line tax filing system quicker, the filing efficiency and accuracy will be increased. Taxpayers can complete tax filing quicker (perceived usefulness) when they perceive the ease of use of the system is higher (Fu, Cheng, and Wen 2019).

The goal of TAM is to provide an explanation of the determinants of computer acceptance that is general, capable of explaining user behaviour across abroad range of end-user computing technologies and user population, while at the same time being both parsimonious and theoretically justified**.**

2.2.2 Ability to Pay Theory

This theory has been advanced by Adam Smith. it assumes that the level of income is the determinant of one's ability to pay tax and is equivalent to progressive tax in which the tax rate rises with increase in taxable income (Odongo,2016). This theory is considered effective in addressing tax equity and justice as it assumes that people pay tax in accordance with their income. This implies that people earning more income ought to pay more tax and at a higher rate than the low-income earners, in Kenya income tax follows this theory (Wasao,2014).

The theory has led to different interpretations of equity in taxation; equal absolute for all taxpayers, equal proportional sacrifice, and equal marginal sacrifice Clara Hein Online (2016). It is widely acknowledged as an independent source of tax law and applied as a parameter for designing fair tax systems in most countries especially in the European Union, Clara Maria (2015).

Ability-to-pay tax theory refers to the taxing of tax progressively and it maintains that tax should be charged according to the capability of a taxpayer. Kaldor (1958) assert that the ability-to-pay tax theory is the taxing of tax progressively. This methodology does encourage and increase tax burden of businesses and individuals. This approach argues that for businesses and individuals having high income should pay more tax according to their level of income as compared to low earners investors and individuals. The ability–to-pay tax theory is mandatory to every state to impose to its residents since it needs to contribute income to support its government (Smith, 2010).

This theory is mostly like mandatory to impose to residents since it a key to revenue collection within a country where people with different levels of income exist. This does create uniformity with the different classes of people within a country thus the residents are comfortable and motivated to pay taxes according to their level of income (Evans, 2021).

The relevance of this theory to this study is it presents information on the dependent variable which is tax compliance by identifying the ought to characterize a good tax system in respect to administration and its effect on entrepreneurship. Ability to pay influences the way people perceive payment of tax as it is an added expense to the business. Although registered taxpayers pay the taxes due; it takes considerable large amount of one's capital, which in turn reduces his propensity to invest. This is completely unfavorable particularly to small investors who are either wiped out of

investment of they look for ways and means of avoiding tax. This has led to collection of lower tax by the government resulting to budget deficit and excessive borrowings.

2.2.3 Fiscal Psychology Theory

The fiscal and social psychology theory says that the more the taxpayer's attitude in the payment of taxes, the bigger is their motivation in paying taxes (Schmolders (2011). Taxpayers' motivation to comply with tax laws relates to the taxpayers perception and attitude of the tax system (Strumpel, 2013). The theory pays attention to psychological variables like moral values, ethical values and the fairness of the tax system. Tax compliance theories assume that psychological factors in addition to moral and ethical values are important to taxpayers.

Under the fiscal psychology theory, is the theory of planned behavior which states that the behavior of an individual is under the influence of some factors that originate from certain reasons and emerge in a planned way (Ajzen, 2011). Ones behavioral intention which is influenced by factors like attitude, subjective norms and perceived behavioral control influences the individual to behave in a particular way. The three factors fall under the influence of behavioural, normative and the control beliefs. Taxpayers may comply even where the probability of detection is low since the theory's focus is on morals and ethics. Under the psychology theory the emphasis is on change of the taxpayers attitudes towards the tax system.

Cowel and Gordon (1988), notes that the presence of government spending inspires taxpayers to observe tax guidelines. This is just possible if the government furnishes the public with public resources in an efficient and reachable way. Subsequently, taxpayers are along these lines worried about what they legitimately receive in from the government as a by-product of their tax commitments in terms of for instance

social amenities highlight a positive relationship between tax compliance and public services provision (Ali et al., 2014).

Luttmer & Singhal (2014) through their findings observes that taxation compliance always affected by the government plans and policies in line with provision of public services if they affect the tax morale of the taxpayers could lead to low tax compliance. Accordingly, the level of public goods and service provision may be correlated to payment of taxes (Bello & Danjuma, 2014). Individuals may thus be encouraged to pay taxes since they value government services and are aware that their taxes contribute significantly to the delivery of these services. In disparity, if taxpayers recognize that the government spends much on services that are considered less beneficial to the taxpayer, there might be the inclination to hold the view of being deceived and endeavor to neglect to agree.

In equal importance, the fact that the benefits gained from services and goods stimulate tax payers to be compliant and voluntarily pay their taxes without any form of coercion. In as much as most tax payers may not quantify the exact value that is received in terms of the taxes paid, scholars argue that they develop attitudes and impression concerning their trade deals with the government (Luttmer & Singhal, 2014). Accordingly, it would be logical for one to make the assumption that the behavior of a tax payer is primarily influenced by the terms of trade that are agreed upon by the government. The importance of the theory to this study is that a variation in terms of provision of public services for instance through tax policy reforms, greatly affects the level of tax compliance

2.2.4 Economic Deterrence Theory

The proponent of this theory was Bentham, (1988). The theory argues that people choose to obey or violate the law after calculating the gains and consequences of their actions. Based on the rational choice view of human behavior, the theory predicts that illicit behavior can be controlled by the threat of sanctions that are certain, severe, and swift. Overall, however, it is difficult to prove the effectiveness of deterrence since only those offenders not deterred come to the notice of law enforcement (Crawell, 1998).

According to Pratt, Cullen, Blevins, Daigle and Madensen (2019), the deterrence theories generally predict compliance patterns based solely on the ability to pay approach. The government revenue and expenditures are treated separately and taxes are based on taxpayer's ability to pay. Deterrence can be achieved through a number of approaches which could be punitive or persuasive. The theorists present a case for tax reforms as way of enhancing compliance. To yield high compliance, the reforms must be seen by tax payers to be enhancing the equity and fairness of the taxation system (Knoll, Riedel, Shamsfakhr, & Strohmaier, 2019). It should as well reduce and control the costs of compliance while increasing the cost associated with noncompliance. The deterrence theory therefore supports a case for technological, administrative and policy reforms as a way of improving the state of tax compliance.

Given the space constraints as well as the continuous growth and importance of government regulation, this Chapter focuses on public enforcement of law. No attempt is made here to replicate Polinsky and Shavell's (2018) masterful review of the economic theory of public enforcement of law, also known as the theory of optimal deterrence. That review excels in presenting a cohesive theoretical framework

that answers many basic questions of law enforcement. Rather, this Chapter outlines the key findings of the deterrence theory and highlights the remaining challenges. The theory of optimal deterrence investigates how the government may achieve its objective given the individual decision-making strategy. The government objective is to maximize what deterrence scholars often refer to as social welfare. The meaning of that term, however, is typically restricted to efficiency or just to net gains. Thus, Polinsky and Shavell (2018) define social welfare as "the benefits that individuals obtain from their behavior, less the costs that they incur to avoid causing harm, the harm that they do cause, the cost of catching violators, and the costs of imposing sanctions on them (including any costs associated with risk aversion)" (Polinsky & Shavell 2018).

This theory was relevant to this study as it posits that enforcement of law to law breakers result to improved compliance to the law in the future by the present law-breakers and acts as a warning to others who may want to break the law in the future. In the context of this study, enforcement of law helps to enhance compliance and thus result to improved revenue performance. This is due to the fact that defaulters are afraid to default again in the future and those who have never defaulted are afraid of ever defaulting in the future for fear of the consequences.

2.3 Empirical Review

In this section, the study reviews literature based on the objectives of the study.

2.3.1 Taxpayer Education and Tax compliance

According Kamil, (2015) whose study was on effects of taxpayer education, The study was carried out Indonesia; the study findings were taxpayer education has a positive and significant effect on individual taxpayer compliance. Knowledge has a

negative and significant relationship of taxpayer compliance. Lin and Carrol (2000) conducted a study to determine how the enhance tax knowledge and tax attitudes affects compliance behavior among taxpayers in New Zealand. The study findings were that the compliance behavior of a taxpayer improved tremendously on acquiring the relevant tax knowledge.

Cyan et al (2017) conducted a study on the effects of mass media campaigns on individual attitudes towards tax compliance. The study found out that there are improved perceptions towards tax compliance for taxpayers exposed to the TV and newspaper advertisement, the conclusion was that well timed mass campaigns can enhance voluntary tax compliance.

A study by Carroll (2011) on taxation among SME's in Ghana found concluded that despite the fact that more than half (65 percent) of the SME's surveyed were aware that they have to pay taxes. The taxpayers also said that they do not enjoy the benefits of paying it. However, solely relying on tax education cannot ensure continued tax compliance.

According to Palil (2010), taxpayers that are lack the necessary basic knowledge on tax are consequently less exposed to information about tax compliance and the relevant legislation covering tax. As a result, they require constant assistance. For example, Kenya has been implementing a continuous tax awareness campaign for taxpayers and children as future taxpayers. Nugroho and Zulaikha (2012) looked at the factors that lead the willingness to pay taxes with the taxpayer awareness of paying taxes as an intervening variable. The results showed that the variables, knowledge and understanding of tax regulations, quality tax services and perceptions of taxation effectiveness have a significant influence on the awareness of paying taxes.

Munari (2018) also explained that taxpayers experience awareness when they: know the existence of laws and provisions of taxation; know the function of paying taxes to the state; understand the rights and obligations to be implemented; count, pay and report voluntarily; calculate, pay and report taxes correctly. In a study that aimed at identifying the relationship between tax awareness and knowledge the perception of tax fairness and tax compliance of MSEs in Uganda, the study concluded that tax knowledge and perception of tax fairness had a significant positive relationship with tax compliance among MSEs.(Mukasa, 2018).

2.3.2 System Automation and Tax compliance

Automation of service arena is inescapable in the present business condition and is progressively being utilized by tax specialists to improve worldwide tax collections. Having in mind that they are losing significant revenues in unremitted Residential Rental Income Tax specialists are actualizing programming arrangements and thorough information prerequisites in order to battle tax losses. U.S. organizations working abroad ought to comprehend and get ready for the critical changes to worldwide Tax compliance management. The utilization of innovation in the technological world by business and government in the process of advocating for tax compliance (World Bank, 2018)

Amitabh (2019) examined the advantages online tax filing by young experts in India. The study's goal was to analyze the manner in which young professionals in India will react towards online filing of tax return submissions so as to enhance compliance. Regression analysis was conducted on the the antecedents of young Indian professionals depended on personal innovativeness in information technology, the perceived ease of the tax system, performance of filing service, compatibility and relative advantage.

Nawawi and Ling (2020) conducted a study on integration of ICT Skills and tax software in tax education. Tax practitioners were utilized as the respondents and the research aimed at ascertaining the necessary skills needed by taxpayers for full utilization of the online tax platform. The research established that three skills are required by taxpayers to interact fully with technology based tax systems namely, word-processing software, e-mail and spread sheet software. The study's results has got correlate with the current investigation since analyzing the electronic system's effectiveness demands for ignoring of the past technologies failure to which might result to not fully leveraging on the benefits.

Mutai (2019) surveyed the determinants of tax compliance among little and medium businesses in Uasin-Gishu County. The investigation received an essentially subjective exploration plan. Methodological triangulation was utilized, using the interview and a questionnaire overview to gather essential information from SMEs in Uasin Gishu County. The outcomes demonstrated that SMEs face diverse business conditions from enormous organizations which cause them to bear high tax burdens. The outcomes likewise showed that the impression of SME administrators about technology, charge administration quality and government spending priorities incredibly influence their tax compliance choices.

2.3.3 Enforcement measures and Tax compliance

A study conducted by Porcano (2013), evaluated deterrence and morale on taxation in Switzerland. In their empirical analysis, they used cross section time series data from 26 cantons over the period 1975-1995. Their enforcement technique was represented by the authoritarian procedure of the tax agency in which standard penalties and audit rates were increased. The results surprisingly showed that the probability of detection

through audit was statistically significant (at the 5% level) and had a theoretically unexpected positive sign. This suggested that a higher probability of being caught through audit raised (rather than lowered) tax evasion which affected tax revenue. However, an increase in standard penalty lowered tax evasion in a statistically significant way (1%) which corresponds to the theoretical expectations. They observed that enforcement measures are not the sole contributors to increased compliance and how taxpayers view treatment from tax agency also contributed to compliance.

Slemrod, Blumenthal, and Christian (2020) studied the impact of messages sent to 1,724 randomly selected taxpayers in Minnesota as well. The message informed taxpayers that the returns they were about to file would be closely examined. The result was that those in the treatment group (individuals who received the letter) increased their average tax payments.

In the same vein, Kleven et al. (2019) conducted a randomized field experiment over a representative sample of 40,000 taxpayers in Denmark. In the first stage, half of the population was randomly selected to be audited, while the rest was deliberately not audited. In the second stage, they sent threat-of-audit letters to a random sample in the two groups. Both the audits and the letters had a significant positive effect on self-reported income. Similar results were found by Pomeranz (2018), who finds that random audit announcements are transmitted up the VAT chain and increase compliance by firms' suppliers.

Nyaga (2020), in her study on tax compliance, enforcement and taxpayer service in Kenya purposed to explore the relationship between enforcement policies and taxpayer service on tax compliance. The study used simple regression analysis of

aggregate variables representing enforcement measures against audit, penalties, criminal sanctions and taxpayer service. A sample frame list of self-employed individual taxpayers was used for 2003 to 2012. Nyaga found that audit, penalty had a positive relationship with tax compliance and hence tax revenue and taxpayer service and criminal sanctions had a negative relationship.

2.3.4 Age

The impact on age to tax compliance studies still uncertain (Torgler, 2018) Many researchers havefound that positive relationship on impact of age increase the tax compliance (Vogel, 1974; Aitken and Bonneville, 1980; Grasmick et al., 1991). On the other hand, some researches also have found impact of age decrease the tax compliance with the negative relationship (Spicer, 1974; Jackson and Jones, 1985)

Since the average income received by an individual varies systematically with age in most countries, Blomquist and Micheletto (2018) examine the possibility to enhance the efficiency of the redistributive mechanism by relating the tax payments to the age of individuals. The model in Blomquist and Micheletto (2018) shown that there is scope for using age dependent taxes to increase the efficiency of redistributive fiscal policies.

Empirical evidence in taxpayer compliance obtained by Chan, Troutman and O'Bryan (2000) shows that age has a positive relationship with education, while education has an indirect relationship with taxpayer compliance through moral development and taxpayer attitude. This outcome is expected that age to have an indirect and positive effect on taxpayer compliance (Jackson & Milliron, 1986; Roth et al., 1989).

2.3.5 Gender

There is quite a large catalogue of literature that examines the effects of gender on honesty. Studies are at odds ,however, on this issue. The majority of honesty games suggest that women are more prone to honest behavior (Erat and Gneezy 2012, Capraro 2018). Still, there are also those that challenge gender differences. Biziou-vanPol et al (2015) have questioned this assumption, suggesting that the debate ongender differences in lying is not settled. Most recently, however, Grosh and Rau (2017) have confirmed gender differences, as they find men are less honest than women in a deception game (i.e. cheat significantly more), and they link these gender differences to SVO (consideration of others).

According to Byrnes et al (1999) risk taking means accepting the possibility of a negative outcome as a result of the option made. Women seem less inclined to accept such negative outcome despite the upside ofotentially higher returns. Several studies indicate that women are more risk-averse than men (Byrnes et al 1999, Croson and Gneezy 2019, Charness and Gneezy 2012). Charness and Gneezy (2012) show through a cross country investment experiment that women make less financially risky decisions. Furthermore, much more visible gender differences are recorded in affluent countries (Falk and Hermle 2018), and the relationship between gender and tax compliance is strongest in Europe and North America (Hofmann et al 2017).

Tax compliance experiments overwhelmingly demonstrate gender differences (Hasseldine and Hite 2003, Chung and Trivedi 2003, Gërxhani 2007, Gylfason, Arnardottir, and Kristinsson 2013, Bruner, D'Attoma, and Steinmo 2017, D'Attoma, Volintiru, and Steinmo 2017). These studies all find that women are more tax compliant than men in most countries in laboratory environments, as did a meta-analysis on this topic by Alm and Malézieux (2019). For example, D'Attoma et al

(2017) examining differences between men and women in the US, Sweden, UK, and Italy, assert that women are less likely than men to cheat on taxes, across countries and across cultures. However, in another study using the same data, Bruner et al. (2017) uncover that although women are more compliant than men, men are more responsive to an increase in the pay-off from a public good.

2.4 Summary of Literature and Research Gaps

Ajape, Afara and Uthman (2017) sought to find out the effect of e-payment system on tax administration and tax revenue generation at Lagos state revenue services. Survey research design was employed for the study in which first-hand data was used for assembling of information. The target population was one hundred and fifty employees of the Lagos State Revenue Services. A sample of one hundred and ten employees was chosen and collected data was processed in form of descriptive statistics. Results indicated that digital payments of taxes enhanced revenue collection at the Lagos state as well as on the efficiency of tax administration. The study was done in Lagos Nageria while the current study will be done in Kenya hence contextual gap

In the same vein, Kleven et al. (2019) conducted a randomized field experiment over a representative sample of 40,000 taxpayers in Denmark. In the first stage, half of the population was randomly selected to be audited, while the rest was deliberately not audited. In the second stage, they sent threat-of-audit letters to a random sample in the two groups. Both the audits and the letters had a significant positive effect on self-reported income. The study focused on field experiment while the current study will use explanatory research design thus methodological gap

Muturi and Thiga, (2018) studied the factors that influence compliance with Tax Laws among Small and Medium Sized enterprises in Kenya. Their finding reveals

that tax compliance cost and tax rates have the most significant effect on tax compliance. In other words, Kenyans are not ready to incur extra cost for them to pay tax. Ngujiri (2021),did a study on factors affecting residential rental income tax compliance among landlords in Nyeri municipality. With regards to tax knowledge, taxpayer education, cost of compliance and deterrence sanction. The current study will focus on commercial property owners hence conceptual gap

2.5 Conceptual Framework

The conceptual framework illustrates the association between the dependent and the independent variable Mugenda & Mugenda (2013). The independent variable will be taxpayer education which will be measured by Seminar, Workshops and Print media. System automation measured by Online Registration, Online Filling system and OnlinePayment system and enforcement measures will be measured by Deactivation of pins, Agency notices and Court suits. The dependent variable will be measured by Returns filed, Tax payment and Tax Declarations. Additionally, Age and Gender were used as a control variable as illustrated by the conceptual framework figure 2.1

Independent Variables   **Dependent Variable**

```
┌─────────────────────────┐                          ┌─────────────────────────────┐
│  Taxpayer Education      │                          │                             │
│  • Seminar              │──── H₀₁ ──────────────▶  │  Tax compliance             │
│  • Workshops            │                          │                             │
│  • Print media          │                          │    • Returns filed          │
└─────────────────────────┘                          │                             │
                                                      │    • Tax payment            │
┌─────────────────────────┐                          │                             │
│  System Automation      │                          │    • Tax Declarations       │
│                         │                          │                             │
│  • Online Registration  │──── H₀₂ ──────────────▶  │                             │
│                         │                          │                             │
│  • Online Filling system│                          │                             │
└─────────────────────────┘                          │                             │
                                                      │                             │
┌─────────────────────────┐                          │                             │
│  Enforcement measures   │         H₀₃              │                             │
│                         │                          │                             │
│  • Agency notices       │──────────────────────▶   │                             │
│  • Court suits          │                          └─────────────────────────────┘
└─────────────────────────┘
```

Taxpayer Education
- Seminar
- Workshops
- Print media

H_{01}

System Automation
- Online Registration
- Online Filling system

H_{02}

Enforcement measures
- Agency notices
- Court suits

H_{03}

Tax compliance
- Returns filed
- Tax payment
- Tax Declarations

Control Variable

```
┌─────────────────────────┐
│                         │
│   Age                   │
│   Gender                │
│                         │
└─────────────────────────┘
```

Figure 2.1: Conceptual Framework

Source survey data (2023)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter is a description of the methodology that was adopted in the study. Research methodology gives details regarding the procedures which were used in conducting the study.

3.2 Research Design

The purpose of a research design was to ensure that the evidence gathered enables one to answer the initial research question as unambiguously as possible and without bias (Imenda, 2014). This study adopted an explanatory research design. The primary purpose of explanatory research was to explain why phenomena occur and to predict future occurrences. Explanatory studies were characterized by hypotheses that specify the nature and direction of the relationship between or among variables being studied. This design was appropriate for the study because it allowed the researcher to generalize the findings to a larger population (Schindler & Cooper, 2003). The goal is to generalize the results to the population from which the sample is selected (Fowler, 2002).

3.3 Target Population

Population refers to a complete group of subjects that is objects or persons that have the same common characteristics. Target population refers to the whole group of subjects to which the study intends to generalize the research findings from (Kothari, 2004). Accessible population on the other hand implies that population which the researcher got the conclusions; it refers to the subset of the target population and it is that population the researcher draw the sample size from (Mugenda and Mugenda,

2003). This study target was 4021commercial property owners in Dagoretti North ,

Nairobi County, (KRA 2022)

Table 3.1: Target population

Sector	Population	Percentage
Offices	1627	40.5
Retail (stores shops)	2116	52.6
Leisure(hotels)	200	4.9
Healthcare (medical centers)	78	1.9
Total	**4021**	**100**

KRA (2023)

3.4 Sampling Frame

A sample is defined as subject of a population that has been selected to reflect or

represent characteristics of a population. Cooper and Schindler (2006) a sample frame

is a set of information used to identify a sample population for statistical treatment,

the sample frames include identifying information on characteristics of the individual

to aid in data analysis and allow for division of frames. A sample frame is the set of

source materials from which the sample is selected. The definition also includes the

purpose of sampling frames which provide a means for choosing the members of the

target population that are to be interviewed in the research study.

3.5 Sampling Technique and Sample Size

A sample is an entity selected from a population with the objective of identifying and

estimating the characteristics of a population (Cramer, 2004). Samples can either be

probability or non-probability samples.

With probability samples, each element has a known chance of being included in the

sample while non-probability samples do not allow the researcher to determine this

probability (Kothari, 2004). The study adopted a systematic sampling technique in

selecting respondents. A sample is a subset of the population. By studying the sample,

the researcher was able to draw conclusions that would be generalizable to the population of interest (Sekaran, 2003). Yamane formula was used for determining the sample size for this study because it assumes a normal distribution, same for the commercial property owners in relation to the parameters under study involved Tax compliance. This formula also enables the selection of a sample that represents the population, with confidence and risk levels.

The Yamane formula is;

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

Whereby;

n   represents the sample size for target population,

N   represents the population size,

e   represents the error of sampling or precision/error limit at 95% level of

confidence and 5% level of precision is required (Yamane, 1967) .

A sample size is the sub-set of the large population (Cooper & Schindler, 2006). The sample size is ascertained using Yamane's (1967) formula."

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

Where:

N = Population size

n = sample size

e = Margin error of the study

Sample size therefore is:

$n = \frac{4021}{1+4021(0.05^2)}$=433 commercial properties owners in Dagoretti North Nairobi County

Table 3.2: Sample frame

Sector	Population	Percentage	Sample
Offices	1627	42.0	182
Retail(stores shops)	2116	52.2	226
Leisure(hotels)	200	4.2	18
Healthcare(medical centres)	78	1.6	7
Total	**4021**	**100**	**433**

3.6 Data Collection Instrument

The main instrument that was employed for data collection was the questionnaire. According to Choi and Pak (2015) a questionnaire reduces bias, improves honesty and is vital in gathering of primary data from a larger number of members within a short time-frame. The questionnaire was designed using closed-ended questions. The questions were arranged into three sections where section one obtained demographic data, section two, covered objectives while the third section covered control variable respectively. The questions for the three variables, dependent variable and control variable were arranged in 5 likert scale where 5=Strongly agree, 4=Agree, 3=Neutral, 2=Disagree and 1=strongly disagree. Likert-scale is reliable because it provides an opportunity for each statement in the instrument to be answered by the respondents among them landlords It is also easy to construct.

3.7 Data Collection Procedure

An introductory letter was obtained from Moi University to assist in seeking authority for the administration of the questionnaire and permission from National Commission for Science, Technology, and Innovation (NACOSTI). Questionnaires was self-administered; a self-administered questionnaire are usually preferred for purposes of developing close relationship with the respondents among them landlords and also assists in providing clarifications sought by respondents on the spot (Sasaka, Namusonge &Sakwa, 2014). The respondents were briefly taken through the purpose of the study and how they are expected to fill the questionnaires.

3.9 Pilot Testing

As opined by Petersen and Bullinger (2018) a pilot examination is an assessment of the precise queries, arrangement, query order and guidelines prior to usage in the main study. The survey was pilot verified to establish its appropriateness, rationality and dependability. The pilot was done on 10% of the sample scope which is 36 respondents. The 36 commercial properties owners in was chosen from Ngong, Kajiando County. This is to be in accordance with the endorsement of Kothari (2012), that pilotage should comprise of a minimum of 10% of the research sample. The aim of piloting was to discover the limitations, if any, that might be in the study tools and to crisscross on the clearness of the objects in the information gathering tools (Johanson & Schwartz, 2016). Piloting allows the investigator to acquire commentaries from respondents on precise matters, which need restraint, and modification. The information from the pilot study was further used to calculate the reliability of the instruments.

3.9.1 Validity test

Validity refers to the extent to which an instrument measures what is supposed to measure. Data need not only to be reliable but also true and accurate. If a measurement is valid, it is also reliable (Kothari & Garg, 2014). There deferent types of validity such as content validity, construct, face validity, criterion validity. For the purpose of this study content of validity was used of the data collection instrument was determined through discussing the research instrument with the research supervisor. The valuable comments, corrections, suggestions given by the research supervisor assisted in the validation of the instrument.

3.9.2 Reliability test

Reliability refers to the consistence, stability, or dependability of the data. Whenever an investigator measures a variable, he or she wants to be sure that the measurement provides dependable and consistent results. A reliable measurement is one that if repeated a second time gives the same results as it did the first time. If the results are different, then the measurement is unreliable. To measure reliability of data collection instruments, an internal consistency technique using Cronbach's alpha will be used in this study (Mugenda, 2008). Nunnally (1978) argued that a Cronbach's alpha value of 0.7 and above proves that the research instrument used is reliable. This study adopted a coefficient of 0.7 as the benchmark for reliability.

3.10 Regression Assumptions

To ensure that there is no violation of the assumptions, this study was tested for multicollinearity, and normality test. The following tests was undertaken. Multicollinearity or excessive correlation amount explanatory variables can complicate or prevent the identification of an optimal set of explanatory variables for

a statistical mode. Cohen et al, (2013)'s definition of variance inflation factor (VIF) is that it provides an index of the amount that the variance of each regression coefficient is increased relative to a situation in which all of the predictor variables are uncontrolled" and suggest VIF to be too large hence not suitable.

3.10.1 Test for Normality

Normality test was carried out using The Shapiro-Wilk and Kolmogorov-smirnov Test to test whether the score of the samples was normally distributed with the same mean and standard deviation. If the test is significant (P<0.05) then the distribution is not significantly different from a normal distribution, but if the test is non – significant (P>0.05) then the distribution of the sample is significantly different from a normal distribution (Kilungu *et al*., 2015).

3.10.2 Test for Multicollinearity

 Multicollinearity is point where there is high correlation among the independent variables (Keith, 2006). "The researcher is able to interpret regression coefficients as the effects of the independent variables when there is low collinearity (Keith,2006). In order to test for multicollinearity, variance inflation factor (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).

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 analysis. The authors argued that VIF above 10 start to indicate relatively high levels of multicollinearity.

3.10.3 Homoscedasticity test

In linear regression analysis, the homoscedasticity of errors refers to the constancy of their dispersion from the regression line. As Lani (2011) explains, a regression error is the distance between a data point and the normal line of regression. This is a key concept in linear regression analysis, and Paper (2016) notes that a crucial assumption underlying this method is that the distribution of the residual or error term across the graph is even. If this assumption is violated, the results of the analysis may be biased, leading to distorted statistical conclusions. In such cases, where the variance of errors from the regression line is not constant, this is known as heteroscedastic dispersion.

3.10.4 Test of Autocorrelation

Autocorrelation means that the variable observations are independent of each other (Zikmund, Babin, Carr & Griffin, 2013; Tabachnick & Fidell, 2001). Gujarati and Porter (2009) described autocorrelation as the correlation between members of a series of observations duly arranged based on time and space. To detect its presence or absence, the Durbin-Watson test was used. Accordingly, Durbin-Watson statistic varies from 0 to 4. A value closer to 4 indicates the existence of negative autocorrelation (Zikmund et al., 2013).

3.10.5 Test for Linearity

Linearity test purposes to determine if the relationship between each of the predictor variables and the predicted variable is linear or not (Zientek, Kim & Bryn, 2016; Zikmund et al., 2013). Linearity test is a requirement in both correlation and linear regression analysis. Good research in a regression model is one that shows a linear relationship between the predictor and the predicted variables. Linearity of the variables in this study was tested by use of the value significant deviation from

linearity. The rule of the thumb is that, this relationship is linear if the value sig. deviation from linearity is greater than 0.05, otherwise the contrary is true

3.11 Data Analysis and presentation

Data analysis refers to the application of reasoning to understand the data that has been gathered with the aim of determining consistent patterns and summarizing the relevant details revealed in the investigation (Zikmund*et al.,* 2010). Before processing the responses and financial data, every filled questionnaire was tallied for every response. The responses were edited, coded and cleaned in case of any inconsistencies and entered into the computer with the help of statistical package for social science (SPSS) version. The data collected was analyzed, with respect to the study objectives, using both descriptive and inferential statistics. Data was analyzed using descriptive statistics. Descriptive statistics include mean, median, standard deviation and. Inferential statistics include correlation analysis and regression (Vance, 2011).

Multiple linear regression is used in situations where the number of independent variables are more than one. Regression analysis is also valuable for quantifying the effect of various simultaneous influences upon a single dependent variable. Multiple regression analysis involves combining several predictor variables in a single regression equation. With multiple regression analysis we can assess the effect of multiple predictor variables (rather than a single predictor variable) on the dependent measure (Tabachnick & Fidell, 2013).

The study adopted regression analysis as shown

$$Y = \beta 0 + \beta_1 TE_1 + \beta_2 SA_2 + \beta_3 EM_3 + \beta_4 AG_4 + \beta_5 GE_5 + \varepsilon$$

Where;

Y = Tax Compliance

β_0 = Constant (Coefficient of intercept)

TE_1 = taxpayer education

SA_2 = System automation

EM_3 = Enforcement measures

AG_4= Age

GE_5 = Gender

$\mathcal{E}$ = Error Term

$\beta_{1.......} B_5$ = Regression coefficient of the 5 variables

3.12 Measurement of study variables

Measurement of variables facilitates reduction of abstract notions of construct into observable behavior or characteristics so that they can be measured (Sekaran, 2012) Tax compliance was operationalized using sources of taxpayer education, system automation and enforcement measures.

Table 3.3: Measurement of study variables

Variables	Indicators	Source	Instrument	Measure	Model
Dependent variables **Taxpayer Education**	• Seminar • Workshops • Print media	Kamil, (2015)	**Questionnaires**	**5-point Likert scale**	Multiple regression analysis
System automation	• Online Registration • Online Filling system • OnlinePayment system	Afara and Uthman (2017)	**Questionnaires**	**5-point Likert scale**	Multiple regression analysis

Enforcemen t measures	• Deactivation of pins • Agency notices • Court suits	Porcano (2013),	**Questionnaire s**	**5-point Likert scale**	Multiple regression analysis
Control variables **Age & Gender**	• age	Muturi and Thiga, (2015)	**Questionnaires**	**5-point Likert scale**	Multiple regression analysis
Dependent variable Tax compliance	Returns filed Tax payment Tax Declarations	KRA (2021)	**Questionnaires**	**5-point Likert scale**	Multiple regression analysis

3.13 Ethical Considerations

The researcher assured respondents that all the information provided would be treated with utmost confidentiality and that their identity would always be protected. The researcher also adhered to all ethical issues of honesty, privacy, cultural sensitivity, informed consent, and voluntary participation. Moreover, respect for intellectual property was ensured by honoring patents, copyrights, and acknowledgement of other contributions from various parties and scholars. Permission was obtained from Moi University and NACOSTI to undertake data collection. The ethics of the survey was supported by the protection of respondents' rights, namely anonymity and confidentiality. This was done by informing respondents in advance about the importance of the survey and voluntary participation. In addition, respondents were told that they could opt out of the survey at any time if they felt uncomfortable continuing with it. Personal data such as name and address were not passed on.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION OF FINDINGS

4.0 Introduction

This section of the report outlines how the results obtained from the participants are connected to the goals and aims of the research. It includes the descriptive and inferential statistics of the respondents and views on Taxpayer Education, System automation, Enforcement measures and Tax compliance.

4.1 Response Rate

Out of the sample size of 433 research participants, 363 of them were able to effectively participate in the study by completing the questionnaires and returning them as expected. The response rate of 84% was deemed to be a highly favorable outcome. Mugenda and Mugenda (2003) support the idea that achieving a response rate of 70% or higher is excellent for an unbiased analysis. The small percentage of non-response was due to some participants having busy schedules, which made it difficult for them to be available for the interviews.

Throughout the fieldwork, ethical standards were strictly adhered to, and all participants were appropriately informed of the importance of their participation and the need to provide truthful information.
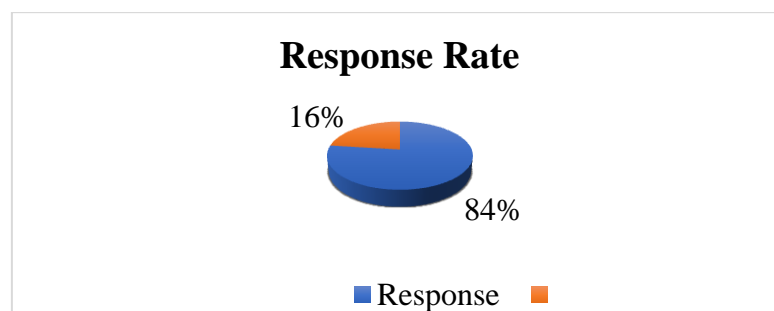
Figure 4.0 Response rate

Survey Data (2023)

4.2 Demographic Information

The study also implored the respondents to state their Gender. Outcomes in table 4.1 reveal Table 4.1 indicated that the result depicts that most of the respondents were male 52.1, while female respondents were 47.9%.

Table 4.1: Demographics on Gender

Gender	Frequency	Percent
Female	174	47.9
Male	189	52.1
Total	363	100.0

Survey Data (2023)

The researcher sought to find out on the highest level of education of respondents. Table 4.2 showed that the Degree level was the highest attained level at 28.1% followed by Post graduate level at 20.4%, Diploma level at 18.5%, Secondary level 17.4% and lastly Others at 15.7%

Table 4.2: Demographics on Education Level

Education Level	Frequency	Percent
Degree level	102	28.1
Post graduate level	74	20.4
Diploma level	67	18.5
Secondary level	63	17.4
Others	57	15.7
Total	363	100.0

Survey Data (2023)

The research showed the demographics for age where 18to29years =63.1%, 30to39years =19.3%, 40to49years =6.3, Over50years =11.3%

Table 4.3: Demographics on Age

Age	Frequency	Percent
18-29years	229	63.1
30-39years	70	19.3
40-49years	23	6.3
Over 50years	41	11.3
Total	363	100.0

Survey Data (2023)

4.3 Reliability test

After conducting a reliability test of the questionnaires, the study's survey instrument was evaluated for its reliability. All variables were deemed reliable as their Cronbach's Alpha values exceeded the minimum threshold of 0.7 (Tax compliance $\alpha=0.765$; Taxpayer Education $\alpha=0.822$; System automation $\alpha=0.866$; Enforcement measures $\alpha=0.702$;

Table 4.4: Reliability tests

Reliability Statistics

Variable	Cronbach's Alpha	N of Items
Tax compliance	0.765	3
Taxpayer Education	0.822	4
System automation	0.866	4
Enforcement measures	0.702	3

4.4 Validity test

The validity of data collection instrument was determined through discussing with supervisors. Their valuable comments given by supervisors assisted in validation of instruments.

4.5 Descriptive statistics

The findings are derived from a Likert scale in the questionnaires. The respondents were supposed to indicate their level of agreement or otherwise with a given statement. The descriptive statistics was done based on each independent variable/objective.

4.5.1 Taxpayer Education

The study sought to investigate the of taxpayer education on Tax compliance among commercial property owners in Dagoretti North Nairobi County. The descriptive results showed that that the responses from table 4.5 indicate Taxpayer education though print media (journals, prospectus, newsletters, books) has made me aware of my tax responsibility, duty and right had mean of 3.1956, The online social media platforms run by KRA have sufficient information on tax registration, filing and payment, mean of 3.2727, Access to tax information has become easier since I can get the information through the print media (newspapers, magazines, prospectus, pamplets, booklets and journals)

Mean of 3.0441 and lastly The KRA seminars held in my locality have assisted me identify identify my tax obligations mean of 3.0110.

Table 4.5: Descriptive statistics on Taxpayer education
5 = Strongly Agree **4** = Agree **3** = Neutral **2** = Disagree **1**= Strongly Disagree

Statements	Mean	Std. Deviation	Skewness	Kurtosis
Taxpayer education though print media (journals, prospectus, newsletters, books) has made me aware of my tax responsibility, duty and right	3.1956	1.40354	-.183	-1.212
The online social media platforms run by KRA have sufficient information on tax registration, filing and payment	3.2727	1.34821	-.309	-1.084
Access to tax information has become easier since I can get the information through the print media (newspapers, magazines, prospectus, pamplets,	3.0441	1.42907	-.009	-1.319

booklets and journals)

The KRA seminars held in my locality have assisted me identfy identify my tax obligations and now I can account for tax effectively	3.0110	1.42778	.015	-1.343

4.5.2 System Automation

The effect of system automation on Tax compliance among commercial property owners in Dagoretti North Nairobi County was measured using the responses as captured on table 4.6

Payment of taxes through mobile money has improved my tax compliance Mean = 3.2397, Changes to the electronic filing system can be made to ease my work of preparation of tax returns Mean = 2.9669, Electronic payment process is simple Mean=3.1185, lastly The Online Payments has enhanced compliance among commercial property owners Mean = 3.1212

Table 4.6: Descriptive statistics on System Automation

5 = Strongly Agree **4 =** Agree **3** = Neutral **2** = Disagree **1**= Strongly Disagree

Statements	Mean	Std. Deviation	Skewness	Kurtosis
Payment of taxes through mobile money has improved my tax compliance.	3.2397	1.37474	-.278	-1.168
Changes to the electronic filing system can be made to ease my work of preparation of tax returns	2.9669	1.34986	-.001	-1.202
Electronic payment process is simple	3.1185	1.28947	-.144	-1.065
The Online Payments has enhanced compliance among commercial property owners	3.1212	1.47976	-.102	-1.405

4.5.3 Enforcement measures

The study sought to investigate the impact of enforcement on Tax compliance among commercial property owners in Dagoretti North Nairobi County. The responses had the descriptive summaries as captured in table 4.7 KRA regularly uses court suit to commercial property owners which break the tax laws and regulations mean = 3.0138. Agency notices issued by KRA to the commercial property owners help in deterring tax evasion mean = 3.6446, Distrain actions by tax officers to commercial property owners help in deterring tax evasion Mean =3.6639.

Table 4.7: Descriptive statistics on Enforcement measures

5 = Strongly Agree **4** = Agree **3** = Neutral **2** = Disagree **1**= Strongly Disagree

Statements	Mean	Std. Deviation	Skewness	Kurtosis
KRA regularly uses court suit to commercial property owners which break the tax laws and regulations	3.0138	1.37150	-.057	-1.197
Agency notices issued by KRA to the commercial property owners help in deterring tax evasion	3.6446	1.00984	-.327	-.969
Distrain actions by tax officers to commercial property owners help in deterring tax evasion	3.6639	1.01508	-.261	-1.023

Survey Data (2023)

4.5.4 Tax Compliance

The study sought to get views on tax compliance and the summary descriptive statistics from table 4.8, I file my tax returns on time mean =3.6143, I pay tax by or on the due date Mean = 3.5702, I fully understand my tax obligation Mean = 4.0843, I always make tax payments on time Mean = 4.2101, lastly I declare and file accurate returns mean = 3.6281

Table 4.8: Descriptive statistics on Tax compliance

5 = Strongly Agree **4** = Agree **3** = Neutral **2** = Disagree **1**= Strongly Disagree

Statements	Mean	Std. Deviation	Skewness	Kurtosis
I file my tax returns on time	3.6143	1.01645	-.266	-1.027
I pay tax by or on the due date	3.5702	1.05244	-.258	-1.145
I fully understand my tax obligation	4.0843	1.18760	-.284	-1.015
I always make tax payments on time	4.2101	1.20980	-.309	-1.326
I declare and file accurate returns	3.6281	1.01480	-.336	-.984

Survey Data (2023)

4.6 Factor Analysis

According to (Tavakol & Dennick, 2011), factor analysis is a method used to determine whether a group of variables of interest (Y1, Y2, ..., Yl) are connected in a linear fashion to a set of underlying, unobservable factors (F1, F2, ..., Fk). Since these factors are not directly observable, previously examined techniques such as regression are not applicable.

(Mayer, 2006) In factor analysis, a factor loading below 0.4 is considered weak, and those falling between 0.5 and 0.6 are considered moderate. However, values that are below 0.3 may not be particularly useful for the research, as they are likely to have limited practical significance. The principal component extraction method was utilized in this study. This technique involves selecting factors one at a time, with each factor being chosen to best fit the data. The initial factor created represents the most highly correlated group of variables, while each subsequent factor explains progressively less variance than the previous one. This process continues until all factors have been selected. Overall, the selected factors explain the highest amount of residual variance within the standardized response scores.

Table 4.9: Factor Analysis

	Taxpayer Education	System Automation	Enforcement Measures	Tax Compliance
TE1	.537			
TE2	.668			
TE3	.944			
TE4	.587			
SA1		.779		
SA2		.730		
SA3		.853		
SA4		.685		
EM1			.806	
EM2			.973	
EM3			.616	
TC1				.880
TC2				.605
TC3				.587
TC4				.780
TC5				.809

Survey Data (2023)

4.7 Regression Assumptions

(Garson, 2012) It is stated that all statistical procedures have certain underlying assumptions, which can vary in their strictness. While the violation of these assumptions may not affect the substantive conclusions of the research in some cases, in other cases it can significantly undermine the validity and meaningfulness of the research findings. Verifying that one's data fulfills the assumptions of the statistical procedure being used is a standard requirement in all journal articles, theses, and dissertations based on quantitative research. Various tests were performed, including those for Normal distribution, Multicollinearity test, homoscedasticity, Autocorrelation, Linearity and correlation analysis.

4.7.1 Test for Normality

When the assumption of regression and other techniques is satisfied, which assumes that error terms are distributed normally, the histogram of standardized residuals should display a bell-shaped curve that resembles a normal distribution. In all predictive methods, it is expected that errors will follow a normal distribution, with the majority of predictions being close to zero and tapering off towards the "high prediction" and "low prediction" tails.

4.7.1.1 Shapiro-Wilk Normality test

(Paper, 2016) Shapiro- Wilk test tested the normality by testing the significance at 95% level. The p value >0.05 would concede that the data was normally distributed, while if the p value<=0.05 then the data would not be normally distributed. Table 4.10 indicated that all the p values were greater than 0.05 therefore the data was normally distributed.

Table 4.10: Normality test

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
TaxpayerEducation	.158	363	.233	.948	363	.145
SystemAutomation	.114	363	.445	.961	363	.067
EnforcementMeasures	.179	363	.331	.886	363	.089
Age	.167	363	.012	.948	363	.006
Gender	.155	363	.052	.933	363	.043

a. Lilliefors Significance Correction
Survey Data (2023)

4.7.2 Multicollinearity tests

According to (Garson, 2012), Multicollinearity refers to a situation where there is a high level of correlation between independent variables that makes it impossible to separate their effects. Although the estimates are not biased, determining the relative strength of the explanatory variables and their combined impact becomes unreliable.

(Murray et al., 2012) suggests that Multicollinearity can result in higher standard errors of the Beta estimates, which leads to decreased dependability and potentially unclear and deceptive findings.

Variance Inflation Factor (VIF) measured correlation level between the predictor variables and estimated the inflated variances due to linear dependence with other explanatory variables. It was tested by computing the Variance Inflation Factors (VIF) and its reciprocal, the tolerance. Table 4.11 indicates that VIFs of taxpayer education, system automation, enforcement measures age and gender were recorded as 1.047, 1.063, 1.139 1.323 and 1.215 respectively, VIF<10, indicating that the assumption of multicollinearity was not violated.

Table 4.11: Multicollinearity Test

	Collinearity Statistics	
Variable	Tolerance	VIF
Taxpayer Education	0.955	1.047
System automation	0.941	1.063
Enforcement measures	0.878	1.139
Age	0.756	1.323
Gender	0.823	1.215

Survey Data (2023)

4.7.3 Homoscedasticity test

In linear regression analysis, the homoscedasticity of errors refers to the constancy of their dispersion from the regression line. As Lani (2011) explains, a regression error is the distance between a data point and the normal line of regression. This is a key concept in linear regression analysis, and Paper (2016) notes that a crucial assumption underlying this method is that the distribution of the residual or error term across the graph is even. If this assumption is violated, the results of the analysis may be biased, leading to distorted statistical conclusions. In such cases, where the variance of errors from the regression line is not constant, this is known as heteroscedastic dispersion.

Table 4.12 indicates results from te Breusch-pagan test which showed that the p value

0.1253>0.05 the results indicates that the data is homoscedastic.

Table 4.12: Homoscedasticity test

Ho: Constant variance Variables: fitted values of Tax compliance	
chi2(1)	=2.56
Prob > chi2	= 0.1253

Survey Data (2023)

4.7.4 Autocorrelation test

As stated by Unibo (n.d.), one of the assumptions that must be met in linear regression

modeling is that the error components are independent. However, this assumption

may be violated when each error term is linked to its immediate predecessor, such that

i is related to i-1. This is a common occurrence when working with data that is

observed in a relevant temporal sequence, such as weekly sales data. This type of

interaction is referred to as first-order autocorrelation.

According to (Marshall & Karadimitriou, 2018) the Durbin-Watson test used to detect

serial correlation has a the Durbin-Watson statistic should be between 1.5 and 2.5.

Table 4.13 indicates a Durbin-Watson statistic of 1.708 indicating that there was no

autocorrelation in the data.

Table 4.13 Autocorrelation test

Durbin- Watson statistic	1.708

Survey Data (2023)

4.7.5 Linearity test

To verify that there was a linear correlation between the dependent and independent

variables, linearity tests were conducted. Linearity is assessed by examining the

extent to which a variable deviates from the linear metric, with a predetermined alpha

value of 0.05. According to Cox and Wermuth (1994), if the p-value for the deviation

from linearity is greater than 0.05, the assumption of linearity is upheld, while if the

p-value is less than or equal to 0.05, the assumption of linearity is violated. Table 4.14

of the study indicated that all independent variables met the normality assumption, as

evidenced by p-values greater than 0.05.

Table 4.14: Linearity Test

			Sum of Squares	df	Mean Square	F	Sig.
		(Combined)	9.138	3	3.046	1.790	.149
	Between	Linearity	8.406	1	8.406	4.939	.027
TaxComplian ce *	Groups	Deviation from Linearity	.732	2	.366	.215	.807
	Within Groups		610.987	359	1.702		
	Total		620.125	362			

Survey Data (2023)

4.7.6 Correlation Analysis

In this investigation, the Pearson product moment correlation coefficient was used.

(Creswell, 2009) states that correlations are used to assess the strength of a two-

variable linear connection. Correlation coefficients range from -1.0 (completely

negative correlation) to positive 1.0 (completely positive correlation) (perfectly

positive correlation). According to (Distributions, n.d.), the stronger the link is, the

closer the correlation coefficients approach -1.0 or 1.0. As the correlation between the

independent and dependent variables weakens, the correlation coefficient approaches

zero. Table 4.15 indicate that the correlation between taxpayer education and tax

compliance was 0.677, indicating a positive relationship which is statistically

significant p= 0.000<0.05, system automation indicated a positive and statistically

significant relationship 0.657, and p value = 0.000<0.05. Enforcement measures

showed a positive 0.670 correlation with tax compliance, the correlation was

statistically significant p=0.000<0.05. The control variables Age had a relationship

0.116 and the correlation us statistically significant p=0.027<0.05, while gender showed a positive a significant relationship r= 0.136, p=0.009 <0.05.

Table 4.15: Correlation Analysis

		TC	TE	SA	EM	AG	GE
Tax Compliance	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	363					
Taxpayer Education	Pearson Correlation	.677**	1				
	Sig. (2-tailed)	.000					
	N	363					
System Automation	Pearson Correlation	.657**	.364**	1			
	Sig. (2-tailed)	.000	.000				
	N	363					
Enforcement Measures	Pearson Correlation	.670**	.452**	.421**	1		
	Sig. (2-tailed)	.000	.000	.000			
	N	363					
Age	Pearson Correlation	.116	.075	.131	.103	1	
	Sig. (2-tailed)	.027	.152	.012	.050		
	N	363					
Gender	Pearson Correlation	.136**	-.135	-.136	-.145	-.084	1
	Sig. (2-tailed)	.009	.010	.010	.006	.110	
	N	363					

**. Correlation is significant at the 0.05 level (2-tailed).
Survey Data (2023)

4.8 Regression Analysis

The general objective of the study was to determine the determinants of tax compliance among commercial property owners in Dagoretti North Nairobi County, Kenya. To achieve this objective, four specific objectives and four corresponding hypotheses were set and formulated respectively. Subsequently, to achieve the set objectives the study used various inferential statistical tools and Multiple regression analyses was used.

4.8.1 Model Summary

Table 4.16 indicated the model summary (Concepts, n.d.)of which showed two models in which the first model showed that correlation between taxpayer education, system automation and enforcement measures and tax compliance was positive R = 0.675. The model also showed that the R square was 0.456 which indicated that taxpayer education, system automation and enforcement measures caused 45.6% variation on tax compliance. Indicating that the remaining 54.4% was caused by factors not captured in the model. The introduction of the control variable Age and Gender indicated a change in adjusted r square of 0.004 in model two. A variation between 0.452 and 0.453 which accounted for 0.4% change.

Table 4.16: Regression Model/ Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics R Square Change	F Change	df1	df2	Sig. F Change
1	.675[a]	.456	.457	.33535	.457	1718.397	3	359	.000
2	.672[b]	.452	.453	.33469	.004	2.417	1	358	.000

4.8.2 Analysis of Variance

Findings from the table 4.17 shows that there was a strong significant relationship between the independent variables (taxpayer education, system automation and enforcement measures) and the dependent and tax compliance. Model 1 had a F statistic = 100.714 p =0.00 p<0.05. Model 2 which had age and Gender had a F statistic = 73.93 p =0.000 p<0.05. Changes in the F statistic showed that the control variable affected the relationship between taxpayer education, system automation and enforcement measures and tax compliance.

Table 4.17: Anova Table

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	283.40	3	94.47	100.714	.000[b]
	Residual	336.73	359	0.938		
	Total	620.125	362			
2	Regression	280.92	4	70.23	73.93	.000[c]
	Residual	339.205	358	0.95		
	Total	620.125	362			

4.8.3 Overall effect of taxpayer education, system automation and enforcement measures on tax compliance.

A regression model was generated to determine the Determinants of tax compliance among commercial property owners in Dagoretti North Nairobi County.

Regression Equation

$Y = \beta_0 + \beta_1 TE_1 + \beta_2 SA_2 + \beta_3 EM_3 + \varepsilon$

Table 4.18: Beta Coefficient Model

Model		Standardized Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	1.179	.188	6.275	.000
	Taxpayer Education	.355	.116	3.067	.002
	System Automation	.614	.080	7.668	.000
	Enforcement Measures	.305	.046	6.632	.000
2	(Constant)	1.233	.217	5.673	.000
	Taxpayer Education	.371	.119	3.118	.002
	System Automation	.602	.082	7.313	.000
	Enforcement Measures	.304	.046	6.589	.000
	Age	.011	.0004	2.601	.008
	Gender	.024	.012	2.013	.023

Where:

γ Represents tax compliance

$\beta_1, \beta_2 \beta_3$ and β_5 The regression coefficients

TE_1 =Tax payer education

SA_2 = System Automation

EM_3 = Enforcement measures

AG_4 = Age

GE_5 = Gender

ε = The error term or residuals

4.8.4 Regression Equation

$Y = 1.179 + .355*TE_1 + .614*SA_2 + .305*EM_3$

Table 4.19 showed that for a unit change in tax payer education increases tax compliance by 0.355. A unit change in system automation causes an increase in tax compliance by 0.614. A unit change in enforcement measures caused an increase in tax compliance by 0.305.

4.8.5 Control effect of Age and gender

Table 4.19 indicates that age and gender have significant effect on the relationship between taxpayer education, system automation and enforcement measures and tax compliance p =0.002 <0.05 model I indicated a and adjusted R square of .453 while model II indicated and adjusted R square of .453 a change of 0.001 or 0.1% which was a change in the variation caused by taxpayer education, system automation and enforcement measures on tax compliance.

4.8.6 Hypothesis Testing

Regression analysis can be utilized to test a hypothesis by identifying the independent variables that significantly contribute to the regression model's ability to explain the variability observed in the dependent variable. In the present study, the independent variables under scrutiny were taxpayer education, system automation, and

enforcement measures, along with a control variable, cost of compliance. These variables were selected as the basis for hypothesis testing

4.8.7 Test of Hypotheses

The first hypothesis stated that H_{01} Taxpayer education has no significant effect on Tax compliance among commercial property owners in Dagoretti North Nairobi County. The study showed that taxpayer education has a significant effect on tax compliance among commercial property owners in Dagoretti North Nairobi County. P =0.00**2** <0.05. Therefore, the null hypothesis is rejected

The second hypothesis $\mathbf{H_{02}}$ was system automation has no significant effect on Tax compliance among commercial property owners in Dagoretti North Nairobi County. The findings shows that p value was 0.000 p <0.05 indicating that the null hypothesis was rejected. System automation has a significant effect on tax compliance among commercial property owners in Dagoretti North Nairobi County.

The third hypothesis $\mathbf{H_{03}}$ Enforcement measures have no significant effect on Tax compliance among commercial property owners in Dagoretti North Nairobi County. The study concluded that the enforcement measure had a significant effect on tax compliance among commercial property owners in Dagoretti North Nairobi County p =0.000<0.05. The null hypothesis was therefore rejected.

The fourth hypothesis was that age has no significant control effect on the relationship between taxpayer education, system automation and tax enforcement measures and Tax compliance among commercial property owners in Dagoretti North Nairobi County. The null hypothesis was rejected since age had a p value 0.008<0.05.

The final hypothesis was that gender has no significant control effect on the relationship between taxpayer education, system automation and tax enforcement measures and Tax compliance among commercial property owners in Dagoretti North

Nairobi County. The null hypothesis was rejected since age had a p value 0.023<0.05.

A summary of the hypothesis test results is captured on table 4.19.

Table 4.19: Summary of Hypotheses tests

Hypothesis	P-value	Conclusion
H_{01} Taxpayer education has no significant effect on Tax compliance among commercial property owners in Dagoretti North Nairobi County	0.002	Reject H_{01}
H_{02} System automation has no significant effect on Tax compliance among commercial property owners in Dagoretti North Nairobi County.	0.000	Reject H_{02}
H_{03} Enforcement measures have no significant effect on Tax compliance among commercial property owners in Dagoretti North Nairobi County	0.000	Reject H_{03}

Survey Data (2023)

4.9 Discussion of Findings

4.9.1 Taxpayer education on tax compliance

The first objective was to determine the effect of taxpayer education on Tax compliance among commercial property owners in Dagoretti North Nairobi County. The correlation analysis indicated that taxpayer education had a positive and significant relationship with tax compliance (r = .677 p =0.00<0.05). The regression model indicated that taxpayer education caused a statistically significant increase in tax compliance (β=0.371), (p=0.002<0.05). The research was in agreement with a study done by (Joy & Ng, 2021). Which stated an unit change in taxpayer education caused increase in tax performance (β=0.296) it however disagreed with (*Tax and Economic Growth* ,2021.), which stated that the taxpayer education did not significantly affect tax compliance numbers (p =0.35 p>0.05). Nugroho and Zulaikha (2012) looked at the factors that lead the willingness to pay taxes with the taxpayer

awareness of paying taxes as an intervening variable. The results showed that the variables, knowledge and understanding of tax regulations, quality tax services and perceptions of taxation effectiveness have a significant influence on the awareness of paying taxes. According to Palil (2010), taxpayers that are lack the necessary basic knowledge on tax are consequently less exposed to information about tax compliance and the relevant legislation covering tax. As a result, they require constant assistance. For example, Kenya has been implementing a continuous tax awareness campaign for taxpayers and children as future taxpayers.

4.9.2 System Automation on tax compliance

The second objective was to establish the effect of system automation on tax compliance among commercial property owners in Dagoretti North Nairobi County. The correlation analysis carried out showed that system automation had a positive and statistically significant connection with tax compliance r = 0.657 p = 0.000<0.05. The regression model further showed that a unit change in system automation caused an significant improvement in tax compliance, (β=0.602), (p=0.000<0.05). The findings concurred with (Mokua, 2014) whose findings indicate a unit change in automation caused a positive effect on revenue collection, (β=0.035), (p=0.000<0.05). The research however disagreed with (Njoroge, 2016) whose findings indicated a negative effect of automation on tax revenue numbers (β=-0.112). Nawawi and Ling (2020) conducted a study on integration of ICT Skills and tax software in tax education. Tax practitioners were utilized as the respondents and the research aimed at ascertaining the necessary skills needed by taxpayers for full utilization of the online tax platform. The research established that three skills are required by taxpayers to interact fully withtechnology based tax systems namely, word-processing software, e-mail and spread sheet software. The study's results has

got correlate with the current investigation since analyzing the electronic system's effectiveness demands for ignoring of the past technologies failure to which might result to not fully leveraging on the benefits.

4.9.3 Enforcement measures on tax compliance

The third specific objective of the study was to establish the effect of enforcement measures on tax compliance among commercial property owners in Dagoretti North Nairobi County.

The study found that the relationship between enforcement measure and tax compliance was positive and statistically significant (r=0.670) p=0.000<0.05. The regression model further indicated that a enforcement caused a positive and significant effect on tax compliance (β=0.304), (p=0.000<0.05). The findings concurred with (Harrison, 2022.) who stated that enforcement measures indeed caused a positive effect on VAT compliance. (β=0.646), (p=0.000<0.05). The research did not concur with (Joy & Ng, 2021) whose research found that enforcement measures did not significant affect revenue collection performance (β=0.003), (p=0.135>0.05). Nyaga (2020), in her study on tax compliance, enforcement and taxpayer service in Kenya purposed to explore the relationship between enforcement policies and taxpayer service on tax compliance. The study used simple regression analysis of aggregate variables representing enforcement measures against audit, penalties, criminal sanctions and taxpayer service. A sample frame list of self-employed individual taxpayers was used for 2003 to 2012. Nyaga found that audit, penalty had a positive relationship with tax compliance and hence tax revenue and taxpayer service and criminal sanctions had a negative relationship.

4.9.4 Control effect of Age and Gender

The fourth objective was to establish the control effect of age and gender on the relationship between taxpayer education, system automation and enforcement measures and tax compliance among commercial property owners in Dagoretti North Nairobi County.

The research found that the correlation matrix illuminated a positive correlation between age and tax compliance (r=-0.116) p =0.027 <0.05. that of gender (r=0.136, p=0.009) and The regression model further showed that there was a statistically significant control effect of age (β=-0.011), (p=0.008<0.05) and Gender (β=-0.024), (p=0.023<0.05)   on the tax compliance among commercial property owners in Dagoretti North Nairobi County.

Alm and Torgler's (2021) study confirmed the results of Oats and Ekins-Daukes' (2019) study, which found that there was a positive correlation between taxpayer education, system automation, and enforcement measures, and tax compliance among commercial property owners, while also taking age and education into account. On the other hand, Kirchler et al. (2020) conducted a study that contradicts these findings, stating that taxpayer education, system automation, and enforcement measures had a limited impact on tax compliance, even after controlling for age and Gender. Instead, Kirchler et al. propose that trust and fairness may be more influential factors in promoting tax compliance.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter presents a summary of the research findings, gives conclusions and outlines recommendations based on the objectives of the study. The chapter also gives suggestions for further studies.

5.1 Summary of the findings

The main objective of the study was to examine determinants of tax compliance among commercial property owners in Dagoretti North Nairobi County, Kenya. The study sought to investigate the effect the effect of taxpayer education on Tax compliance among commercial property owners in Dagoretti North Nairobi County, the second objective was to establish the effect of system automation on Tax compliance among commercial property owners in Dagoretti North Nairobi County, the study further sought to establish the effect of enforcement measures on Tax compliance among commercial property owners in Dagoretti North Nairobi County, Lastly the study was to establish the controlling effect of age and gender on the relationship between taxpayer education, system automation and tax enforcement measures and Tax compliance among commercial property owners in Dagoretti North Nairobi County. Questionnaires were used to collect data and the data was analyzed using descriptive and inferential statistics. A multiple linear regression model was used to determine the connection between the independent variables and the dependent variables.

5.1.1 Tax payer Education on Tax compliance

The first objective was to determine effect of taxpayer education on Tax compliance among commercial property owners in Dagoretti North Nairobi County. Correlation

analysis showed that the relationship between tax education and tax compliance was positively and statistically significant (r = 0.677, p = 0.000<0.05). The regression model further showed that with all factors constant a unit change in the tax education metrics would cause a positive and significant effect on tax compliance (β=0.371, P=0.002<0.05). Tax education was found to be a credible variable in explaining tax compliance among commercial property owners in Dagoretti North Nairobi County.

5.1.2 System Automation on Tax Compliance

The effect of system automation on Tax compliance among commercial property owners in Dagoretti North Nairobi County, was the second objective of the study. A positive and statistically significant relationship between system automation and tax compliance was captured after a correlation analysis was conducted (r = 0.657, p = 0.000<0.05). The regression analysis found that there was a positive and significant effect on system automation on tax compliance (β=0.602, P=0.000<0.05). This finding affirmed that system automation satisfactorily explains tax compliance among commercial property owners in Dagoretti North Nairobi County.

5.1.3 Enforcement measures

The third objective of the study was to establish the effect of enforcement measures on tax compliance among commercial property owners in Dagoretti North Nairobi County. After conducting a correlation analysis, the relationship between enforcement measures and tax compliance was found to be positive and statistically significant (r=0.670,p=0.000<0.05). The regression analysis results showed that there was a positive and significant effect of enforcement measures on tax compliance (β=0.304, p=0.000<0.05).The findings affirmed that enforcement measures satisfactorily explained tax compliance among commercial property owners in Dagoretti North Nairobi County.

5.2 Conclusion

Based on the findings the study concluded that taxpayer education had a significant effect on Tax compliance among commercial property owners in Dagoretti North Nairobi County. The respondents agreed that education of taxpayers was important in improving tax compliance. Agreed that Taxpayer education though print media (journals, prospectus, newsletters, books) has made me aware of my tax responsibility, duty and right, The online social media platforms run by KRA have sufficient information on tax registration, filing and payment, Access to tax information has become easier since I can get the information through the print media (newspapers, magazines, prospectus, pamplets, booklets and journals)

And lastly that The KRA seminars held in my locality have assisted me identfy identify my tax obligations and now I can account for tax effectively.

In regard to the second objective the study concluded that system automation had a significant effect on tax compliance among commercial property owners in Dagoretti North Nairobi County. Majority of the respondents agreed with Payment of taxes through mobile money has improved my tax compliance, Changes to the electronic filing system can be made to ease my work of preparation of tax returns. Electronic payment process is simple also that The Online Payments has enhanced compliance among commercial property owners.

The third objective study findings indicated that enforcement measures significantly had an effect on tax compliance among commercial property owners in Dagoretti North Nairobi County. The majority of respondents agreed with KRA regularly uses court suit to commercial property owners which break the tax laws and regulations, also that agency notices issued by KRA to the commercial property owners help in

deterring tax evasion and lastly they also agreed with distrain actions by tax officers to commercial property owners help in deterring tax evasion.

The study findings indicated that age and gender had a significant control effect on the relationship between taxpayer education, system automation and tax enforcement measures and Tax compliance among commercial property owners in Dagoretti North Nairobi County.

5.3 Recommendations

Based on the objectives and the findings, there exists a positive relationship between taxpayer education, system automation and enforcement measures on Tax compliance among commercial property owners in Dagoretti North Nairobi County The study recommends that tKRA and the government should adopt and implement policiespo that put more emphasis on ssystems automation and tax payer education and enforcement measures, in order to enhance tax compliance.

5.3.1 Implications to policy makers

The findings indicated a statistically significant connection between taxpayer education, system automation, enforcement measures and tax compliance. ensuring the cost of compliance are lowered through policies and legislation in regard to the KRA would benefit in enhancing tax compliance. The study recommends finding techniques to lower high costs of compliance to taxpayers in Kenya.

5.3.2 Implication to theory and academics

Using the theories (*Tax and Economic Growth ,*2021) of transaction cost and existing literature as a basis, it has been observed that taxpayers' compliance tends to decrease when the cost of complying with tax regulations becomes too high or unaffordable. The principles of taxation state that taxes should be affordable, and the cost of complying with tax regulations should not pose a barrier in itself. It is recommended

that academic institutions and research organizations such as KESRA should conduct further studies to identify factors that were not considered in previous research that may affect tax compliance.

5.4 Limitations of the study

Difficulties were encountered during the data gathering process as the participants were hesitant, particularly after learning that the study was related to taxes. However, the researcher managed to alleviate these concerns by assuring the respondents that the data would only be used for academic purposes and that confidentiality would be maintained. As a result, fieldwork was carried out successfully, and an introduction letter from Moi University was included with the questionnaires to verify confidentiality. However, the study was limited by the availability of respondents who were too preoccupied during working hours to complete the research questionnaires. To address this issue, the researcher had to make numerous phone calls to increase the response rate.

5.5 Suggestions for Further Research

The study sought to find out Determinants of Tax compliance among commercial property owners in Dagoretti North Nairobi County. It's recommended that further research should be conducted using other variables such as influence of compliance cost on rental income tax compliance. The study solely focused on property owners in Dagoretti North Nairobi County, the tax field would benefit from studying Determinants of Tax compliance among property owners across Kenya.

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APPENDICES

Appendix I: Introduction Letter

My Name is Maryanne Wangari Kuria; I am carrying out a research project on to **DETERMINANTS OF TAX COMPLIANCE AMONG COMMERCIAL PROPERTY OWNERS IN DAGORETTI NORTH NAIROBI COUNTY, KENYA.** This study is purely meant for academic purpose and therefore any information provided shall be treated with utmost privacy and confidentiality.

Yours sincerely

Maryanne Wangari

Appendix II: Questionnaire

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

SECTION A:

TAXPAYER EDUCATION

Kindly indicate to what extent you agree with the following statement

Statements	1	2	3	4	5
Taxpayer education though print media (journals, prospectus, newsletters, books) has made me aware of my tax responsibility, duty and right					
The online social media platforms run by KRA have sufficient information on tax registration, filing and payment					
Access to tax information has become easier since I can get the information through the print media (newspapers, magazines, prospectus, pamplets, booklets and journals)					
The KRA seminars held in my locality have assisted me identfy identify my tax obligations and now I can account for tax effectively					

SYSTEM AUTOMATION

Indicate to what extent you agree with the following statement

Statements	1	2	3	4	5
Payment of taxes through mobile money has improved my tax compliance.					
Changes to the electronic filing system can be made to ease my work of preparation of tax returns					
Electronic payment process is simple					
The Online Payments has enhanced compliance among commercial property owners					

ENFORCEMENT MEASURES

Indicate to what extent you agree with the following statement

Statements	1	2	3	4	5
KRA regularly uses court suit to commercial property owners which break the tax laws and regulations					
Agency notices issued by KRA to the commercial property owners help in deterring tax evasion					
Distrain actions by tax officers to commercial property owners help in deterring tax evasion					

TAX COMPLIANCE

Kindly indicate to what extent you agree with the following statement

Statements	1	2	3	4	5
I file my tax returns on time					
I pay tax by or on the due date					
I declare and file accurate returns					
I fully understand my tax obligation					
I always make tax payments on time					

SECTION B: CONTROL VARIABLE

Age

18 to 29 Years   [ ]

30 to 39 Years   [ ]

40 to 49 Years   [ ]

Over 50 Years   [ ]

Gender

Male   [ ]

Female   [ ]