DETERRENT MEASURES, DIGITALIZATION, TAXPAYER MORALE, TAXPAYER AWARENESS AND VALUE ADDED TAX COMPLIANCE AMONGST MEDIUM TAXPAYERS IN NORTH OF NAIROBI TAX DISTRICT, KENYA

BY

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

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DECLARATION

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

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Declaration by Supervisors

This project was submitted for examination with our approval as the university supervisors.

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DEDICATION

I dedicate this research project to God Almighty and my family for their great moral and financial support in making the journey a success.

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ABSTRACT

Tax compliance is important as it has a direct impact on revenue for most governments around the world. Despite the reforms that the Kenya Revenue Authority has been undertaking so as to increase revenue collection, it has of late failed to meet its revenue targets particularly VAT targets. There has also been existence of fluctuations in VAT collection over the past couple of financial years. The purpose of this study was to establish the moderating role of deterrent measures on selected determinants and value added tax compliance amongst medium taxpayers in north of Nairobi tax district, Kenya. The specific objectives were to determine the effect of digitalization, tax morale, tax awareness and the moderating role of deterrent measures on the relationship of these selected determinants on Value Added Tax compliance among medium taxpayers in north of Nairobi tax district, Kenya. The study was guided by the main theory which is Theory of Planned Behavior and other theories; the innovation diffusion theory, Ability to pay theory and Economic Deterrence Theory. The total target population were 2,376 VAT registered medium taxpayers in north of Nairobi tax district, Kenya and the sample size was 342 respondents. Out of the 342 respondents targeted, 274 questionnaires were correctly filled and returned, indicating 80% response rate. The study adopted the explanatory research design and primary data was collected using structured questionnaires with closed-ended questions. The data was analyzed using descriptive, inferential statistics, and multiple linear regression analysis. The study found that digitalization had a positive and significant effect on Value Added Tax compliance β=0.402 p-value =0.001. The study also found that tax morale had a positive and significant effect on Value Added Tax compliance β=0.295 p-value =0. 016. The study also found that tax awareness had a positive and significant effect on Value Added Tax compliance β=0.124 p-value =0.041. The study further found that deterrent measures moderate the relationships between digitalization, tax morale, tax awareness and VAT compliance, at β=0.526 p-value =0.000, β=0.248 p-value =0.000., β=0.674 p-value =0.000. respectively. It is recommended that the Kenyan government prioritize policies that expand and support digital tax infrastructure. Tax authorities, like the Kenya Revenue Authority (KRA), should consider implementing additional funding and resources for digital tax filing systems, ensuring they are user-friendly, reliable, and accessible. Policies could mandate training programs on e-filing for taxpayers, which would address gaps in user skills and technical knowledge. From a practical perspective, KRA and tax management bodies should focus on integrating digital solutions into daily tax administration processes to support VAT compliance. KRA can work closely with business associations to conduct regular workshops and provide guidance on using digital tax systems. Future research could explore whether the impact of digitalization, tax morale, and awareness on VAT compliance differs by business size to offer more tailored recommendations for different taxpayer categories.

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ABBREVIATIONS AND ACRONYMS

FIRS	Federal Inland Revenue Services
ICAEW	Institute of Chartered Accountants in England and Wales
ICAN	Institute of Chartered Accountants of Nigeria
IRD	Inland Revenue Department
IRS	Internal Revenue Service
KNBS	Kenya National Bureau of Statistics
KPMG	Klynveld Peat Marwick Goerdeler
KRA	Kenya Revenue Authority
MSMEs	Micro, Small, and Medium-Sized Enterprises
NOPA	Notice of Proposed Adjustment
OECD	Organization for Economic Co-operation and Development
PIN	Personal Identification Number
SMEs	Small and Medium-Sized Enterprises
TIMS	Transport Integrated Management System
TPA	Tax Procedures Act, No. 29 of 2015
USA	United States of America
VAA	Value Added Assessment
VAT	Value added Tax

DEFINITION OF TERMS

Alternative Dispute Resolution: refers to use of other procedures, such as arbitration and mediation, litigation and negotiation to settle disputes (Kashindi, 2019)

Deterrent Measures: Deliberate measures taken by tax authority to enforce compliance among the taxpayers including arresting of taxpayers, caveat of assets and agency notice (Lederman, 2021).

Medium Taxpayer A medium taxpayer refers to an individual or business entity that falls in the middle range of income or revenue brackets as defined by a tax authority, medium-sized with (50-99 full-time employees). Medium enterprises are firms whose annual turnover is between 100M-999M annual turnover KRA (2021)

North of Nairobi Tax District: This region is geographically demarcated by The Kenya Revenue Authority as being located in the northern part of Nairobi County. It is specifically located in Grogan area situated in Nairobi downtown, Thika Road, Kirinyaga Road, Westlands and Parklands areas. (KRA, 2019).

Tax Awareness Taxpayer awareness is an effort or action accompanied by self-encouragement and willingness to perform the rights and obligations of taxation in accordance with the regulations (OECD, 2019).

Tax Morale – these are intrinsic characteristics such as perceptions and beliefs that inform of a taxpayer's willingness and ability to effectively accept the requirements of their tax obligations and make informed decision to comply through tax declaration, tax filing and payment of tax due (Alm, 2012).

VAT Compliance: Value Added Tax Compliance is measured in different aspect such as willingness to register for tax obligations, correct computation of tax dues, filing in time and payment of tax due within the stipulated time (Dwenger, 2022).

CHAPTER ONE

INTRODUCTION

1.0 Overview

This chapter introduces the proposal overview that includes the background of the study, statement of the problem, objective of the study, research hypothesis, significance of the study and the scope of the study.

1.1 Background of the Study

Taxation is the known practical source of public finance in many economies, besides other sources like non-tax revenue such as user-fees and licenses charged for services rendered by government department and agencies and foreign aids (Tresch, 2022). Tax collected by governments majorly depends on taxpayers' voluntary compliance whereby the taxpayers fulfill their tax obligation freely and completely. However, developing economies face challenges of raising sufficient tax revenue to finance the ever-increasing public expenditures due to noncompliance amongst the taxpayers (Marti, 2019).

Value added is that element of value that is created by an economic unit during a productive process, which transforms an input into an output of a good or a service (Sicat, 2019). Therefore, VAT is a tax that is imposed on 'value added' to a commodity or service. It is an indirect tax levied on consumer expenditure and collected from business transactions (Webley and Ashby, 2020). Every VAT registered business pays VAT on its purchases of goods and services (inputs), charges VAT on its sales (outputs) and hands over the difference to tax authority for each accounting period (Adams and Webley, 2021)

In Italy, noncompliance with VAT is estimated at 40% while in United Kingdom and France, the rate of non-compliance is estimated at 3%. Both developing and less developed economies are facing the same issues of VAT non-compliance. For instance, in a study conducted by Global Financial Integrity, it was noted that USD 213 billion is lost from tax noncompliance in India (KPMG, 2019). The same case applies to Bangladesh, where USD 2.8 Billion is estimated to be lost through noncompliance.

In Palestine, Alkhatib, Abdul Jabbar and Marimuthu (2019) expounded on deterrent factors to include probability of detection, tax penalty and tax rates. Kuchumova (2019) provided tax audit as a measure of deterrence towards tax compliance. Dularif, Sutrisno and Saraswati (2022) gave the indicators of deterrence approach in tax compliance to include tax audit, tax rate and tax penalty. However, Dularif, Sutrisno and Saraswati (2019) failed to establish a significant role played by penalties and tax audit in preventing tax noncompliance.

In Tanzania, VAT works on the 'destination principle'. It is an international norm of taxing goods and services in the jurisdiction of the goods and services consumption (Keen and Smith, 2021); this means that in Tanzania VAT is levied on goods and services consumed in Tanzania, but not those consumed elsewhere. All imported products are taxed, whereas all exported products are zero-rated. A zero-rate for exports of goods and services is a common practice in many countries (Fjeldstad and Heggstad, 2021). In addition, other goods and services are exempted; taxpayers who supply only exempt products are not required to register for VAT purpose. In addition, VAT Act 2017 provides special relief for qualified taxpayers.

Merima (2022) focused on Tanzania, Uganda and South Africa using 2011/12 Afro barometer survey data; it was shown that deterrence measures contribute towards

growth in VAT tax revenue collected by the government. Most countries in Africa have realized and appreciated the role played by deterrence measures in VAT compliance. VAT is a major source of government revenue if properly administered (Jenkins, Jenkins and Kuo, 2019). For example, in OECD countries revenues from VAT as a percentage of total tax revenues increased from 11.9% in 2018 to 17.9% in 2020 (OECD, 2021). Harrison and Krelove (2020) shows that VAT contributes about 25% of the world's tax revenue. In Tanzania, the study by Fjeldstad and Heggstad (2021) indicates that in 2022 VAT contributed more revenues (VAT-to-GDP ratio of 4.6%) than personal income tax and corporate income tax combined (VAT-to-GDP ratio of 4.1%). Therefore, it can be argued that VAT is an important tax revenue base in both developed and developing countries.

The revenue collection in Kenya is a mandate which is administered by the government of Kenya and Kenya Revenue Authority has been appointed and assigned that duty by an act of parliament. The Kenya Revenue Authority was formed in July 1st 1995 by an Act of parliament as the government agency responsible for administration and collection of taxes on behalf of the Government of Kenya. The KRA receives the revenue and channels it to the Treasury which allocates the revenue to different sectors of the economy after the National budget is approved by Parliament and also the parliamentary budget committee. (Kenya Revenue Authority, 2015).

Value Added Tax is a multi-stage consumption tax charged on the sale of goods and services at all stages of production and distribution chains. The tax is charged on the supply of taxable goods or services in Kenya and the importation of taxable goods or services in Kenya. The tax is collected by registered traders and remitted to Kenya Revenue Authority, but the burden is shifted to consumers through higher prices. Value Added Tax is charged under the VAT Act Cap 476 under the laws of Kenya. Tax

compliance is a process in which taxpayers adhere to the rules set by the relevant tax authorities such as payment of taxes due and filing of returns so that revenue can be collected effectively. VAT was introduced in Kenya in 1990 as a means of increasing the government tax collections by widening the tax base.

1.1.1 Value added Tax Compliance

VAT is imposed by the Kenya Revenue Authority (KRA) as per the laws of the Value Added Tax Act 2013.The Value Added Tax is an indirect tax on consumption applicable on the sale of supplies at all levels of production and distribution. VAT registered taxpayers act as agents in collecting and remitting collected VAT to the government. The VAT paid on inputs in turn is claimed as credit when registered taxpayers declare output VAT on their sales (VAT Act 2013 Sec 17). Suppliers of exempt goods & services (VAT Act 2013, first schedule) do not charge VAT on their supplies and cannot claim credit for VAT paid on their purchases.

The VAT system also contains zero rated goods and services (VAT Act 2013, 2nd schedule).

Businesses charge VAT at a rate of 0% on their supplies and are allowed to deduct the input tax paid on the purchase of those zero rated goods and services (VAT Act 2013, Sec 17). The government formulates policy and VAT laws, KRA oversees implementation of the laws, professionals offer services to ensure tax compliance, businesses act as agents in collecting VAT & remitting it to the government and the general public is concerned about the VAT rate which influences their spending and how the government is utilizing the VAT revenue collected. VAT contributes about 23% of the total tax revenue collection by the government (KNBS, 2022).

1.2 Statement of the Problem

Compliance with taxation laws, VAT tax compliance, is a major concern for all tax authorities and it is not easy to have all taxpayers comply with the tax requirements (James and Alley 2020). Good tax compliance rates guarantee the government of the much-needed revenue to finance the planned activities. Non-compliance denies the government the required revenue, OECD, (2021). This denies revenue from many governments over the globe making them unable to meet budgetary allocation and provision of essential services to their citizens. This has forced the governments to resort to external borrowings to finance their activities. In most instances, taxpayers are not willing to register for tax obligations, compute the correct tax due, filing returns in time and payment of taxes due within the stipulated time (Dwenger, 2022)

In the US, it is estimated that the extent of tax gap (the difference between taxes owed and taxed filed) for 2021 were US$ 353 billion (IRS, 2022). This concern is particularly severe for developing countries given the rapid growth of investment in their economies and their lack of adequate experience in dealing with this problem. In China, the tax evasion by MSMEs resulted in revenue loss that amounted to US$ 3.88 billion each year. In Hong Kong, the Inland Revenue Department reported that about US $ 1.15 billion was collected from 2019 - 2022 back tax and penalties from MSMEs (IRD, 2023).

Several amendments have been made to VAT law in Nigeria, the most recent of which resulted in a 50% rate rise (from 5% to 7.5%), sparking ferocious arguments among a number of interest groups. Only businesses that make taxable supplies up to 25 million are obligated to charge, collect, and remit VAT as well as submit monthly VAT returns to Federal Inland Revenue Services (FIRS), according to the Finance Act, 2020 (ICAN,

2022). Thus, it is expected that many SMEs may not meet the 25 million taxable supply threshold and, as such, should be exempted from VAT compliance obligations.

Even though there have been many administrative reforms, VAT compliance level has remained low contributing only 23% of the total revenue. For instance, the 2018/2019 annual revenue performance report by KRA shows that KRA managed to collect only Ksh. 409.5 billion from VAT against a target of Ksh. 464.2 billion (KRA 2019). In 2019/2020 financial year, the 2019/2020 revenue performance reports show that VAT reduced from Ksh. 464.2 billion in 2018/2019 to Ksh. 380.8 billion in 2019/2020 (KRA 2020). In 2020/2021 financial year, the VAT collected amounted to KShs. 478.2 billion against a target of KShs. 484.2 billion missing target by KShs. 2 billion. VAT collection for the financial year 2022/2023 stood at KShs. 272.452 billion (KRA 2023) and KShs. 314.17 billion for the 2023/2024 financial year (KRA 2024) which show a significantly low VAT collection performance compared to the preceding years. VAT revenue performance over the years shows an inconsistent and unpredictable trend. These revenue shortfalls have been blamed on tax evasion and other behaviors of tax non-compliance by medium taxpayer and other small taxpayers. It is this worrying trend in revenue collection statistics and the knowledge gap that warrants research to be done in this area.

From the existing empirical studies by previous researchers, little has been done on moderating role of deterrent measures on factors affecting value added tax compliance among medium taxpayers in Nairobi County, Kenya, with a specific consideration to digitalization, taxpayer morale and taxpayer awareness on Value Added Tax compliance among medium taxpayers in Nairobi County, Kenya.

1.3 Objectives of the Study

The study was guided by a general objective and specific objectives.

1.3.1 General Objective

The general objective of the study was to establish moderating role of deterrent measures on selected determinants on value added tax compliance among medium taxpayers in north of Nairobi tax district, Kenya.

1.3.2 Specific Objectives

The specific objectives of the study were to establish the effect of digitalization, tax moral, tax awareness and the moderating role of deterrent measures on the relationship of these selected determinants on Value Added Tax compliance among medium taxpayers in north of Nairobi tax district, Kenya.

- **i.** To determine the effect of digitalization on Value Added Tax compliance among medium taxpayers in north of Nairobi tax district, Kenya.
- **ii.** To establish the effect of tax morale on Value Added Tax compliance among medium taxpayers in north of Nairobi tax district, Kenya.
- **iii.** To find out the effect of tax awareness on Value Added Tax compliance among medium taxpayers in north of Nairobi tax district, Kenya.
- **iv.** To determine the moderating role of deterrent measures on the relationship between digitalization, tax morale and Tax awareness on Value Added Tax compliance among medium taxpayers in north of Nairobi tax district, Kenya.
    - **a)** To find out the moderating effect of deterrent measures on the relationship between digitalization on Value Added Tax compliance among medium taxpayers in north of Nairobi tax district, Kenya.

b) To establish the moderating effect of deterrent measures on the relationship between tax morale on Value Added Tax compliance among medium taxpayers in north of Nairobi tax district, Kenya.

c) To determine the moderating effect of deterrent measures on the relationship between tax awareness on Value Added Tax compliance among medium taxpayers in north of Nairobi tax district, Kenya.

1.4 Research Hypothesis

This study was guided by null hypothesis;

i. **H_{01}:** Digitalization has no significant effect on Value Added Tax compliance among medium taxpayers in north of Nairobi tax district, Kenya.

ii. **H_{02}:** Tax Morale has no significant effect on Value Added Tax compliance among medium taxpayers in north of Nairobi tax district, Kenya.

iii. **H_{03}:** Tax Awareness has no significant effect on Value Added Tax compliance among medium taxpayers in north of Nairobi tax district, Kenya.

iv. **H_{04}:** Deterrent measures have no significant effect on moderating role on the relationship between digitalization, tax morale and Tax awareness on Value Added Tax compliance among medium taxpayers in north of Nairobi tax district, Kenya.

a) **H_{04a}**: Deterrence measures have no significant effect on moderating effect on the relationship between digitalization on Value Added Tax compliance among medium taxpayers in north of Nairobi tax district, Kenya.

b) **H_{04b}**: Deterrent measures have no significant effect on moderating effect on the relationship between tax morale on

Value Added Tax compliance among medium taxpayers in north of Nairobi tax district, Kenya.

c) **H_{04c}**: Deterrent measures have no significant effect on moderating effect on the relationship between tax awareness on Value Added Tax compliance among medium taxpayers in north of Nairobi tax district, Kenya.

1.5 Significance of the Study

This study was beneficial to policy makers and tax practitioners in formulating value added tax compliance and revenue collection strategies that promoted tax compliance amongst the taxpayers. It also helped them to simplify tax procedures and clarify numerous amendments of various sections of the Income Tax Act. The study assisted the KRA and the relevant Ministry to formulate policies which would enhance the compliance of Value Added Tax. The economy of Kenya would also grow when revenue collection is optimized.

Taxpayers benefited from this study. The understanding on the knowledge of VAT compliance will help the medium taxpayer to know their obligations as taxpayers. They were able to know ways of reducing the tax compliance costs and understanding the laws governing VAT. Findings of this study also benefited the researchers as it was added to the body of existing knowledge in value added tax compliance. Both current and future scholars and researchers benefited from this study since it expanded their knowledge. The recommendations made will form basis for further studies as researchers try to solve some of the problems emanating from Value Added Tax compliance.

1.6 Scope of the Study

The study focused on determining the moderating role of deterrent measures on selected determinants on value added tax compliance among medium taxpayers in north of Nairobi tax district, Kenya. Specifically, the study looked at digitalization, tax morale and tax awareness on Value Added Tax compliance among medium taxpayers in north of Nairobi tax district, Kenya. The total target population was 2,376 medium taxpayers in north of Nairobi tax district, Kenya and a sample size was 342 respondents. The study was done using primary sources of information with use of questionnaires for gathering of the relevant data. The study focused on the 2023/2024 financial year.

1.7 Limitations of the Study

During the data gathering process, there were difficulties regarding the response rate and the geographical area covered. Out of the 342 respondents targeted, 274 of them correctly filled and returned the questionnaires. This therefore presented a non-response rate of 20% which was constituted by the 68 targeted respondents who were unable to correctly fill and return the questionnaires. Additionally, the geographical area presented a challenge by the nature of its big size which was difficult to navigate alone given the limited time available for the research period. However, most of the concerns from the respondents targeted were able to be alleviated by assuring them that their data would only be used for academic purposes and confidentiality will be maintained. To further verify confidentiality, the data gathering process was accompanied by an introduction letter from Moi University together with a certification from NACOSTI showing research permit granted for the exercise. The challenge with the size of the geographical area covered was mitigated upon by contracting one trained and competent research assistant who was instrumental in administering the questionnaires to the targeted respondents.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The chapter looked at literature that is relevant to the study. The review shall start with concepts for the study variables and the key theories that provide anchorage to the study. The past empirical studies are also reviewed as informed by the objectives. The chapter has a summary of the reviewed literature with gaps. The conceptual framework is provided with the key constructs.

2.1 Review of Concepts

This study was guided by the following concepts;

2.1.1 Value Added Tax Compliance

Verboon and Dijke (2021) shared that compliance with VAT can be reflected in timely filing and payment of taxes. Alm (2021) considered VAT compliance as the ability to report all the incomes of the taxpayers. It arises when a taxpayer files and declares all the tax dues to a revenue authority. Noncompliance with tax is an adverse to the economy as it deprives the government of the revenues needed to run operations.

VAT registered taxpayers act as agents in collecting and remitting collected VAT to the government. The VAT paid on inputs, in turn, is claimed as a credit when registered taxpayers declare output VAT on their sales (VAT Act 2013, Sec 17). Suppliers of exempt goods & services (VAT Act 2013, first schedule) do not charge VAT on their supplies and cannot claim credit for VAT remunerated on their procurements. The VAT system also contains zero-rated goods and services (VAT Act 2013, 2nd schedule). Businesses charge VAT at a rate of 0% on their supplies and are allowed to deduct the

input tax levied on the purchase of those zero-rated commodities (VAT Act 2013, Sec 17).

Value Added Tax compliance has become the significant regulatory approach for both individual and commercial taxation in developed economies. The world has faced unique rate of development spanning from 1980s in the field of technology. The innovation has facilitated how the tax compliance has influenced how tax administration (Teltscher, 2022). In developing economies like Kenya, tax compliance is a problem because of numerous changes to the tax laws, which make it difficult for taxpayers without proper knowledge of laws to comply due to their complexity. Kenya is ranked highly as one of the most non-compliant nations with the tasking responsibility of ensuring productive and viable tax organization to guarantee tax compliance which will improve revenue collection

2.1.2 Digitalization

Digitization can be defined as the process of transforming analog data into binary electronic (digital) state especially used in a computer or storage (Pearce, 2021). Digitization entails the conversion of materials from analog state that can be read by individuals to a digital state that is only readable by machines. Digitization of tax administration is a difficult task that requires radical changes in the way it is organized and delivered to its intended users.

Digital technology is a powerful tool of management, but tax administration's encounter with this mode of work has often proved to be complex, sometimes unsuccessful. The problem is that tax administration, like any other sector, often wants to create an electronic management and information system that works for them, and a lot of money, effort and technology is spent (Lipniewicz, 2022). Digital components enable tax

administrations to be more efficient and organized, both in combating abuse and in improving the tax collection and reporting (Center for Policy and Governance 2019). Without building a strong organization of tax administration, information system and professionalization of employees, the tax reform will not be possible (Juswanto &Simms, 2018). As tax systems go digital, multinationals have been subjected to more operational risks in recent years. Responding to the digitized tax platforms is becoming crucial for these entities subjecting tax authorities and the entire finance department to adapt. Failure to adequately respond exposes the firm to stringent financial penalties (ICAEW, 2016).

2.1.3 Tax Morale

Tax morale refers to the intrinsic motivation of taxpayers to comply with tax obligations, influenced by factors such as social norms, perceived fairness of the tax system, and trust in government institutions (Torgler, 2020). Tax morale has been mentioned in literature during a study of "School of Tax Psychology" (Schmölders, 2022; Strümpel, 2021). This concept was used to explain the reasons why individuals decide to pay taxes on their psychological point of view. They tried to stress out that paying taxes is not only an economical phenomenon and must not be taken in consideration only by the legal point of view. They focused their research in a different approach, compliance and noncompliance of the tax system.

Luttmer and Singhal (2021) define tax morale as the totality of non-pecuniary motivations and factors for tax compliance which fall outside the expected utility maximization. As mentioned above, in this paper, using an institutionalist lens, the intrinsic motivation to pay taxes, tax morale, is viewed primarily to result from the interaction between formal and informal institutions. However, it is important to acknowledge that personal traits are also important in shaping the individual's tax

morale and thus, tax compliance behavior. Previous studies show that there are individuals, referred to as “honest taxpayers”, which do not try to evade (Torgler, 2021) because they are simply “predisposed not to evade” (Long and Swingen, 2022).

Tax morale is defined as “the intrinsic motivation of why people pay taxes”, “a moral obligation to pay taxes”, “a belief in contributing to society by paying taxes” (Torgler, 2003, 2007; Torgler and Schneider 2021; Torgler and Schneider, 2019; Cummings et al., 2019; Halla, 2022; Molero and Pujol, 2022). A positive tax morale is likely to reduce the probability of tax evasion (Kirchler, 2021), since an increase in reputational costs (feelings of guilt, social stigma) decreases tax evasion (Andreoni et al., 1998; Dell’Anno, 2019).

Indeed, tax morale is usually modelled as an internalized social norm for tax compliance (Elster 2020), or against tax evasion, which renders evasion costly (Falkinger 2019; Kolm and Larsen 2022; Traxler 2020). Thus, tax evasion involves a moral cost, in the sense that an individual feels a sense of guilt or remorse for deviating from the social norm, or for defecting from others’ expectations, because s/he has not been a “good member of society” (Traxler 2020; Kolm and Larsen 2022). However, the more people evade taxes, the less attractive it is to follow the social norm (Gordon 2020). Tax morale affects tax compliance behavior, a higher (lower) tax morale reduces (increases) the level of tax evasion (Frey and Torgler 2020; Halla 2020).

2.1.4 Tax Awareness

Tax awareness is the understanding and knowledge individuals or entities have about their tax obligations, rights, and the overall tax system. It encompasses awareness of tax laws, filing requirements, available deductions and credits, and the consequences of non-compliance. Being tax-aware enables individuals and businesses to make informed

decisions, minimize tax liabilities legally, and comply with tax regulations effectively, Smith, (2021).

Wondimu, (2019), examined the level of tax compliance by taxpayers and its determinant factors in Bench Maji, Sheka and Kaffa zones of Southwest Ethiopia. Findings of their investigation showed that tax compliance was positively affected by tax knowledge, simplicity of the tax system, attitude of tax payers towards tax, perceived role of government expenditure, and rewarding scheme for loyal tax payers. But, age, sex of respondents, tax penalties and enforcements, organizational strength of the tax authority, fairness of the tax system, tax rate and tax audit were not statistically significant factors influencing compliance behavior of taxpayers.

Taxpayer awareness have been explored across the globe however different countries employ different strategies in taxpayer education that fit the requirements in particular countries. Bangladesh runs a national income Tax Day as a taxpayer awareness amidst other taxpayer awareness internet and facilitation centers (OECD, 2019). According to (Giulia and Fabrizio, 2019) the focus of taxpayer awareness currently in Africa is in line with modern tax administration reforms, that seek to identify taxpayers as customers and tax agencies as facilitators to provide services to the customers.

Taxpayer awareness may take various forms, digital education, technological education or even tax clinics. Studies across the world have proved that taxpayer awareness plays a vital role in the compliance of various taxes. VAT is majorly affected by taxpayer awareness strategies. According to (Gitaru, 2017), VAT compliance is a combination of three key factors, print media taxpayer education, stakeholder sensitization programmers and electronic taxpayer education. Mwangi, (2021) argues that if tax awareness is enhanced and promoted effectively, VAT performance will be achieved.

Taxpayers in the informal sector are necessitated by issues around them that encourage them or discourage them to pay taxes and comply with the tax law.

2.1.5 Deterrence Measurement

Tax deterrence plays a key role in effective tax administration. Deterrence will ensure adherence to tax compliance. Hamzah, et al (2019) contents that tax deterrence is the authority that makes tax decisions and valuable corporate governance function to identify unrecognized tax benefits and detecting tax avoidance, promoting good financial reports and detecting the income shifts decisions of multinationals corporations.

According to Tax Procedures Act 2015, tax deterrence tools are gauges applied for collection and reclamation of tax liabilities from defaulting taxpayers. These measures involve a sequence of activities on the defaulting taxpayers. They are Agency notice (Sec 42 of TPA), Distress orders (Sec 41 of TPA), Charge or security on immovable property 14 (Sec 40 of TPA) and court suits (Sec 39 of TPA). “Section 60 of TPA gives the commissioner full and free access to any building or property and authority to cart away documents or data storage devices believed to be used in tax fraud.

According to Kenya Revenue Authority, (2020), tax deterrence tools are instruments that facilitates tax revenue collection from tax payers. They are usually used to encourage tax payers to remit all taxes owed to the government. They consist of Issuance of agency notices, security placements on immovable assets among others. The Kenya Revenue Authority’s Investigations and Enforcement department published deactivation of PINs as one of their deterrence mechanisms in their Tax Investigations Handbook (KRA 2019). These measures are taken when the tax payers have not paid their taxes on time and have no plans to pay their income tax debts

2.2 Theoretical Review

A theoretical review is a critical analysis of the theories that provide anchorage to the study (Bell, Bryman & Harley, 2019). The study was guided by the main theory which was Theory of Planned Behaviour and other theories; the Innovation Diffusion theory, Ability to Pay theory and Economic Deterrence theory.

2.2.1 Theory of Planned Behavior

An expansion of the Theory of Reasoned Action (TRA) is the Theory of Planned Behavior (TPB) (Fishbein & Ajzen 1975, Ajzen & Fishbein 1980). Both theories are predicated on the idea that people assess the information at their disposal and use reason and logic to decide which behaviors to engage in. The desire of the individual to do a behavior (which is impacted by the value the individual places on the behavior, how easy it is to accomplish, and the opinions of others) and the belief that the behavior is under his or her control govern the behavior's performance.

The Theory of Reasoned Action (TRA), which contends that three factors—attitude, subjective norm, and perceived behavioral control—determine human action, was expanded upon by Ajzen (1991) and named the Theory of Planned Behavior (TPB). Subjective norm refers to one's comprehension of social pressure or expectation to perform or avoid performing a certain behavior; attitude is one's positive or negative assessment of carrying out a particular behavior; and perceived behavioral control is one's perception of how easy or difficult it is to carry out a given action, which is influenced by opportunity and resource availability (Taing & Chang, 2021).

The TPB holds that these three variables affect a person's intention to carry out a particular behavior, which in turn influences the behavior itself. It also presupposes that intention is a more accurate indicator of behavior when the behavior is volitional, or

when the person has total control over the behavior. The TPB has been extensively used in a number of social psychology domains, such as tax compliance studies. According to a study by Taing and Chang (2021), employed the TPB to explain how tax payers' intentions and behavior are influenced by their attitudes, subjective norms, and perceived behavioral control. They discovered that taxpayers who have favorable attitudes toward taxes, strong social norms supporting tax compliance, and a strong sense of control over their tax affairs are more likely to comply with their tax obligations.

2.2.2 Innovation Diffusion Theory

The innovation diffusion theory is traced back to Rogers and looks at how the rate at which innovation is being dispersed. There exists four components that determine the dissemination of a new idea; the innovation or the new idea, communication channels, time to allow for adoption and lastly the social system. These go through a process of diffusion consisting five stages namely; knowledge, persuasion, decision, implementation and confirmation. The result is six categories of users namely; innovators, early adopters, early majority, late majority, laggards and the leapfroggers which normally take up a sigmoid shape ((Robertson, 1967).

The innovators are those who risk exploration of new ideas and technologies and account for approximately 2.5% of the market share. For early adopters, they are those opinion leaders who give referrals and share positive testimonials about the innovations. They do not require much persuasion as they are already open minded and may actually be interested in some change. They account for roughly 13.5%. On the other hand, the early majority are those willing to adopt new technologies of convinced by positive reviews from earlier adopters forming 34% of the market share. The late majority are the skeptics and are reluctant for any changes unless they feel strongly left

behind. Lastly, the laggards always stick to the old proven ways of doing things and account for 16% of the market share. They trust their past experiences and only adopt new products when the adoption is available (Hanlon, 2013).

According to Schumpeter (1976), the innovation diffusion theory is a form of creative destruction arguing that it was creating a new one and destroying the old one. Initially, the innovation diffusion theory was utilized to research on marketing and consumer behavior but since the proposal of Bass Diffusion Model which showed the interaction between innovators and the imitators it has been applied widely from retail services, technology to even agriculture andeducation among others (Li &Sui, 2011). This theory guides the second variable, digitalization.

2.2.3 The Ability to Pay Theory

Adam Smith in The Wealth of Nations (1776), stated that such things as defending the country and maintaining the institutions of good government are of general benefit to the public. Thus, it is reasonable that the population as a whole should contribute to the tax costs. It is also reasonable to demand certain other things of a tax system for instance, that the amounts of tax individuals pay should bear some relationship to their abilities to pay.

The ability to pay theory indicates that, every person should pay taxes to the government depending on his or her ability to pay Zolt & Bird, (2003), Rai, (2004); Chodorow, (2008); Batt, (2012). The insinuation in this theory is that the wealthy class people should pay higher taxes to the government, because without the protection of the government authorities, they could not have enjoyed the income that they earn. Adam Smith argued that the taxes should be proportional to the income Zolt & Bird, (2003); Rai, (2004); Chodorow, (2008); Batt, (2012). It can therefore be argued that

this is one of the critical principles of tax because it advocates for tax to provide equity in its application, wherein those who have the financial resources should make the payment.

This theory propagates that people should be asked to pay taxes according to their ability to pay and assessment of their taxable capacity should be made based on the basis of income and property. The most popular and accepted principle of equity or justice in taxation is that citizens of a country should pay taxes to the government in accordance with their ability to pay (Limerick, 2013). It can therefore be argued and appears reasonable and just that taxes should be taxed on the basis of the taxable capacity of a person and in using this principle it can be stated that if the taxable capacity of one individual is greater than that of the other person, that person who earns more should be asked and expected to pay more taxes in comparison with the one who earns less. This theory guides the third and fourth variables, taxpayer morale and taxpayer awareness.

2.2.4 Economic Deterrence Theory

Economic Deterrence theory is a theory under criminology and was developed by Becker (1968). This theory is based on the concept that, if the consequence of committing a crime outweighs the benefit of the crime itself, the individual will be deterred from committing the crime. This is founded in the idea that all individuals are aware of the difference between rights and wrong and the consequences associated with wrong or criminal behaviors. Proponents of deterrence theory believe that people choose to obey or violate the law after calculating the gains and consequences of their actions.

Economic Deterrence model, one of the economic based models was developed by Allingham and Sandom (1972) who extended the expected utility model of criminal activity originated by Becker (1968) to the tax arena. This model incorporates the concept of an economically rational taxpayer who will evade taxation as long as the pay-off from evading is greater than the expected cost of being caught (Allingham and Sandmo (1972). The economic definition of taxpayer compliance views taxpayers as 'perfectly moral, risk-neutral or risk-averse individuals who seek to maximize their utility, and chose to evade tax whenever the expected gain exceeded the cost (Milliron and Toy, 1988). Thus, a pure 'cost-benefit' approach is given for why or why not taxpayers may comply with the tax laws. Some researchers propose that individuals are expected to weigh 'the uncertain benefits of successful evasion against the risk of detection and punishment (Fischer et al, 1992).

Consequently, a penalty structure forms part of the punishment, and is a critical factor in an individuals' choice to evade tax. The models which have been based on the economic theory of compliance generally focus on deterrence. Deterrence can be achieved through a number of approaches, punitive and persuasive. That is, deterrence may take on the form of increasing the probability of detection, increasing the tax rate or by the imposition of tougher penalties (Fischer et al, 1992). Alternatively, it may take on the form of better education, increased advertising/publicity and incentives (Hite, 1989). The economic deterrence model has been commonly used to examine tax evasion and compliance from a theoretical perspective (Jackson & Milliron, 1986).

Tax penalties are just one of the many factors that drive taxpayer compliance. Other drivers include risk aversion, personal and social norms, opportunities, fairness and trust and economic factors (OECD, 2010). Reliance only on tax penalties is thus not effective. To achieve the best results, the knowledge of taxpayer behavior is critical,

yet extremely complex. As is the relationship between tax penalties and tax compliance (OECD, 2010; Poppelwell et al., 2012). The theory states that taxpayer's behavior is dependent on factors such as complexity of the tax system, probability of receiving audit coverage, penalties for non-compliance, and tax rates among others (Allingham and Sandmo, 1972).

This implies a "cost-benefit" approach whereby it is argued that some taxpayers weigh the benefits of successful evasion against the risk of detection and possible penalties. Consequently, when the likelihood of detection or penalties is high the likelihood of tax evasion is low and vice versa. There is evidence to support use of this theory by tax administrations in addressing non-compliance. For instance, Chauke and Sebola (2019) in their paper conclude that the deterrence theory is the most applicable in municipalities and the South African Revenue Service revenue collection strategies as taxpayers do not pay taxes willingly but coerced. This study uses this theory to impose enforcement measures on the medium taxpayers by increasing the probability of detection in the event of tax evasion

2.3 Empirical Review

This section focused on the review of past empirical studies on the objectives of the study.

2.3.1 Digitalization on Value Added Tax Compliance

Amitabh (2019) examined the advantages of online tax filing on 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 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.

Olaoye and Ayodole (2019) did research with the aim of providing empirical evidence on how information technology affected taxation situation in Nigeria. 'Data was obtained from professionals from Southwest Nigeria States. Analysis of data was done descriptively and in content analysis. Upon data analysis, it was revealed that online tax filing with proper and timely sensitization enhance tax compliance. The authors indicated that seminars and sensitization efforts on adoption of any new tax administration system would foster tax compliance.

Mwonge (2021) conducted a study that sought to establish the impact of electronic tax filing on tax compliance in Uganda. He found out that with the commencement of an e-filing system (e-Tax) in June 2009, at least UShs. 7 trillion worth of revenue arising from 1.4 million payments has been receipted through electronic tax payments. This revenue is arising due to over 360,000 tax returns that have been received online. He made the recommendations that the tax authority should upgrade the e-Tax servers, incorporate user friendly features to improve tax payers' interest in the use of the system and embark on a nationwide sensitization program to enhance the adoption of the digital system.

Madola (2022) in his exploration on the factors affecting adoption of ITMS by SMEs in Nairobi revealed that perception of taxpayers towards e-filing technology as well as its perceived ease of use and perceived usefulness greatly determine the adoption and usage of the system. Over 88.9% of the 245 taxpayers interviewed in Nairobi considered e-filing a useful idea and its availability increases compliance to tax obligations, particularly because they find the online system efficient as compared to

the manual system. This could also be a reason as to why those who do not feel the e-filing technology is a necessary or efficient system are yet to appreciate it and use it.

Mutai (2021) did a study on the factors that influence adoption and use of e-filing system among Large Taxpayers in Kenya. The study examined the skills required by the users of e-filing, the technology required and the tax authority's preparedness in enhancing the adoption of tax compliance-based technology. The study found that for e-filing to effectively take off in Kenya skills, infrastructure and a conducive business environment are needed.

2.3.2 Tax morale on Value Added Tax Compliance

Fischer and Schneider (2019) show that tax morale affects the interplay between trust and power. However, this work uses tax morale as a proxy of overall tax compliance and focuses on the effect of tax morale, education, and political/democratic rights on the interplay between trust and power. Indeed, a high level of tax morale does not necessarily imply a high level of (overall) tax compliance, since tax morale, unlike tax evasion, does not measure individual behavior but rather individual attitude.

Torgler (2020) studied religiosity (church attendance), trust in the President, trust people to obey the law, perception of being caught, satisfaction with national officers, national pride, pro-democratic attitude and wealth. Alm et al., (2021) considered the effect of confidence in the courts, pride and perception of tax evasion. Alm and Torgler (2021) considered the effect of confidence in the courts, trust in parliament and church attendance. Alm and Torgler (2019) referred church attendance, trust in legal system and trust in the parliament. Torgler (2023) considered religiosity (church attendance, religious education, being active in a church group, importance of religion, religious guidance), corruption and trustworthiness. Torgler and Schneider (2023) considered

direct democracy, national pride, trust in political institutions and government and attitude towards democracy. Horodnic (2019) conducted a study on tax morale and institutional theory: a systematic review of factors that shape tax morale across United Kingdom. The study adopted systematic search using a library catalogue which provided access to more than 400 databases. The findings of the study showed that the theory of tax morale has several factors that can identify with tax morale except for the control variables and socio demographic factors. The study found that the most salient factor is trust, with both vertical and horizontal trust positively related to tax morale. Based on the empirically reviewed literature, it is evident that tax morale is determined by a myriad of factors which can generally be considered intrinsic human behavior. The study looked at perception and beliefs as some of these intrinsic factors.

Ahmad *et al.* (2020) conducted a study on the determinants of tax morale: survey evidence from undergraduate students in Malaysia. The study variables included perception of tax morale among accounting and non-accounting students. The study used adapted survey questionnaire from previous literature using the data collected from the undergraduate students. The data was measured against a four-point Likert scale. The findings of the study showed that tax rate, fair tax system, government spending, corruption in government, taxpayer financial constraints and religion influence the student's perception on the level of tax morale.

2.3.3 Tax Awareness on Value Added Tax Compliance

Klemm and Parys (2019) also revealed that compliance to VAT may be enhanced and can create a difference in the people's mindset to pay taxes willingly. To enhance compliance from micro and small enterprises, the ideal tax system should be easier to implement and simple to be understood by members of the public. Complexity of the systems can contribute to evasion and avoidance. Compliance in any tax system

especially VAT always requires self-declaration and awareness by the tax payers. However, it was noted that the study was confined to the United States of America and failed to address issues of this study.

Chilibasi (2022) also noted that taxpayers' awareness can be divided into; formal education that entails knowledge received by tax payers to have an in-depth understanding of the implications of evading taxes. The education received by taxpayers involves a thorough understanding of the laws and regulations of taxation and the ability to comply. However, the study was confined to different variables like tax policies, business growth but failed to address variables of this study.

According to Oladipupo and Obazee (2018) in their investigation on the impacts of tax awareness and penalties on tax compliance amongst small and medium enterprises in Nigeria using a survey research design. The data obtained from questionnaires were analyzed using the Ordinary Least Square regression method. The results showed that tax knowledge had a positive significant impact on tax compliance Thus, the study shows that tax knowledge has a higher tendency to promote tax compliance. Small and medium scale business owners should also seek to advance their tax knowledge and awareness for the mutual benefits of the governments and taxpayers.

Otieno (2022) studied the effect of taxpayers' education on VAT Compliance among Small and Medium Sized Enterprises in Kenya and established that, despite the increased number of Micro and Small Enterprises in Kenya, majority (72%) of them are not compliant to VAT. It was noted that most of the industry players were willingly dodging to submit their VAT due to inappropriate mechanisms to monitor and track business transaction. However, it was noted that the study was confined to one variable

and concentrated on Small and Medium Sized Enterprises in Mavoko Municipal Council.

2.3.4 Deterrent Measures as a moderator

Tax deterrent measures play a crucial role in shaping taxpayer compliance behavior. When taxpayers perceive that deterrence is strong and effective, they are more likely to comply with tax laws. This relationship between tax deterrent measures and taxpayer compliance can be moderated by various factors Alm, (2022). When deterrence is perceived as strong and consistent, taxpayers are more likely to coordinate their actions towards compliance. Tax deterrent measures that are perceived as fair and legitimate can enhance compliance by fostering trust between taxpayers and tax authorities, Braithwaite, (2019).

Bobek, Hageman and Kelliher (2022) analysed the role played by deterrent measures in enhancing tax compliance behaviour. The study involved testing of hypotheses and therefore correlation design was adopted. A total of 174 respondents were sampled and included in the study forming the study sample. The findings indicated that deterrent measures on tax compliance have positive influence on the decision to comply with taxes. On the other hand, the general expectations of the society as well as individuals' actual behaviour have indirect influence in tax compliance behaviour among tax payers. This indicates that deterrent measures have direct influence on compliance behaviour of the tax payers.

Kilonzo, (2021) conducted a study on effects of tax amnesty and revenue growth in Kenya adopted using descriptive research design. The study analysed Secondary data after targeting individuals and corporate tax payers. Convenience sampling method was used to select the period of research Kenya had a tax amnesty in 2016. The findings

revealed that tax amnesty does not have a positive effect on tax revenue growth. This study focused on other times since times have changed since the research was conducted. The study also determined income tax revenue by use of a tax deterrent tool called tax amnesty that differs from this study whose tax deterrent tool is not tax amnesty but PIN deactivation.

According to (Ombasa,2020) on influence of deterrent measures on tax debt, the independent variables such as issue of agency notices, security on immovable assets, distraints and court suits were analysed to find their relationship with tax debt revenue realization. The study was carried out in Kenya whereby secondary data from KRA debt reports was mined for 10 years spanning from 2010 to 2020. It was found that among the four predictors agency notice had a positive coefficient. The study focused on debt collection that was different from income tax revenue.

2.4 Summary of Literature and Research Gaps

The gaps established in the literature had signs of methodological, conceptual and contextual knowledge gaps.

Maple and Jones (2011) carried out a comparative study on small tax dispute resolution in New Zealand. The New Zealand case was compared with Australia and Canada. The study concluded that administrative changes implemented in the New Zealand tax dispute process by Inland Revenue in 2010, including the ability to opt-out of the process after the conference and limiting the length of NOPAs, are positive steps. The study recommended that if the dispute remains unresolved, in whole or in part, taxpayers' review and appeal rights are affected in any way. The study was done in New Zealand while this study was done in Kenya hence presenting a contextual gap.

According to (Ombasa,2020) on influence of deterrent measures on tax debt, the independent variables such as issue of agency notices, security on immovable assets, distrains and court suits were analysed to find their relationship with tax debt revenue realization. The study was carried out in Kenya whereby secondary data from KRA debt reports was mined for 10 years spanning from 2010 to 2020. It was found that among the four predictors agency notice had a positive coefficient. The study focused on debt collection that was different from income tax revenue. The study used tax debt as dependent variable while the current study will use Value Added Tax Compliance as a dependent variable hence an existence of conceptual gap.

Olaoye and Ayodole (2019) did research with the aim of providing empirical evidence on how information technology affected taxation situation in Nigeria. 'Data was obtained from professionals from Southwest Nigeria States. Analysis of data was done descriptively and in content analysis. Upon data analysis, it was revealed that online tax filing with proper and timely sensitization enhance tax compliance. The authors indicated that seminars and sensitization efforts on adoption of any new tax administration system would foster tax compliance. The study used descriptive research design but the current study used explanatory research design thus methodology gap.

2.5 Conceptual Framework

A conceptual framework is a visual pictorial diagram which gives a clear inter-relationship between independent and dependent variables of the study (Mugenda & Mugenda, 2003). The conceptual framework shows how the independent and dependent variables are related. The Three independent variables are Digitalization was measured by TIMS and Value-Added Assessment (VAA). Tax morale was measured by perception and beliefs. Taxpayer awareness which was measured by due date and

tax rate. Dependent variable was Value Added Tax compliance measured by tax payments and returns filed while moderating variable was Deterrent measures which was measured by PIN deactivation. The conceptual framework of this study is presented in figure 2.1.

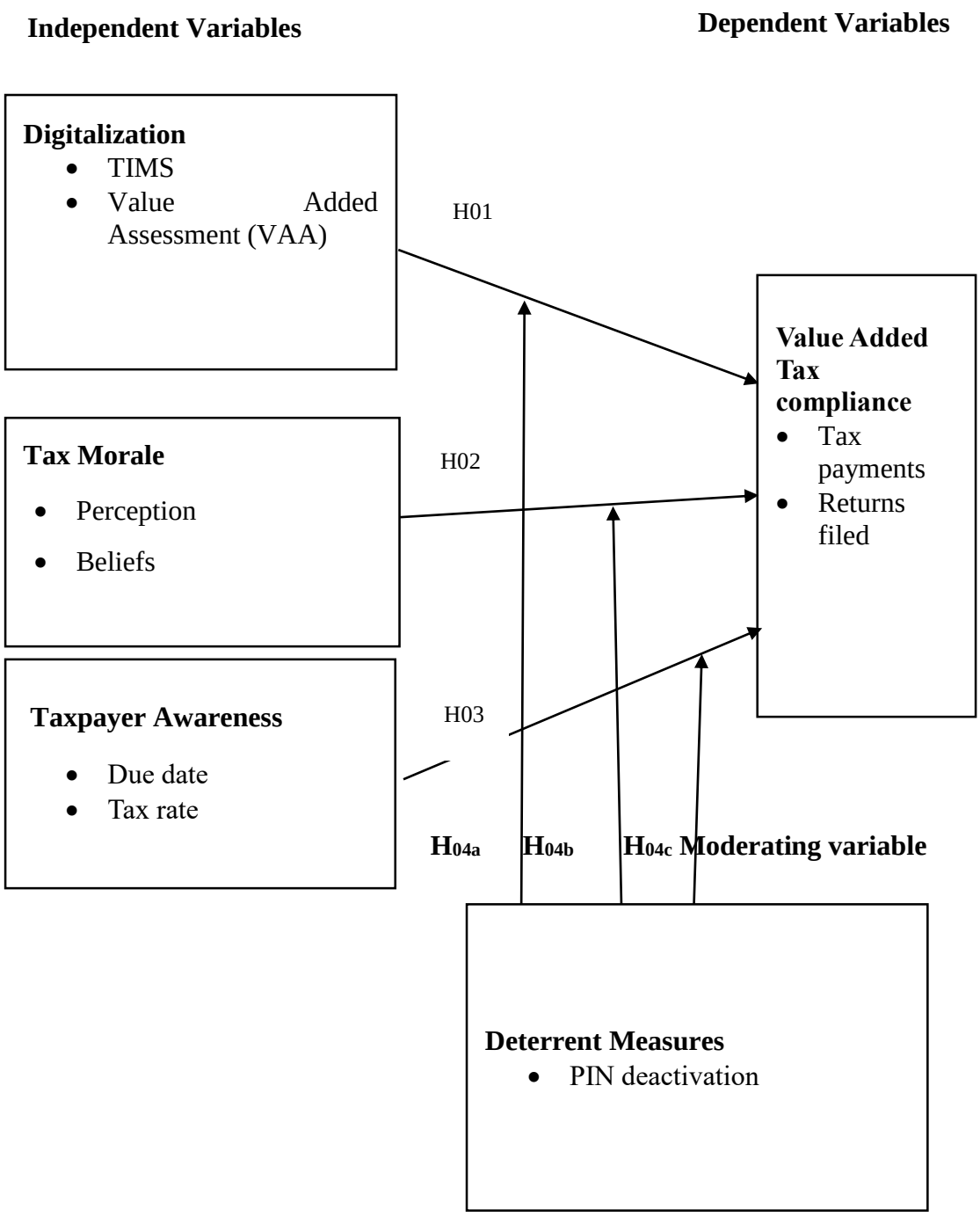

Figure 2.1: Conceptual Framework

(Source: Research 2024)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research methodology to be adopted in conducting the study in order to achieve the study objectives. The chapter covered research design, study population and sampling techniques, data instrument, data collection procedures, diagnostic test, operationalization of variables, data analysis presentation and ethical issues.

3.2 Research Design

Research design is the blueprint used to guide a research study to ensure that it addresses the research problem. It provides a framework that guides the determination of the data to be collected and how it was analyzed. There are three broad types of research designs, namely exploratory research design; descriptive research design; and causal research design (Blatter & Haverland, 2012). While Robson (2002) pointed out that a research design as the overall plan for obtaining answers to the questions being studied and for handling some of the difficulties encountered during the research process. Thus, research design facilitates the smooth sailing of the various research operations been undertaken, thereby making research as efficient as possible, yielding maximal information with minimal expenditure of effort, time and money.

The study applied explanatory research design. Saunders *et al*. (2007) state that explanatory studies seek to describe the characteristics of the variables and at the same time investigate causal relationships between variables. The research used explanatory research design, mainly because it is more consistent with the general objective of the study, which sought to investigate the moderating role of deterrent measures on selected

determinants affecting value added tax compliance among medium taxpayer in north of Nairobi tax district, Kenya.

3.3 Target Population

According to (Kothari, 2004), population refers to a group of individuals, things, elements, households that are well-defined and which are being examined. Zikmund (2011) describes population as the entire group of individuals or items under consideration in any field of inquiry and have a common attribute. The target population was 2,376 VAT registered medium taxpayers in north of Nairobi tax district, Kenya (KRA, 2023).

3.4 Sampling Method and Sample Size

Sampling method as described by Tuner (2020) are techniques used to choose a specific population to collect data for research and may include methods such as random, nonrandom, stratified, cluster and systematic methods. Bowley (1936) gave an emphasis on the importance of having a complete frame of equal probabilities in selection of samples from a given population and this formed the early contributions towards the introduction of the Stratified Random Sampling Method between the years of 1920s through to 1960. This form of sampling method classifies the population into subgroups known as ‘strata’ of shared characteristics, from which individuals of each strata are randomly selected for the study. The stratification process is to be mutually exclusive, meaning members of the population must belong to only one strata. Some of the shared characteristics of the strata may include gender, age and level of education among other characteristics. This study adopted the Stratified Random Sampling Method.

Zikmund (2011) describes sample size as that part of the population chosen for the study as representative of the whole population. Blumberg et al. (2003) describes a sample or a sample size as that part of the research target that was referred through the study and its findings are used to generalize for the entire population. The sample size significant as a result of its impact on statistical power. Statistical power is how basically how a study is likely to differentiate an actual result from one of probability (Morgan, 2001). Therefore, this study adopted the formula by Yamane (1957) is as indicated below to determining the sample size.

$$n = \frac{N}{1 + Ne^2}$$

Where:

n = size of sample

N = size of the population (1,343)

e = Margin of error is 5%

$$n = \frac{2376}{1 + 2376(0.05)^2}$$

n = 342 medium taxpayer in Nairobi County, Kenya

3.5 Sampling Frame

A sampling frame is a list or database that contains all the elements or members of a population from which a sample is to be drawn for a study or survey. It serves as a practical representation of the population and is used to ensure that every member has a known, non-zero chance of being included in the sample (Anderson 2018).

Table 3.1 Sample frame

Category	Target population	Sample Size	Percentage (%)
Wholesalers	624	90	26.3
Retailers	978	141	41.2
Services	774	111	32.5
TOTAL	**2376**	**342**	**100**

3.6 Data Collection Instrument

According to Teddlie & Tashakkori (2009), data collection tools refer to devices used to collect data such as questionnaires, structured interview schedules and checklists. For this study, questionnaire was used as the main tool for primary data collection from the sampled respondents. The questionnaire contained closed-ended questions on a 5-point Likert scale, which was validated in order to help identify any ambiguous and unclear questions to the respondents. Saunders (2003) posits that a questionnaire is useful in obtaining objective data because participants are not manipulated in any way by the study. He further added that the questionnaires as a tool for collecting primary data have the added advantage of being less costly and time saving. The questionnaire was divided into two sections with the first section enquiring bio demographic information about the respondents while the second section addresses the study variables.

3.7 Data Collection Procedure

The data collection procedure utilized a structured approach to enhance clarity and reliability, as recommended by Cooper and Schindler (2012), who noted that questionnaires are most effective when they contain standardized questions interpreted consistently by all respondents. To facilitate this, the researcher distributed online invitation links to the questionnaire, enabling respondents to access the study conveniently and securely. This approach allowed for clear communication regarding

the study's purpose, with an introductory message included in the invitation link that established rapport and provided explanations for any items that respondents might find unclear.

To support the data collection process, the researcher contracted a trained and competent research assistant who helped in monitoring the online questionnaire distribution and follow up, ensuring a consistent and standardized process. Prior to initiating the study, the researcher obtained formal authorization from Moi University, the National Commission for Science, Technology, and Innovation (NACOSTI), and acquired a research permit from NACOSTI. Respondents were treated with respect, and all information gathered was used exclusively for academic purposes, thereby upholding ethical standards in data collection and protecting the confidentiality of the respondents' information.

3.8 Pilot Testing

Pilot testing is a measure of the dependent variable among themes. Its rationale is to confirm that elements in the questionnaire are stated unambiguously and have the similar sense to all participants (Mugenda & Mugenda, 2013). The aim of pre-testing the questionnaire is to ensure that the elements in the questionnaire are stated plainly and have the same connotation to all contributors. It also helps in determining whether there are errors, limitations or other weaknesses within the design and allows the researcher to make necessary adjustments and corrections before embarking on the data collection (Creswell, 2017).

Pretesting was carried out by the researcher to spot the weak point in the design, the data to be collected, instruments and procedure to be applied in carrying out the study. According to (Cooper & Schindler, 2011), a pre-test should range from 1% to 10%

depending on the sample size. For this reason, the researcher administered the questionnaire on 34 respondents from Nakuru town. Respondents who took part in pilot testing were not included in the final study.

3.8.1 Validity Test

Validity is the degree to which an instrument measures what it is supposed to measure. (Kothari, 2004) Therefore, the term refers to the extent to which an instrument asks the right questions in terms of accuracy. A conclusion of any study can be affected by either a researcher's bias or subjective judgment in the data collection process. Accordingly, the researcher must provide supporting evidence that a measuring instrument does in fact measure what it appears to measure. There are four main validity tests of the questionnaire namely; face validity, content validity, construct validity and criterion or concrete validity.

In this study, content validity was tested in that it tests the appropriateness of words, phrases and sentences as used to indicate the variables in the questionnaire. Content validity tests whether items are suitable in representing variables. In an attempt to improve validity, VAT experts and the University supervisor were requested to comment on validity of the questionnaire and also factor analysis was tested to validate the research instrument.

3.8.2 Reliability of the Study

Sekaran (2003) notes that reliability is a measure of stability and consistency with which instruments measure the concept. According to Nunnally (1978), there are many factors that can prevent measurements from being repeated perfectly. Cronbach's alpha was used to evaluate the unidimensionality of a set of scales items and compare the two scores obtained, Nunnally (1978) argued that a Cronbach's alpha value of 0.7 and

above, proves that the research instrument is reliable. This study adopted a coeffient of 0.7 as the benchmark for reliability.

3.9 Factor analysis

Factor analysis is the practice of condensing many variables into just a few, so that your research data is easier to work with. In the context of questionanre data, the multidicmensional nature for latent constructs through items needed to be reduced. Factor analysis is also sometimes called dimension reduction: you can reduce the dimensions of your data into one or more “super-variables,” also known as unobserved variables or latent variables. This process involves creating a factor model and often yields a factor matrix that organizes the relationship between observed variables and the factors they’re associated with.(Webster, 2024)

3.9.1 KMO and Bartlett’s test

The KMO test (Kaiser-Meyer-Olkin test) assesses the suitability of data for factor analysis by measuring the degree of coherence between variables. The test score varies between 0 and 1, and values greater than 0.5 are considered suitable for factor analysis Bartlett's test has a significant value when correlations between variables are large enough to be used in factor analysis. Bartlett's test is appropriate when the significance value is less than 0.05.(Mayer, 2006).

3.10 Statistical Assumptions

Statistical assumptions have been defined to be the general assumptions about statistical populations. For a researcher to make accurate and valid conclusion about real statistical tests some appropriate background assumptions need to be made. Test of assumptions helped in ensuring the validity of analysis and avoiding hypotheses errors.

The diagnostic tests that were done included; Linearity, Normality, Multi-collinearity tests and heteroscedasticity tests.

3.10.1 Normality Test

Normality test was carried out using the Shapiro-Wilk 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 Multicollinearity

High correlation among explanatory variables is known as multicollinearity and distorts efficacy of model estimates and significance (Melo & Kibria, 2020). Input variables are assumed to be independent of each other for regression outputs to negate the likelihood of being spurious results. Moreover, multicollinearity complicates regression analysis as predictors are factors of each other. As a result, the output generated is erroneous. In this study, Variance Inflation Factor was used to assess existence of multicollinearity. Rule of thumb is if $VIF<10$ and the tolerance >0.1, multicollinearity is low and all input factors can be used.

3.10.3 Linearity

Checking for linearity is crucial as several statistical techniques hinge on the assumption that the data exhibits a linear relationship. This assumption is particularly relevant when the sampled data is drawn from a population where the variables of interest demonstrate a linear connection. Hence, before employing widely-used methods like linear regression, it is imperative to conduct linearity tests, as advocated by Geiger, Parthasarathy, Kuyel, Jin, and Chen (2005). In this study, linearity tests were

conducted individually for each variable to assess the likelihood of the data originating from a linearly structured population. The Ramsey RESET test was used to determine whether the relationship is linear, with a $p>0.05$ indicating that the relationship between the predictor variables and the outcome variable in the study doesn't significantly deviate from linearity.

3.10.4 Heteroscedasticity Test

To assess heteroscedasticity, two tests, namely the Breusch-Pagan/Godfrey test (1979) and the Modified Wald test as outlined by Shrestha (2020), were employed. If the null hypothesis suggests homoscedasticity, it is rejected $p<0.05$ if there is evidence that the error term exhibits variation. Heteroscedasticity means that the variance of errors from the regression line is not constant and not homoscedastic. The Breusch-Pagan/Godfrey test was usedto test heteroscedasticity in a linear regression model (Pedace, 2016).

3.11 Data Analysis and Presentation

Data analysis is the process where collected data is reduced to a more controllable, convenient size, and where the researcher can start to identify trends or patterns, apply statistical techniques and summarize the data (Cooper and Schindler, 2008). Malhotra, and Birks, (2006), on the other hand, describe data analysis as the editing, coding, transcription and verification of data. Questionnaires received from respondents were checked for completeness to maintain the number of respondents. Frequencies and percentages were used to summarize data collected, whilst summary statistics including tables was used to present the findings. The analyzed data was summarized using descriptive statistics such as mean and frequency distributions, standard deviation and percentages, inferential statistics was used on regression analysis and correlation analysis. Pearson's correlation coefficient was used to determine the relationships

between variables. The software's used for analysis were IBM SPSS version 25, and Stata version 12.

3.12 Conditions for moderation

Step 1: The baseline model (outcome) just includes the dependent variable and the independent variables (predictors). Without accounting for moderation, this step evaluates the predictor variables' direct impact on the outcome.

Step 2: Moderating variable should be inserted into the model. This phase looks into whether the moderating variable changes how the predictors and the outcome are related. Baron and Kenny (1986) argued that moderation becomes relevant only when path C, or the interaction between pathways A and B, is statistically significant (i.e., has a p-value of less than 0.05).

Step 3: In the model, interaction terms between each predictor and the moderating variable are introduced. This phase carefully evaluates the moderating effect by determining if the interaction terms are statistically significant.

Step 4: The main effects of the moderating variable, the main impacts of the predictors, and the interactions are included when evaluating the overall model fit. In this step, the relationship between all the factors and the variation in the result variable is examined. The term "hierarchical" refers to the methodical addition of interaction terms one after another, assessing the cumulative impacts hierarchical regression.

3.12.1 Hierarchical Regression

The following hierarchical regression analysis was used to establish the moderating role of deterrent measures on selected determinants on value added tax compliance among medium taxpayer in north of Nairobi tax district, Kenya.

The study adopted a Hierarchical Multiple Linear Regression analysis as shown

Equation (i)

$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + e$……...before moderating variable.

Equation (ii)

$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + M + e$

Equation (iii)

$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + M + MX_1 + e$

Equation (iv)

$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + M + MX_1 + MX_2 + e$

Equation (v)

$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + M + MX_1 + MX_2 + MX_3 + e$ ……...after moderating variable.

Where;

Y = Value Added Tax Compliance

β_0 = Constant (Coefficient of intercept)

$\boldsymbol{\beta}_1$, $\boldsymbol{\beta}_2$, and $\boldsymbol{\beta}_3$ = Beta coefficients of the independent variables

X_1 = Digitalization

X_2 = Tax Morale

X_3 = Tax Awareness

M = Deterrent measures

X_1 M= Digitalization * Deterrent measures

X_2 M= Tax Morale * Deterrent measures

X_3 M= Tax Awareness * Deterrent measures

ε = error term

3.13 Measurement of Variables

This section contains the measurement of variables and how they were operationalized.

3.13.1 Dependent variable

The dependent variable was Value Added Tax Compliance. The variable was measured based on a five-point Likert scale validated by KRA (2023)

3.13.2 Independent Variables

The independent variables were digitalization which was measured by TIMS and Value-Added Assessment (VAA). Tax morale was measured by perception and beliefs. Taxpayer awareness which was measured by due date and tax rate. The variables were measured based on a five-point Likert scale validated by previous scholars Twesige (2021), Amitabh (2019) and Klemm and Parys (2019)

3.13.3 Moderating Variable

The moderating variable was deterrent measures which was measured by PIN deactivation based on a five-point Likert scale validated by Alm, (2022).

3.14 Operationalization of variables

The measurement of variables in the study and relationship between the variables and the survey questions are illustrated in table 3.2.

Digitalization is operationalized using the Value Added Assessment (VAA), which refers to the process of evaluating the impact and integration of digital technologies within a given context. According to Twesige (2021), digitalization can influence various business operations, including tax compliance. The measurement is captured through a questionnaire employing a 5-point Likert scale. The data will be analyzed

using regression analysis and correlation analysis to identify relationships and predictive factors.

Tax morale, defined as the internal motivation to comply with tax obligations, is measured through individuals' perceptions and beliefs. This variable captures how personal and societal views on tax compliance influence behavior. The instrument used is a questionnaire, and responses are gathered using a 5-point Likert scale. Regression and correlation analyses are applied to understand the strength and nature of these relationships.

Tax awareness refers to how much individuals are informed about the tax system, including deadlines and rates. Indicators include awareness of the tax due date and the tax rate. This variable is also captured using a 5-point Likert scale within a questionnaire. The data analysis will involve regression and correlation analyses to assess the influence of awareness on compliance.

The moderator variable deterrent measures is operationalized by the indicator PIN deactivation, which is a security measure implemented to deter non-compliance. According to Alm (2022), measures like PIN deactivation can act as external motivators to ensure compliance. A questionnaire using a 5-point Likert scale is used for data collection, and analysis will be conducted using regression and correlation methods.

VAT compliance is measured by tax payments and returns filed. The Kenya Revenue Authority (KRA, 2023) provides data related to tax payments and VAT returns. This variable is also captured using a 5-point Likert scale, and analysis will focus on

regression and correlation to evaluate the relationship between the independent variables and VAT compliance.

Table 3.2: Operationalization of Variables

Variables	Indicators	Source/ author	Data collection instrument	Measurements scales	Analysis
Independent Variable	TIMS	Twesige (2021),	Questionnaire	5point likert	Regression Analysis
Digitalization	Value Added Assessment (VAA				Correlation Analysis
Tax morale	Perception beliefs	Amitabh (2019)	Questionnaire	5point likert	Regression Analysis Correlation Analysis
Tax Awareness	Due date Tax Rate	Klemm and Parys (2019)	Questionnaire	5point likert	Regression Analysis Correlation Analysis
Moderator Variable Deterrent measures	PIN deactivation	Alm, (2022).	Questionnaire	5point likert	Regression Analysis Correlation Analysis
Value Added Tax Compliance	Tax payments Returns filed	KRA (2023)	Questionnaire	5point likert	Correlation Analysis

(Source: Research 2024)

3.15 Ethical Consideration

Ethical Issues are norms governing human conduct which have a significant impact on human welfare. It involves making a judgment about right and wrong behavior (Kumar, 2011). Before data collection, permission to carry out research from the relevant authorities such as NACOSTI for data collection, an introduction letter was also obtained from Moi University.

The researcher was also adhering to all ethical issues of honesty, cultural sensitivity, informed consent, and voluntary participation. Moreover, respect for intellectual property was ensured by honoring patents, copyrights, and acknowledgment of other contributions from various parties and scholars. This was done through informing them in advance of the importance of the study and participation was on willing basis.

Respondents were at liberty to pull out from the study any time they felt not comfortable proceeding with the survey. Personal particulars like name and address were not disclosed.

3.16 Limitations of Study

Firstly, sampling bias was a concern, as the population was limited to VAT-registered medium taxpayers in a specific geographic area. This did not fully represent the broader taxpayer population across Kenya, especially in rural or low-income areas, potentially skewing the results. As noted by KRA (2023), the concentration of VAT-registered taxpayers in urban areas led to the overrepresentation of certain demographic or business profiles, which might not have accurately reflected the entire medium taxpayer population.

Additionally, response bias may have affected the results, as participants could have been inclined to provide socially desirable responses, particularly regarding tax morale, awareness, and compliance. This was likely influenced by the sensitivity of tax-related issues, where respondents might have underreported or overreported their tax behavior due to fear of scrutiny or the desire to present themselves as compliant (Amitabh, 2019).

The use of self-reported data through questionnaires also presented limitations in terms of accuracy and reliability. Respondents may not have always recalled tax-related information accurately or may have interpreted questions differently, leading to inconsistencies in the data. Moreover, language barriers or differences in understanding tax terminology may have further impacted the quality of the responses, as the questionnaire may have used technical terms that were not well understood by all respondents.

In terms of analysis, the use of a 5-point Likert scale may not have captured the full complexity of respondents' views, particularly when it came to more nuanced perceptions of tax morale or awareness. The scale's limited range could have constrained the ability to detect subtle variations in attitudes or behaviors, which might have been significant to the study's objectives (Klemm & Parys, 2019). Furthermore, while regression and correlation analyses provided valuable insights, they were based on assumptions such as linear relationships, which did not always hold true in the real-world data, potentially limiting the validity of the findings.

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION OF FINDINGS

4.1 Introduction

This chapter involves the comprehensive analysis and interpretation of questionnaire data collected in relation to the objectives of the study, establishing moderating role of deterrent measures on selected determinants on value added tax compliance among medium taxpayer in north of Nairobi tax district, Kenya.

4.2 Reliability Test

According to Nunnally (1978), there are many factors that can prevent measurements from being repeated perfectly. Cronbach's alpha was used to evaluate the unidimensionality of a set of scales items and compared the two scores obtained. Cronbach's alpha>0.7 indicates high levels of relaibility. In this study, the purpose of conducting a reliability test was to ensure that the measurement instruments used to assess each latent variable (Value Added Tax Compliance, Digitalization, Tax Morale, Tax Awareness, and Deterrent Measures) consistently captured the constructs they were intended to measure. Reliability testing helps determine the internal consistency of a scale, providing confidence that the items within each variable produce similar results under consistent conditions.The reliability was tested using item wise reliability scale.

Table 4.1: Reliability Tests

Variable	Cronbach's Alpha	N of Items
Value Added Tax Compliance	0.988	5
Digitalization	0.852	6
Tax Morale	0.933	5
Tax Awareness	0.857	6
Deterrent Measures	0.976	5

(Source: Research 2024)

Table 4.1 shows that the Value Added Tax compliance had a crobach's alpha =0.988>0.7. The digitization cronbach's alpha =0.852>0.7, the tax morale cronbach's alpha =0.933>0.7. The tax awareness cronbach's alpha =0.857>0.7 Lastly deterrent measures had a cronbach's alpha =0.976>0.7. The Cronbach's alpha showed that each of the responses for each items were found to be reliable.

4.3 Response Rate

The response rate in research indicates the degree of participation and the dependability of the gathered data. It is calculated by dividing the number of completed survey responses by the number of individuals invited to participate in the survey. (Joppe, 2004). A higher response rate enhances the study's accuracy and its relevance to real-world scenarios. Out of 342 respondents targeted, 274 questionnaires were correctly filled and returned. Indicating an 80% response rate. Figure 4.1 presents summary of respondent details

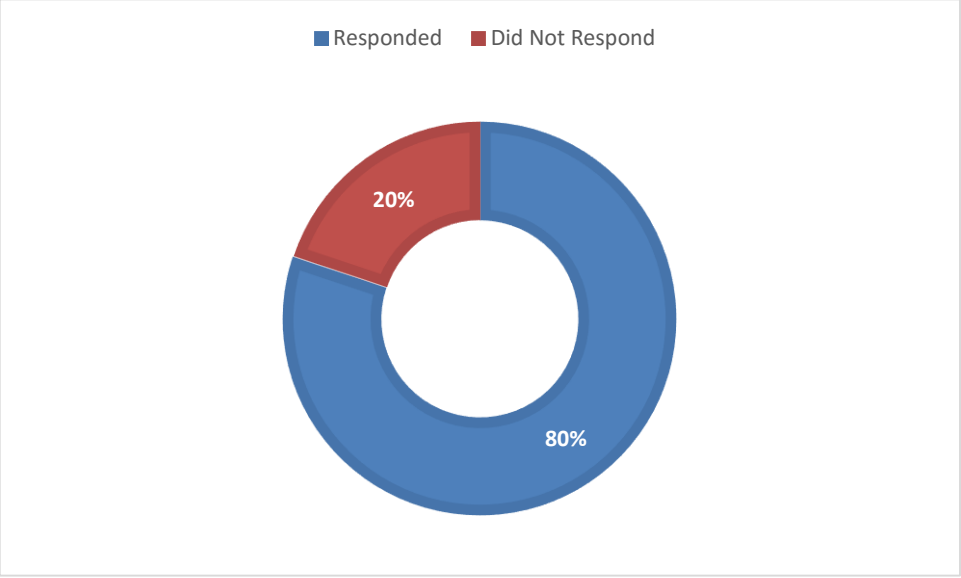

Figure 4.1: Response Rate

(Source: Research 2024)

4.4 Demographics Analysis

The demographic analysis presented in Table 4.2 provides an overview of the participants' gender, age, and highest level of education.

Table 4.2: Demographics Analysis

		Count	Percent %
Gender	Female	130	47.4%
	Male	144	52.6%
Age	20 to 25 years	60	21.9%
	26 to 30 years	57	20.8%
	31 to 35 years	46	16.8%
	36 to 40 years	55	20.1%
	41 years and over	56	20.4%
Highest Level of Education	Certificate	65	23.7%
	Diploma/Professional	50	18.2%
	Doctorate	51	18.6%
	Graduate	56	20.4%
	Undergraduate	52	19.0%

(Source: Research 2024)

The sample consisted of 274 individuals, with a nearly balanced gender distribution: 130 females (47.4%) and 144 males (52.6%). Age-wise, the participants were fairly distributed across different age groups. The largest age group were those aged 20 to 25 years, comprising 60 participants (21.9%), followed closely by those aged 41 years and over, with 56 participants (20.4%). Participants aged 36 to 40 years accounted for 55 individuals (20.1%), those aged 26 to 30 years comprised 57 individuals (20.8%), and the smallest group were aged 31 to 35 years, with 46 participants (16.8%). In terms of educational attainment, the sample showed diversity as well. The highest proportion of participants held a Certificate (65 participants, 23.7%), while 56 participants (20.4%) had Graduate degrees. Additionally, 52 participants (19.0%) had Undergraduate degrees, 51 participants (18.6%) held Doctorate degrees, and 50 participants (18.2%) had Diploma or Professional qualifications. This demographic breakdown illustrates a well-rounded and varied sample population across gender, age, and education levels.

4.4.1 Gender and Age crosstabulation

Table 4.3 Gender * Age Crosstabulation

Count		Age					Total
		20 to 25 years	26 to 30 years	31 to 35 years	36 to 40 years	41 years and over	
Gender	Female	32	25	20	20	33	130
	Male	28	32	26	35	23	144
Total		60	57	46	55	56	274

(Source: Research 2024)

Table 4.3 illustrate the distribution of gender across different age groups. Specifically, the table shows that among females, the highest count is observed in the age group of 41 years and over (n = 33), followed by the 20 to 25 years age group (n = 32). Conversely, among males, the age group of 36 to 40 years has the highest count (n = 35), with the 26 to 30 years age group following closely (n = 32). Overall, the total sample consists of 130 females and 144 males, summing up to a total of 274 participants. This distribution highlights the varying representation of gender across different age categories.

4.4.2 Gender and Age crosstabulation

Table 4.4 Gender * Highest Level of Education Crosstabulation

Count		Highest Level of Education					Total
		Certificate	Diploma/Professional	Doctorate	Graduate	Undergraduate	
Gender	Female	31	27	25	23	24	130
	Male	34	23	26	33	28	144
Total		65	50	51	56	52	274

(Source: Research 2024)

The crosstabulation results in Table 4.4 provide an overview of the distribution of gender across different levels of education. Among females, the highest count is observed in the Certificate category (n = 31), followed by the Diploma/Professional (n = 27) and Doctorate (n = 25) categories. For males, the highest count is in the Graduate

category (n = 33), with the Certificate (n = 34) and Doctorate (n = 26) categories also showing significant representation. Overall, the total sample comprises 130 females and 144 males, resulting in a combined total of 274 participants. This distribution highlights the varying educational attainment levels between genders.

4.5 Descriptive Analysis

Descriptive statistics are specialized techniques primarily utilized to estimate, describe, and summarize collected research data in a coherent, illustrative, and efficient manner. This study presents the research findings on the descriptive statistics of the collected data, focusing on determining the mean, standard deviations, skewness, and kurtosis of the variables.

4.5.1 Descriptive statistics of Digitalization

The descriptive statistics for the questionnaire items related to digitalization, as displayed in Table 4.5, provide an insightful analysis of respondents' perceptions.

Table 4.5: Descriptive statistics Digitalization

	N	Mean	Std. Deviation	Skewness	Kurtosis
Online taxation has reduced filing costs	274	3.95	1.040	-.626	-.804
The top management in our organization is aware of the benefits of digitalization in - enhancing tax compliance		3.36	1.071	-.631	-.921
Our time is saved because of digitalization in tax administration		4.12	1.078	-.718	-.796
Payment of taxes through mobile money has improved my tax compliance.		3.77	1.029	-.651	-.443
Changes made in electronic filing system has eased my work of preparation of tax returns		3.90	1.086	-.758	-.518
Electronic payment process is simple		4.10	.902	-.949	.549
Aggregate Mean		3.86			

(Source: Research 2024)

For the statement "Online taxation has reduced filing costs," the mean score was 3.95 (SD = 1.040), indicating a tendency towards agreement. The negative skewness (-.626) suggests that more respondents rated this item positively, while the kurtosis (-.804) indicates a relatively flat distribution compared to a normal distribution. The item "The top management in our organization is aware of the benefits of digitalization in enhancing tax compliance" had a mean of 3.36 (SD = 1.071), reflecting a general agreement among respondents. The skewness of -.631 points to a slight concentration of responses towards the higher end of the scale, and the kurtosis value of -.921 suggests a flatter distribution. For the statement "Our time is saved because of digitalization in tax administration," the mean score was 4.12 (SD = 1.078), showing a clear agreement. The skewness (-.718) indicates a distribution skewed towards higher ratings, while the kurtosis (-.796) again points to a flatter distribution. The mean for "Payment of taxes through mobile money has improved my tax compliance" was 3.77 (SD = 1.029), signifying agreement. The skewness of -.651 suggests a leftward skew, indicating more positive responses, while the kurtosis value of -.443 reflects a moderately flat distribution. Regarding "Changes made in electronic filing system has eased my work of preparation of tax returns," the mean was 3.94 (SD = 1.086), which denotes agreement. The skewness (-.758) indicates a concentration of higher ratings, and the kurtosis (-.518) suggests a flatter distribution than normal. Lastly, the statement "Electronic payment process is simple" had a mean score of 4.10 (SD = .902), the highest among the items, indicating strong agreement. The skewness of -.949 shows a significant skew towards higher ratings, and the positive kurtosis (.549) suggests a more peaked distribution. Overall, the aggregate mean for these items was 3.86, reflecting a general agreement on the benefits and ease brought by digitalization in tax

administration. This analysis shows a consistent positive perception with slight variations in the distribution shape of responses across different items.

4.5.2 Descriptive statistics of Tax Morale

Table 4.6 presents the descriptive statistics for the tax morale questionnaire items.

Table 4.6: Descriptive statistics Tax Morale

	N	Mean	Std. Deviation	Skewness	Kurtosis
I trust the government with my tax payments, and this encourages me to effectively comply with all tax requirements.	274	3.80	1.085	-.520	-.745
My faith often encourages me to pay all my taxes as provided for in tax laws because it is the right thing to do.		4.02	1.007	-.687	-.666
When I pay taxes, my contribution does not count due to misappropriation of tax revenue by the government.		3.91	1.091	-.586	-.853
I feel that tax revenue is often lost due to corruption and that discourages me from being compliant.		3.82	1.090	-.460	-.965
I think the process of filing tax returns is too tedious, and that often discourages me.		4.17	.983	-.838	.138
Aggregate Mean		3.94			

(Source: Research 2024)

The statement "I trust the government with my tax payments, and this encourages me to effectively comply with all tax requirements" had a mean score of 3.80 (SD = 1.085), indicating that respondents generally agree with this statement. The negative skewness value of -0.520 suggests a leftward skew in the responses, while the kurtosis of -0.745 indicates a relatively flat distribution compared to the normal distribution. The statement "My faith often encourages me to pay all my taxes as provided for in tax laws because it is the right thing to do" had a higher mean score of 4.02 (SD = 1.007), reflecting a stronger agreement. The skewness for this item was -0.687, also showing a

leftward skew, and the kurtosis was -0.666, again indicating a flatter distribution. For the statement "When I pay taxes, my contribution does not count due to misappropriation of tax revenue by the government," the mean score was 3.91 (SD = 1.091), suggesting general agreement. The skewness was -0.586, showing a slight leftward skew, and the kurtosis was -0.853, indicating a flatter distribution. The statement "I feel that tax revenue is often lost due to corruption and that discourages me from being compliant" had a mean score of 3.82 (SD = 1.090), indicating agreement. The skewness was -0.460, showing a slight leftward skew, and the kurtosis was -0.965, suggesting a flatter distribution. Lastly, the statement "I think the process of filing tax returns is too tedious, and that often discourages me" had a mean score of 4.17 (SD = 0.983), indicating agreement. The skewness was -0.838, showing a leftward skew, and the kurtosis was 0.138, suggesting a distribution close to normal but slightly peaked. The aggregate mean for all items was 3.94, indicating that respondents generally agree with the statements regarding tax morale.

4.5.3 Descriptive statistics of Tax Awareness

Based on the descriptive statistics presented in Table 4.7 for Tax Awareness, the following interpretations can be made.

Table 4.7: Descriptive statistics Tax Awareness

	N	Mean	Std. Deviation	Skewness	Kurtosis
I can comfortably engage in filing tax returns without assistance	274	3.95	1.031	-.631	-.771
I am aware of the possible tax risks in my area of operation		4.46	1.067	-.648	-.899
I understand my tax liability		4.39	1.074	-.751	-.746
I can comfortably engage in various tax calculations without assistance		3.89	1.031	-.656	-.447
I am aware of tax due date		3.96	1.077	-.789	-.440
I am aware of tax laws		4.08	.913	-.968	.691
Aggregate Mean		4.12			

(Source: Research 2024)

The item "I can comfortably engage in filing tax returns without assistance" has a mean of 3.95 (SD = 1.031), indicating that respondents are somewhat agreeable (between Agree and Uncertain) about their ability to file tax returns independently. The skewness (-0.631) suggests a slightly negative skew, indicating a tendency towards higher ratings. For "I am aware of the possible tax risks in my area of operation," the mean is 4.46 (SD = 1.067), indicating agreement. The skewness (-0.648) shows a slight negative skew, and kurtosis (-0.899) suggests a platykurtic distribution, indicating a moderate deviation from normality. "I understand my tax liability" has a mean of 4.39 (SD = 1.074), also indicating agreement. The skewness (-0.751) and kurtosis (-0.746) values both suggest a slightly negative skew and a distribution that is slightly flatter than normal. The statement "I can comfortably engage in various tax calculations without assistance" has a mean of 3.89 (SD = 1.031), suggesting a tendency towards agreement but slightly below the midpoint. The skewness (-0.656) indicates a slight negative skew, and the kurtosis (-0.447) suggests a distribution closer to normality compared to other items. "I am aware of tax due date" has a mean of 3.96 (SD = 1.077), indicating agreement. The skewness (-0.789) suggests a moderate negative skew, and the kurtosis (-0.440) indicates a distribution closer to normal. "I am aware of tax laws" has the highest mean of 4.08 (SD = 0.913), indicating strong agreement. The skewness (-0.968) suggests a moderately negative skew, and the kurtosis (0.691) indicates a leptokurtic distribution, meaning more of the distribution's variance is due to infrequent extreme deviations. Overall, the aggregate mean for Tax Awareness is 4.12, suggesting a generally positive perception of tax-related knowledge and abilities among respondents. The specific skewness and kurtosis values provide insights into the distributional characteristics of responses for each questionnaire item.

4.5.4 Descriptive statistics of Deterrent Measures

Based on the descriptive statistics presented in Table 4.8 for the questionnaire items related to Deterrent Measures,

Table 4.8: Descriptive statistics Deterrent Measures

	N	Mean	Std. Deviation	Skewness	Kurtosis
Agency notices issued by KRA to the medium taxpayer help in deterring tax evasion	274	3.94	1.106	-.646	-.950
Distrain actions by tax officers to medium taxpayer help in deterring tax evasion		3.99	1.076	-.718	-.781
Penalties imposed by KRA are harsh and that prompts me to be tax compliant		4.07	1.084	-.826	-.678
High tax rates deter me from being tax compliant		4.04	1.075	-.785	-.702
PIN deactivated by the KRA for non-compliance is common method used by KRA to enforce compliance		4.03	1.065	-.754	-.726
Aggregate Mean		4.01			

(Source: Research 2024)

For the item "Agency notices issued by KRA to the medium taxpayer help in deterring tax evasion," respondents on average rated their agreement at 3.94 (SD = 1.106). The distribution of responses shows a slight negative skewness (-0.646) and platykurtic distribution (-0.950), suggesting that while the majority agree with the effectiveness of agency notices, there are some who strongly agree, influencing the slight skewness and kurtosis towards the negative ends. Regarding "Distrain actions by tax officers to medium taxpayer help in deterring tax evasion," respondents gave an average rating of 3.99 (SD = 1.076). Similar to the first item, there is negative skewness (-0.718) and platykurtosis (-0.781), indicating a similar trend of agreement with some variability in responses. The statement "Penalties imposed by KRA are harsh and that prompts me to be tax compliant" received an average rating of 4.07 (SD = 1.084). The distribution shows negative skewness (-0.826) and platykurtosis (-0.678), indicating a strong

agreement with the statement, with a tendency for some respondents to strongly agree. Concerning "High tax rates deter me from being tax compliant," respondents averaged a rating of 4.04 (SD = 1.075). The distribution exhibits negative skewness (-0.785) and platykurtosis (-0.702), suggesting a general agreement with the statement, though slightly less pronounced compared to previous items. For the statement "PIN deactivated by the KRA for non-compliance is common method used by KRA to enforce compliance," respondents rated it on average at 4.03 (SD = 1.065). The distribution shows negative skewness (-0.754) and platykurtosis (-0.726), indicating a generally high level of agreement with the statement. Overall, the aggregate mean across all items is 4.01, reflecting a strong tendency towards agreement with the deterrent measures related to tax compliance.

4.5.5 Descriptive statistics of Value Added Tax compliance

Based on the descriptive statistics provided in Table 4.9 for Value Added Tax compliance,

Table 4.9: Descriptive statistics Value Added Tax compliance

	N	Mean	Std. Deviation	Skewness	Kurtosis
I always file my VAT returns as stipulated by the law	274	3.94	1.132	-.686	-.736
I register for new tax obligations as and when I attain registration criteria		4.01	1.147	-.785	-.667
I compute and pay my VAT correctly and in good time as stipulated by the law		3.94	1.125	-.700	-.655
I file VAT returns voluntarily without being compelled to do so.		3.98	1.127	-.721	-.747
I always declare the correct amount		3.92	1.101	-.645	-.740
Aggregate Mean		3.96			

(Source: Research 2024)

Each questionnaire item is analyzed as follows: The item "I always file my VAT returns as stipulated by the law" had a mean of 3.94 (SD = 1.132), indicating that on average, respondents leaned towards agreement (between Agree and Strongly Agree). The

skewness (-0.686) and kurtosis (-0.736) values suggest a moderately normal distribution, with a slight negative skewness and platykurtic distribution (less peaked than a normal distribution). For "I register for new tax obligations as and when I attain registration criteria," the mean was 4.01 (SD = 1.147), indicating a tendency towards agreement. The skewness (-0.785) and kurtosis (-0.667) values show a slightly negatively skewed and platykurtic distribution, similar to the first item. "I compute and pay my VAT correctly and in good time as stipulated by the law" had a mean of 3.94 (SD = 1.125), indicating a similar agreement level. The skewness (-0.700) and kurtosis (-0.655) values also suggest a slightly negatively skewed and platykurtic distribution. For "I file VAT returns voluntarily without being compelled to do so," the mean was 3.98 (SD = 1.127), indicating a tendency towards agreement. The skewness (-0.721) and kurtosis (-0.747) values indicate a moderately negatively skewed and platykurtic distribution. Lastly, for "I always declare the correct amount," the mean was 3.92 (SD = 1.101), indicating agreement on average. The skewness (-0.645) and kurtosis (-0.740) values suggest a slightly negatively skewed and platykurtic distribution. Overall, the aggregate mean across all items was 3.96.

4.6 Factor Analysis

Factor analysis is the practice of condensing many variables into just a few, so that your research data is easier to work with. In the context of questionanre data, the multidicmensional nature for latent constructs through items needed to be reduced. Factor analysis is also sometimes called dimension reduction: you can reduce the dimensions of your data into one or more “super-variables,” also known as unobserved variables or latent variables. This process involves creating a factor model and often yields a factor matrix that organizes the relationship between observed variables and the factors they’re associated with.(Webster, 2024)

The KMO and Bartlett's tests were employed to evaluate the validity of the questionnaire data for dimension reduction. A varimax rotation was applied to produce the factor loadings, followed by an assessment of the KMO and Bartlett's tests for each individual questionnaire item. (Kaiser and Meyer1974).

Table 4.10: KMO& Bartlett's test

	Value Added Tax Compliance	Digitalization	Tax Morale	Tax Awareness	Deterrent Measures
KMO	0.795	0.737	0.846	0.744	0.876
Bartlett's test for sphericity (sig)	0.000	0.000	0.000	0.000	0.000

(Source: Research 2024)

Table 4.10 shows that Value added tax compliance has a KMO of 0.795, and p-value =0.000<0.05. The digitization KMO is 0.737 and p-value =0.000<0.05. The tax morale KMO is 0.846 and p-value =0.000<0.05. The tax awareness KMO is 0.744 and p-value =0.000<0.05. The deterrent measure KMO is 0.876 and p-value =0.000<0.05. The KMO are >0.5, and p-value <0.05 indicating that Factor analysis is viable.

4.6.1 Convergence Validity

Convergent validity evaluates whether items theoretically designed to measure the same construct, such as VATC (Value Added Tax Compliance), DIG (Digitization), TM (Tax Morale), TAW (Tax Awareness), and DM (Deterrent Measures), actually do so. Typically, correlations above 0.70 are considered indicative of acceptable convergent validity. A correlation of 0.7 or higher implies that around 49% or more of the variance in one measure can be explained by the other, which is considered sufficient evidence of their convergence (Fornell & Larcker, 1981).The results of the convergent validity test in Table 4.11 for the constructs value added tax compliance,

digitization, Tax morale, Tax awareness, and Deterrent Measures reveal varying degrees of convergent validity.

Table 4.11: Convergence Validity Matrix

		VATC1	VATC2	VATC3	VATC4	VATC5	
	VATC1	1.000	.946	.929	.975	.962	
	VATC2	.946	1.000	.972	.921	.926	
	VATC3	.929	.972	1.000	.903	.948	
	VATC4	.975	.921	.903	1.000	.955	
	VATC5	.962	.926	.948	.955	1.000	
		DIG1	DIG2	DIG3	DIG4	DIG5	DIG6
	DIG1	1.000	.878	.588	.696	.597	-.213
	DIG2	.878	1.000	.724	.686	.730	-.214
	DIG3	.588	.724	1.000	.862	.973	-.079
	DIG4	.696	.686	.862	1.000	.862	-.054
	DIG5	.597	.730	.973	.862	1.000	-.121
	DIG6	-.213	-.214	-.079	-.054	-.121	1.000
		TM1	TM2	TM3	TM4	TM5	
	TM1	1.000	.627	.734	.741	.742	
	TM2	.627	1.000	.735	.747	.632	
Correlation	TM3	.734	.735	1.000	.945	.707	
	TM4	.741	.747	.945	1.000	.745	
	TM5	.742	.632	.707	.745	1.000	
		TAW1	TAW2	TAW3	TAW4	TAW5	TAW6
	TAW1	1.000	.872	.589	.698	.602	-.191
	TAW2	.872	1.000	.725	.689	.733	-.191
	TAW3	.589	.725	1.000	.849	.970	-.076
	TAW4	.698	.689	.849	1.000	.851	-.030
	TAW5	.602	.733	.970	.851	1.000	-.124
	TAW6	-.191	-.191	-.076	-.030	-.124	1.000
		DM1	DM2	DM3	DM4	DM5	
	DM1	1.000	.883	.831	.818	.850	
	DM2	.883	1.000	.896	.890	.902	
	DM3	.831	.896	1.000	.982	.940	
	DM4	.818	.890	.982	1.000	.939	
	DM5	.850	.902	.940	.939	1.000	

(Source: Research 2024)

For the construct of Value Added Tax Compliance all items (VATC1 to VATC5) exhibit very high inter-correlations, ranging from .903 to .975. This suggests strong convergent validity for VATC, as all correlations exceed the .70 threshold. In the Digitization construct, items DIG1 to DIG5 show moderate to high correlations, with values between .588 and .973. However, DIG6 presents negative or very low

correlations with the other items, indicating that it may not effectively measure the same construct. Although most items meet the acceptable threshold, the performance of DIG6 suggests potential issues. Regarding Tax Morale the inter-item correlations range from .627 to .945. While most correlations are above .70, correlations involving TM2 (specifically with TM1 and TM5) are slightly below the threshold, suggesting minor concerns. The Tax Awareness construct shows correlations between TAW1 and TAW5 ranging from .589 to .970. However, TAW6 demonstrates negative or very low correlations with the other items, similar to DIG6, suggesting it may not be measuring the same construct. Although the majority of items show acceptable convergent validity, TAW6 poses a notable issue. For Deterrent Measures (DM), all items (DM1 to DM5) have high correlations, ranging from .818 to .982, indicating strong convergent validity as all correlations are well above the .70 threshold. In summary, the constructs of VATC and DM exhibit robust convergent validity. The tax morale construct generally meets the criteria with minor exceptions related to TM2. The constructs of Digitization and tax awareness have problematic items (DIG6 and TAW6, respectively), which may need revision or removal to enhance convergent validity.

4.6.2 Divergence Validity

Discriminant validity evaluates the degree to which factors intended to measure different constructs are distinct. Analyzing the provided correlation matrix, it is evident that the constructs largely remain distinct from one another.

Table 4.12: Divergence Validity Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
(1) vatc1	1.000															
(2) vatc2	0.946	1.000														
(3) vatc3	0.929	0.972	1.000													
(4) vatc4	0.975	0.921	0.903	1.000												
(5) vatc5	0.962	0.926	0.948	0.955	1.000											
(6) dig1	0.464	0.424	0.399	0.465	0.418	1.000										
(7) dig2	0.492	0.442	0.426	0.507	0.446	0.878	1.000									
(8) dig3	0.255	0.199	0.189	0.286	0.234	0.588	0.724	1.000								
(9) dig4	0.308	0.246	0.233	0.314	0.279	0.696	0.686	0.862	1.000							
(10) dig5	0.256	0.198	0.191	0.280	0.231	0.597	0.730	0.973	0.862	1.000						
(11) dig6	-0.094	-0.086	-0.085	-0.085	-0.076	-0.213	-0.214	-0.079	-0.054	-0.121	1.000					
(12) tm1	-0.198	-0.178	-0.164	-0.195	-0.170	-0.197	-0.195	-0.073	-0.130	-0.088	0.473	1.000				
(13) tm2	-0.066	-0.038	-0.032	-0.090	-0.051	-0.097	-0.105	-0.061	-0.083	-0.069	0.357	0.627	1.000			
(14) tm3	-0.100	-0.058	-0.044	-0.088	-0.064	-0.211	-0.183	-0.072	-0.140	-0.088	0.426	0.734	0.735	1.000		
(15) tm4	-0.083	-0.031	-0.027	-0.116	-0.064	-0.192	-0.188	-0.082	-0.137	-0.102	0.439	0.741	0.747	0.945	1.000	
(16) tm5	-0.039	-0.016	0.000	-0.073	-0.014	-0.125	-0.125	-0.073	-0.105	-0.082	0.578	0.742	0.632	0.707	0.745	1.000
(17) taw1	0.471	0.431	0.409	0.472	0.429	0.968	0.845	0.580	0.688	0.589	-0.176	-0.188	-0.098	-0.203	-0.193	-0.130
(18) taw2	0.506	0.455	0.437	0.521	0.461	0.848	0.971	0.717	0.677	0.720	-0.178	-0.194	-0.116	-0.183	-0.193	-0.133
(19) taw3	0.275	0.217	0.215	0.306	0.261	0.568	0.704	0.965	0.827	0.940	-0.081	-0.088	-0.085	-0.080	-0.100	-0.097
(20) taw4	0.321	0.258	0.247	0.326	0.296	0.682	0.672	0.851	0.986	0.848	-0.040	-0.137	-0.093	-0.142	-0.141	-0.112
(21) taw5	0.277	0.217	0.215	0.301	0.257	0.590	0.724	0.950	0.839	0.978	-0.124	-0.107	-0.097	-0.103	-0.125	-0.111
(22) taw6	-0.116	-0.106	-0.100	-0.105	-0.092	-0.208	-0.209	-0.056	-0.033	-0.099	0.978	0.493	0.397	0.456	0.471	0.616
(23) dm1	0.816	0.751	0.731	0.819	0.784	0.405	0.466	0.335	0.341	0.332	-0.053	-0.157	-0.091	-0.117	-0.128	-0.054
(24) dm2	0.805	0.731	0.723	0.803	0.781	0.409	0.464	0.338	0.352	0.350	-0.070	-0.163	-0.088	-0.148	-0.158	-0.052
(25) dm3	0.854	0.771	0.770	0.858	0.842	0.474	0.515	0.314	0.339	0.324	-0.119	-0.185	-0.098	-0.141	-0.167	-0.079
(26) dm4	0.844	0.772	0.769	0.847	0.835	0.483	0.519	0.313	0.332	0.322	-0.128	-0.195	-0.085	-0.144	-0.163	-0.076
(27) dm5	0.888	0.818	0.804	0.873	0.848	0.487	0.537	0.316	0.344	0.328	-0.125	-0.226	-0.082	-0.159	-0.160	-0.066

(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)
1.000										
0.872	1.000									
0.589	0.725	1.000								
0.698	0.689	0.849	1.000							
0.602	0.733	0.970	0.851	1.000						
-0.191	-0.191	-0.076	-0.030	-0.124	1.000					
0.412	0.481	0.356	0.354	0.355	-0.075	1.000				
0.419	0.472	0.355	0.355	0.369	-0.092	0.883	1.000			
0.481	0.523	0.332	0.344	0.344	-0.138	0.831	0.896	1.000		
0.494	0.530	0.339	0.344	0.346	-0.141	0.818	0.890	0.982	1.000	
0.491	0.545	0.320	0.350	0.336	-0.138	0.850	0.902	0.940	0.939	1.000

The matrix table 4.12 shows high correlations within each set of variables, which is expected for constructs that are supposed to be related. However, the correlations between different constructs are generally lower, indicating that the constructs are distinct from each other. This pattern supports the discriminant validity of the constructs, suggesting that each set of variables measures a unique aspect and is not unduly influenced by other constructs.

4.6.3 Factor Loadings

Khosla (2006) contends that dimensionality reduction algorithms aim to produce a more succinct and precise representation of multivariate data by removing redundant components. Simplifying data involves selecting the appropriate inputs for classification and regression tasks. When visualizing complex data, it is essential to reduce its complexity to enhance comprehensibility. In the context of questionnaire data, dimensions are represented by individual items. Items with the highest factor loadings are extracted via factor analysis, and variables are generated by calculating the mean and standardizing the questionnaire items.

Table 4.13 provided displays the factor loadings from a principal component factor analysis for five latent variables: Value Added Tax Compliance, Digitalization, Tax Morale, Tax Awareness, and Deterrent Measures. Each item (VATC1 to VATC5, DIG1 to DIG6, TM1 to TM5, TAW1 to TAW6, and DM1 to DM5) represents a specific question or measurement corresponding to these latent variables. Factor loadings indicate the extent to which each item is associated with the corresponding factor. Here's an interpretation of the findings: For Value Added Tax Compliance, items VATC1 to VATC5 have very high loadings, specifically .985, .975, .973, .973, and .981, respectively. This indicates that these items strongly represent the Value Added Tax Compliance factor. In the case of Digitalization, items DIG1 to DIG6 also exhibit

very high loadings, with values of .985, .975, .973, .973, .981, and .985, showing they are excellent indicators of the Digitalization factor. Regarding Tax Morale, items TM1 to TM5 load on this factor with values of .864, .839, .932, .945, and .859, respectively. This suggests that these items are good indicators of the Tax Morale factor, with TM3 (.932) and TM4 (.945) having the highest loadings. For Tax Awareness, items TAW1 to TAW6 have loadings ranging from .719 to .945. Specifically, the loadings are .719, .813, .876, .855, .876, and .945, indicating they all significantly contribute to the Tax Awareness factor, with TAW6 (.945) being the most representative. Lastly, Deterrent Measures items DM1 to DM5 load very highly on this factor, with values of .915, .956, .973, .969, and .969, implying that these items are strong indicators of the Deterrent Measures factor. In summary, all items have high factor loadings, mostly above .7, indicating strong relationships with their respective factors. The highest loadings for each factor suggest which items are the most representative. These findings imply that the measures used in the analysis are effective in capturing the constructs they are intended to measure.

The generation of variables for constituents, including Value Added Tax Compliance, Digitalization, Tax Morale, Tax Awareness, and Deterrent Measures, was executed utilizing standardized mean values. This was implemented to account for the individual constructs that exhibited significant loading onto each factor. The application of a standardized mean methodology ensures uniformity of scale across all variables, thereby facilitating comparability and enabling the calculation of a composite score, or index, for each respective factor. Berg, (1972).

Table 4.13: Principal component Factor Analysis

	Value Added Tax Compliance	Digitalization	Tax Morale	Tax Awareness	Deterrent Measures
VATC1	.985				
VATC2	.975				
VATC3	.973				
VATC4	.973				
VATC5	.981				
DIG1		.985			
DIG2		.975			
DIG3		.973			
DIG4		.973			
DIG5		.981			
DIG6		.985			
TM1			.864		
TM2			.839		
TM3			.932		
TM4			.945		
TM5			.859		
TAW1				.719	
TAW2				.813	
TAW3				.876	
TAW4				.855	
TAW5				.876	
TAW6				.945	
DM1					.915
DM2					.956
DM3					.973
DM4					.969
DM5					.969

(Source: Research 2024)

Process of Constructing Variables Using Standardized Mean Values

To compute the standardized mean values, each individual construct (VATC1, VATC2, VATC3 for VAT Compliance) was first standardized. Standardization involves transforming each variable to have a mean of zero and a standard deviation of one, which is typically done by subtracting the mean of the variable from each value and dividing by the standard deviation. This step is crucial to ensure that all constructs are measured on the same scale, which is particularly important when combining different constructs into a single composite score.

After standardizing the individual constructs, the next step was to compute the average (mean) of these standardized values for each respondent across all constructs that loaded onto a specific factor. For example, to construct the variable representing Value Added Tax Compliance (VAT Compliance), the standardized values of all constructs related to this factor (VATC1, VATC2, VATC3, VATC4, VATC5) were averaged. This average served as the composite score or index for VAT Compliance for each respondent. The same procedure was followed for the other factors: Digitalization, Tax Morale, Tax Awareness, and Deterrent Measures.

Transformation of Variables and Computation of Index

To transform the original variables into indices representing each factor, we followed a two-step process:

Each construct (such as VATC1 for VAT Compliance or DIG1 for Digitalization) was standardized by computing its z-score. The z-score for a given construct is calculated using the formula:

$$Z = \frac{(X - \mu)}{\sigma}$$

Where X is the observed value (likert scale), μ is the mean and σ is the standard deviation of the construct. This transformation centers each construct around a mean of zero and a standard deviation of one, ensuring uniformity across different scales.

After standardization, the indices for each factor were computed by taking the arithmetic mean of the standardized values for all constructs that loaded significantly onto a given factor. For example, the index for Value Added Tax Compliance was calculated by averaging the standardized values of all constructs related to VAT

Compliance (VATC1, VATC2, VATC3, VATC4, VATC5) for each respondent. Mathematically, this was represented as:

$$\text{Index}_{\text{VAT Compliance}} = \frac{Z_{VATC1} + Z_{VATC2} + Z_{VATC3} + Z_{VATC4} + Z_{VATC5}}{5}$$

This formula provides a single score that represents each respondent's overall position on the VAT Compliance factor. The same process was repeated for other factors, such as Digitalization, Tax Morale, Tax Awareness, and Deterrent Measures.

By constructing indices, each participant obtains a score for each aspect, reflecting their general stance or feelings towards it. This method enables a more comprehensive analysis, as it combines several related concepts into a single, understandable metric. This measure can then be utilized in additional statistical analyses, like regression or correlation studies, to examine links between aspects and areas of interest. Berg, (1972).

4.7 Diagnostic Tests

Statistical Diagnostic tests for normality, linearity, heteroscedasticity, and multicollinearity were conducted.

4.7.1 Normality Tests

Normality test was carried out using the Shapiro-Wilk 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).

Table 4.14: Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Digitalization	.232	274	.056	.829	274	.923
Tax Morale	.199	274	.445	.849	274	.068
Tax Awareness	.197	274	.266	.839	274	.332
Deterrent Measures	.179	274	.778	.840	274	.781

a. Lilliefors Significance Correction

(Source: Research 2024)

Table 4.14 shows that digitization had a p-value =0.923, tax morale p-value =0.068, tax awareness p-value =0.332, deterrent measures p-value =0.781. The results showed that residuals are normally distributed.

4.7.2 Multicollinearity Test

High correlation among explanatory variables is known as multicollinearity and distorts efficacy of model estimates and significance (Melo & Kibria, 2020). Input variables are assumed to be independent of each other for regression outputs to negate the likelihood of being spurious results. Moreover, multicollinearity complicates regression analysis as predictors are factors of each other. As a result, the output generated is erroneous. In this study, Variance Inflation Factor was used to assess existence of multicollinearity. Rule of thumb is if VIF<10 and tolerance >0.1, multicollinearity is low and all input factors can be used.

Table 4.15: Multicollinearity test

Model		Collinearity Statistics	
		Tolerance(1/VIF)	VIF
1	Digitalization	.613	1.632
	Tax Morale	.679	1.473
	Tax Awareness	.762	1.313
	Deterrent Measures	.714	1.401

a. Dependent Variable: VAT compliance

(Source: Research 2024)

Table 4.15 found that Digitization had a VIF of 1.632<10, tax morale of 1.473<10, tax awareness has a VIF of 1.313<10, and lastly deterrent measures had a VIF of 1.401<10.

4.7.3 Linearity Test

The Ramsey RESET test was utilized to determine whether the relationship between the dependent variable and the predictor variables are linear. Chen (2005). In this study, linearity tests was conducted individually for each variable to assess the likelihood of the data originating from a linearly structured population.

Table 4.16: Ramsey RESET Linearity Test

Ramsey RESET test using powers of the fitted values of VAT compliance Ho: model has no omitted variables	
F(3, 266)	= 1.86
Prob > F	= 0.1359

(Source: Research 2024)

The linearity test on table 4.16 indicated a p-value >0.05, this indicates that there is a linear relationship between selected determinants and VAT compliance.

4.7.4 Heteroscedasticity Test

To assess heteroscedasticity, two tests, namely the Breusch-Pagan/Godfrey test (1979) and the Modified Wald test as outlined by Shrestha (2020), was employed. If the null hypothesis suggests homoscedasticity, it is rejected if there is evidence that the error term exhibits variation.

Table 4.17: Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity Ho: Constant variance Variables: fitted values of VAT compliance	
chi2(1)	= 0.63
Prob > chi2	= 0.4288

(Source: Research 2024)

A Breusch-Pagan test was used and the results from table 4.17 indicates a Chi2(1) of 0.63 and p-value of 0.4288>0.05 indicating that there is constant variance, and that the data is homoscedastic.

4.8 Correlation Analysis

Correlation analysis is a statistical tool used to identify the direction of the relationship between variables in a study.

Table 4.18: Correlation Analysis

		VATC	DGT	TXM	TXA	DTM
VAT Compliance	Pearson Correlation	1				
Digitalization	Pearson Correlation	0.464	1			
	Sig. (2-tailed)	0.001				
Tax Morale	Pearson Correlation	0.425	0.514	1		
	Sig. (2-tailed)	0.000				
Tax Awareness	Pearson Correlation	0.478	0.409	0.401	1	
	Sig. (2-tailed)	0.003	0.000	0.000		
Deterrent measures	Pearson Correlation	0.527	0.492	0.386	0.361	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.001	
	N	274	274	274	274	
	Mean	3.58	4.01	3.74	3.64	3.89
	Standard Deviation	1.23	1.15	1.09	1.15	1.17

Correlation is significant at the <0.05 level

Survey Data (2023)

Table 4.18 shows that digitization has a positive and significant correlation to VAT compliance up to 46.4%, with a mean of 4.01 indicating that there was general agreement with the standardized construct representing digitization. tax morale has a positive and significant correlation to VAT compliance up to 45.5%, tax morale had a mean statistic of 3.74 indicating average agreement. tax awareness has a positive and significant correlation to VAT compliance up to 47.8% and had a mean statistic of 3.64

indicating average agreement. Lastly deterrent measures have a positive and significant correlation to VAT compliance up to 52.7%. the mean statistic was 3.89 indicating general agreement with construct's statements. This means that as Digitization, tax morale, tax awareness and deterrent measures increase the VAT compliance tends to increase.

4.9 Regression Analysis without moderator

The regression analysis was conducted to determine the combined direct effects of Digitization, tax morale and tax awareness on VAT compliance.

Model Summary without Moderator

The model summary was conducted and summarized.

Table 4.19: Model Summary without moderator

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.579	0.336	0.328	1.007817

a. Predictors: (Constant), Tax Awareness, Tax Morale, Digitalization

(Source: Research 2024)

Table 4.19 shows that R is 0.579, indicating a positive correlation between Digitization, tax morale, tax awareness and VAT compliance at 57.9%. The model summary further showed that Digitization, tax morale and tax awareness accounts for 33.6% in variation caused on VAT compliance this leaves a substantial 66.4% of the variance in VAT compliance unexplained by the model, suggesting that there are other significant factors influencing VAT compliance that were not included in this analysis. These findings underscore the importance of considering additional variables that may impact VAT compliance to improve the predictive power and accuracy of the model. This also accounts for the unexplained variance on VAT compliance.

Analysis of Variance without Moderator

Table 4.20: ANOVA without Moderator

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	138.653	3	46.218	45.490	.000[b]
	Residual	274.238	270	1.016		
	Total	412.891	273			

a. Dependent Variable: ValueAddedTaxcompliance
b. Predictors: (Constant), TaxAwareness, TaxMorale, Digitalization

(Source: Research 2024)

The analysis of variance on table 4.20 shows that the variation caused by Digitization, tax morale, tax awareness on VAT compliance was significant F= 45.490, p-value =0.000<0.05

Regression coefficient Analysis without moderator

The regression coefficient analysis has a model regression which is;

$Y = 0.790 + 0.250X_1 + 0.173X_2 + 0.306X_3$

Table 4.21: Regression Coefficient Analysis

Model		Standardized β	Std. Error	Unstandardized β	t	Sig
1	(Constant)	0.790	0.252		3.135	0.001
	Digitalization	0.250	0.064	0.267	3.906	0.000
	Tax Morale	0.173	0.067	0.195	2.582	0.003
	Tax Awareness	0.306	0.060	0.326	5.100	0.000

(Source: Research 2024)

Table 4.21 indicated that a unit change in digitization caused a 0.250 increase in VAT compliance, a unit change in tax morale caused a 0.173 increase in VAT compliance, and lastly tax awareness caused a 0.306 increase in VAT compliance.

4.10 Hierarchical Regression Analysis

The hierarchical regression analysis was conducted to establish the moderating role of deterrent measures on selected determinants on value added tax compliance among medium taxpayer in north of Nairobi tax district, Kenya.

4.10.1 Model Summary with Moderator

The model summary summarized in table 4.22.

Table 4.22: Model Summary with Moderator

Model	R	R square	Adjusted R Square	Std. Error	R Square Change	Sig. F Change
1	0.579	0.336	0.328	1.007817		0.000
2	0.639	0.408	0.399	0.953266	0.072	0.000
3	0.643	0.413	0.402	0.950804	0.005	0.012
4	0.643	0.414	0.400	0.952289	0.001	0.008
5	0.653	0.426	0.411	0.943940	0.012	0.017

(Source: Research 2024)

Table 4.22 shows that there is a slight increase in the variation caused on VAT compliance from the effects of the independent variables, the moderator and the interaction terms by changing the variation from 33.6% to the new 41.4%. The Remaining 58.6% of variation is caused by factors not captured in the model.

4.10.2 Analysis of Variance with Moderator

The ANOVA table 4.23 summarized the measure and significance of the variance.

Table 4.23: ANOVA with Moderator

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	138.653	3	46.218	45.490	0.000
	Residual	274.238	270	1.016		
	Total	412.891	273			
2	Regression	168.460	4	42.115	46.331	0.000
	Residual	244.431	269	0.909		
	Total	412.891	273			
3	Regression	170.524	5	34.105	37.726	0.000
	Residual	242.367	268	0.904		
	Total	412.891	273			
4	Regression	170.937	6	28.489	31.444	0.000
	Residual	241.954	267	0.906		
	Total	412.891	273			
5	Regression	175.892	7	25.127	28.201	0.000
	Residual	236.999	266	0.891		
	Total	412.891	273			

a. Dependent Variable: ValueAddedTaxcompliance
f. Predictors: (Constant), TaxAwareness, TaxMorale, Digitalization, DeterrentMeasures, DIG_DEM, TM_DEM, TAW_DEM

(Source: Research 2024)

Table 4.23 indicates that there is a significant variance caused by the introduction of the moderation in the subsequent hierarchical models, Model 5 indicates that the F-statistic of 28.201 p-value =0.000<0.05.

4.10.3 Hierarchical regression Coefficient Analysis

The hierarchical regression coefficient analysis had the following regression model equations.

Table 4.24: Hierarchical Regression

Model		Standardized β	Std. Err	Unstandardized β	t	Sig.
1	(Constant)	0.790	0.252		3.135	0.001
	Digitalization	0.250	0.064	0.267	3.906	0.000
	TaxMorale	0.173	0.067	0.195	2.582	0.003
	TaxAwareness	0.306	0.060	0.326	5.100	0.000
2	(Constant)	0.399	0.194		2.057	0.021
	Digitalization	0.137	0.064	0.146	2.141	0.023
	TaxMorale	0.129	0.064	0.145	2.016	0.024
	TaxAwareness	0.256	0.057	0.272	4.491	0.000
	deterrentmeasures	0.318	0.058	0.335	5.483	0.000
3	(Constant)	0.336	0.123		2.732	0.002
	Digitalization	0.368	0.172	0.394	2.140	0.022
	TaxMorale	0.118	0.054	0.133	2.185	0.040
	TaxAwareness	0.266	0.058	0.283	4.586	0.000
	deterrentmeasures	0.531	0.156	0.596	3.404	0.000
	DIG*DM	0.390	0.044	0.068	8.864	0.000
4	(Constant)	0.474	0.215		2.205	0.041
	Digitalization	0.319	0.115	0.341	2.774	0.001
	TaxMorale	0.190	0.090	0.214	2.111	0.002
	TaxAwareness	0.258	0.062	0.274	4.161	0.000
	deterrentmeasures	0.571	0.187	0.601	3.053	0.001
	DIG*DM	0.304	0.058	0.053	5.241	0.000
	TM*DM	0.131	0.058	0.023	2.259	0.040
5	(Constant)	0.227	0.112		2.027	0.040
	Digitalization	0.402	0.117	0.402	3.436	0.001
	TaxMorale	0.295	0.114	0.295	2.588	0.016
	TaxAwareness	0.124	0.060	0.124	2.067	0.041
	deterrentmeasures	0.356	0.108	0.356	3.296	0.000
	DIG*DM	0.526	0.059	0.526	8.915	0.000
	TM*DM	0.248	0.058	0.248	4.276	0.000
	TAW*DM	0.674	0.050	0.674	13.480	0.000

Dependent Variable: ValueAddedTaxcompliance

(Source: Research 2024)

The decision to utilize unstandardized coefficients over standardized beta coefficients was driven by the interpretive goals of the study. Unstandardized coefficients are presented in the original units of measurement, which makes the results easier to interpret in real-world terms. This approach allows for a direct understanding of how changes in deterrent measures impact VAT compliance, providing clear insights into the actual magnitude of these effects. Such clarity is particularly relevant for policymakers and practitioners who need to interpret results in practical terms to implement effective tax compliance strategies. Additionally, using unstandardized

coefficients facilitates comparisons across different hypotheses within the study, as all hypotheses assess the relationship between deterrent measures and VAT compliance. By maintaining the original scales, unstandardized coefficients allow for more straightforward cross-hypothesis comparisons without requiring additional transformation of variable scales.

Furthermore, in moderation analyses, the primary interest typically lies in the significance and direction of the interaction effect, rather than in comparing the relative strength of each predictor's impact. Since this study focuses specifically on the moderating effects of deterrent measures rather than comparing predictor strengths, unstandardized coefficients provide an appropriate and accessible means of interpretation. This choice supports the study's goal of offering insights that are both statistically rigorous and easily translatable to practical applications.

The regression model I with the regression equation of $Y = 0.790 + 0.250X_1 + 0.173X_2 + 0.306X_3$ showed that a unit change in digitization caused a 0.250 increase in VAT compliance, a unit change in tax morale caused a 0.173 increase in VAT compliance, and lastly tax awareness caused a 0.306 increase in VAT compliance.

The regression model II with the regression equation $Y = 0.399 + 0.137X_1 + 0.129X_2 + 0.256X_3 + 0.318M$ showed that a unit change in digitization caused a 0.137 increase in VAT compliance, a unit change in tax morale caused a 0.129 increase in VAT compliance, and tax awareness caused a 0.256 increase in VAT compliance. Lastly a unit change in deterrent measures caused a 0.318 increase in VAT compliance.

The regression model III with the regression equation $Y = 0.336 + 0.368X_1 + 0.118X_2 + 0.266X_3 + 0.531M + 0.390MX_1$

showed that a unit change in digitization caused a 0.368 increase in VAT compliance, a unit change in tax morale caused a 0.118 increase in VAT compliance, and tax awareness caused a 0.266 increase in VAT compliance. A unit change in deterrent measures caused a 0.531 increase in VAT compliance. Lastly a unit change in the interaction between digitization and deterrent measures caused a 0.390 increase in VAT compliance.

The regression model IV with the regression equation $Y = 0.474 + 0.319X_1 + 0.190X_2 + 0.258X_3 + 0.571M + 0.304MX_1 + 0.131MX_2$

The model found that a unit change in digitization caused a 0.319 increase in VAT compliance, a unit change in tax morale caused a 0.190 increase in VAT compliance, and tax awareness caused a 0.258 increase in VAT compliance. A unit change in deterrent measures caused a 0.571 increase in VAT compliance. A unit change in the interaction between digitization and deterrent measures caused a 0.304 increase in VAT compliance. Lastly unit changes in the interaction between tax morale and deterrent measures caused a 0.131 increase in VAT compliance.

The overall Model regression equation was $Y = 0.227 + 0.402X_1 + 0.295X_2 + 0.124X_3 + 0.356M + 0.526MX_1 + 0.248MX_2 + 0.674MX_3$ The overall model found that a unit change in digitization caused a 0.402 increase in VAT compliance, a unit change in tax morale caused a 0.295 increase in VAT compliance, and tax awareness caused a 0.124 increase in VAT compliance. A unit change in deterrent measures caused a 0356 increase in VAT compliance. A unit change in the interaction between digitization and deterrent measures caused a 0.526 increase in VAT compliance. This suggests that as deterrent measures strengthen, the positive relationship between digitalization efforts and VAT compliance is enhanced, indicating that taxpayers may be more compliant

when digital systems are reinforced with penalties or regulatory checks. Thus indicating a moderating effect. A unit changes in the interaction between tax morale and deterrent measures caused a 0.248 increase in VAT compliance. This finding implies that while intrinsic motivation, or tax morale, plays a role in compliance, its effectiveness is amplified when coupled with external deterrents, such as fines or audits, reinforcing the likelihood of adherence to tax obligations among medium taxpayers. Lastly A unit changes in the interaction between tax awareness and deterrent measures caused a 0.674 increase in VAT compliance. This finding implies that as taxpayers become more aware of tax obligations, the presence of deterrent measures significantly bolsters their compliance behavior. Consequently, when taxpayers are informed about their VAT responsibilities and potential penalties for non-compliance, they are more likely to adhere to tax regulations. The high coefficient suggests a strong moderating impact, reinforcing the role of deterrent measures as an effective tool in enhancing VAT compliance through increased tax awareness.

4.11 MO digraph Analysis

Moderators can be measured using either single-item or multi-item scales, and these scales can be based on reflective or formative indicators. The critical differentiation lies in the measurement scale of the moderator, which can be either categorical (often dichotomous) or continuous. To assess the effects of interactions between independent variables and the moderator, Modi graphs are utilized, which illustrate these effects at both low and high levels of the moderator. Miocevic (2020).

Interaction between digitization and deterrent measures

Figure 4.2 shows the moderating effect of deterrent measures on the relationship between digitization and VAT compliance

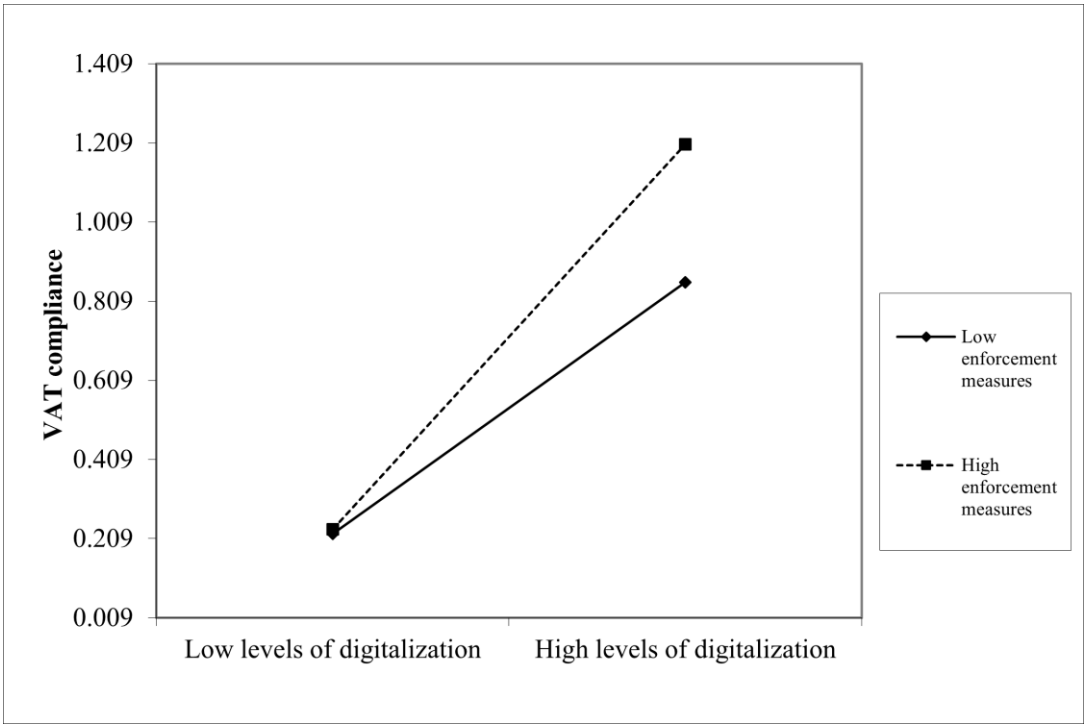

Figure 4.2: Digitization and Deterrent Measures
(Source: Research 2024)

Figure 4.2 demonstrates that while digitalization generally leads to higher VAT compliance, this effect is significantly amplified under high deterrent measures. Consequently, deterrent measures play a crucial moderating role in strengthening the positive relationship between digitalization and VAT compliance.

Interaction between tax morale and deterrent measures

Figure 4.3 shows the moderating effect of deterrent measures on the relationship between tax morale and VAT compliance

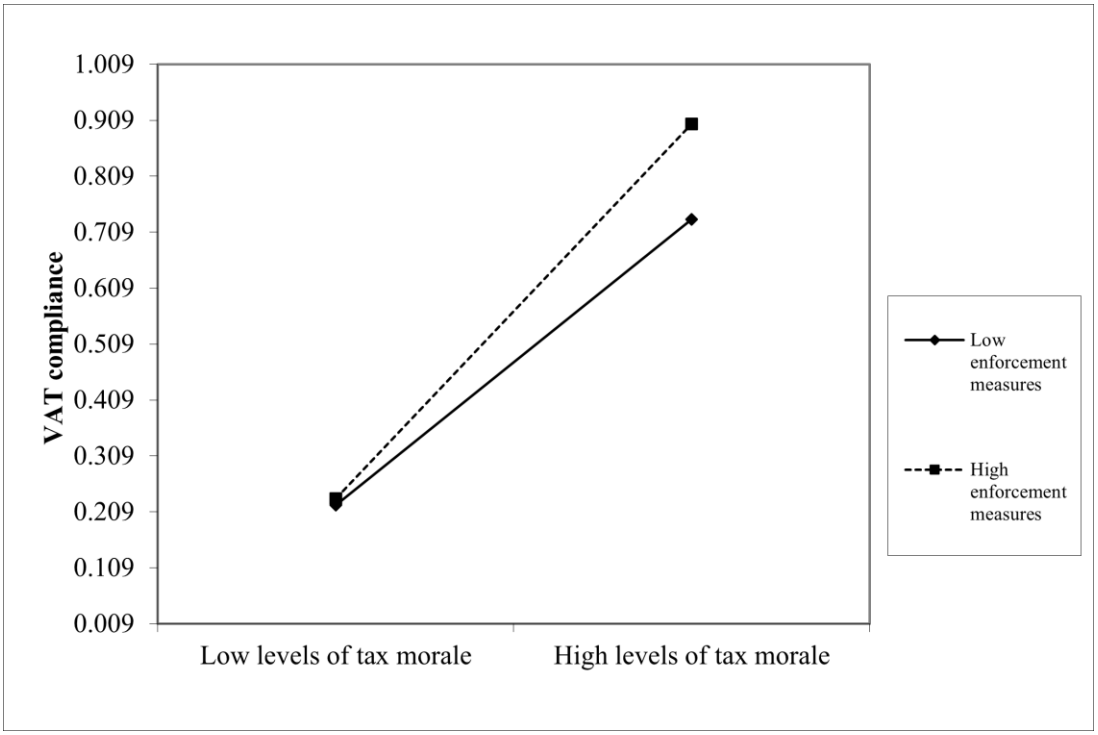

Figure 4.3: Tax morale and Deterrent Measures
(Source: Research 2024)

Figure 4.3 demonstrates that while tax morale generally leads to higher VAT compliance, this effect is significantly amplified under high deterrent measures. Consequently, deterrent measures play a crucial moderating role in strengthening the positive relationship between tax morale and VAT compliance.

Interaction between tax awareness and deterrent measures

Figure 4.4 shows the moderating effect of deterrent measures on the relationship between tax awareness and VAT compliance

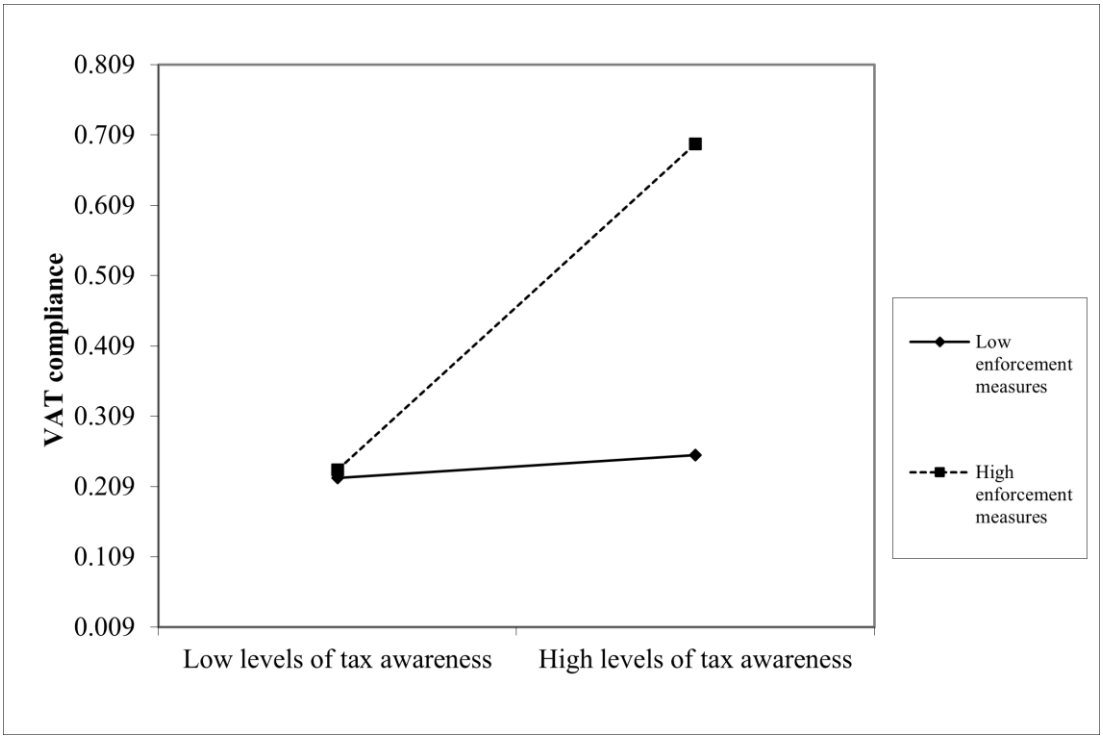

Figure 4.4: Tax Awareness and Deterrent Measures
(Source: Research 2024)

Figure 4.4 demonstrates that while tax awareness has a positive effect on VAT compliance in the absence of strong deterrent measures, this effect is significantly amplified under high deterrent measures. Consequently, deterrent measures play a crucial moderating role in strengthening the positive relationship between tax awareness and VAT compliance.

4.12 Hypotheses Tests

The summary of hypotheses test was conducted and summarized on table 4.25.

Table 4.25: Summary of Hypotheses Testing

Hypotheses	Beta Coeff	P-value	Verdict
H_{01} Digitalization has no significant effect on Value Added Tax compliance among medium taxpayers in Nairobi County, Kenya	0.402	0.001	**Reject H_{01}**
H_{02} Tax Morale has no significant effect on Value Added Tax compliance among medium taxpayers in Nairobi County, Kenya	0.295	0.016	**Reject H_{02}**
H_{03} Tax Awareness has no significant effect on Value Added Tax compliance among medium taxpayers in Nairobi County, Kenya	0.124	0.041	**Reject H_{03}**
H_{04a} Deterrent measures have no significant effect on moderating effect on the relationship between digitalization and Value Added Tax compliance among medium taxpayers in Nairobi County, Kenya.	0.526	0.000	**Reject H_{04a}**
H_{04b} Deterrent measures have no significant effect on moderating effect on the relationship between tax morale and Value Added Tax compliance among medium taxpayers in Nairobi County, Kenya.	0.248	0.000	**Reject H_{04b}**
H_{04c} Deterrent measures have no significant effect on moderating effect on the relationship between tax awareness and Value Added Tax compliance among medium taxpayers in Nairobi County, Kenya.	0.674	0.000	**Reject H_{04c}**

(Source: Research 2024)

Table 4.25 shows that for the first hypothesis **H_{01}** was Digitalization has no significant effect on Value Added Tax compliance among medium taxpayers in Nairobi County, Kenya. The study found that digitization has a significantly positive effect on Value Added Tax compliance $\beta = 0.402$, p-value $=0.001<0.05$, therefore the null hypothesis was rejected.

The second null hypothesis **H_{02}** was Tax Morale has no significant effect on Value Added Tax compliance among medium taxpayers in Nairobi County, Kenya The study found that Tax Morale has a significant effect on Value Added Tax compliance p-value $\beta = 0.295$ p-value=0.016<0.05, therefore the null hypothesis was rejected.

The third null hypothesis **H_{03}** was Tax Awareness has no significant effect on Value Added Tax compliance among medium taxpayers in Nairobi County, Kenya. The study found that Tax Awareness has a significant effect on Value Added Tax compliance, $\beta = 0.124$, p-value =0.041<0.05, therefore the null hypothesis was rejected.

H_{04}a stated that Deterrent measures have no significant effect on moderating effect on the relationship between digitalization and Value Added Tax compliance among medium taxpayers in Nairobi County, Kenya. The study found that deterrent measures significantly moderate the relationship between digitization and Value Added Tax Compliance The null hypothesis is therefore rejected. $\beta = 0.526$, P-value =0.000<0.05. This suggests that as deterrent measures strengthen, the positive relationship between digitalization efforts and VAT compliance is enhanced, indicating that taxpayers may be more compliant when digital systems are reinforced with penalties or regulatory checks.

H_{04}b: stated that Deterrent measures have no significant effect on moderating effect on the relationship between tax morale and Value Added Tax compliance among medium taxpayers in Nairobi County, Kenya. The study found that deterrent measures significantly moderate the relationship between tax morale and Value Added Tax Compliance The null hypothesis is therefore rejected. $\beta = 0.248$, P-value =0.000<0.05. Highlighting that the presence of deterrent measures enhances the positive association between tax morale and VAT compliance. This finding implies that while intrinsic

motivation, or tax morale, plays a role in compliance, its effectiveness is amplified when coupled with external deterrents, such as fines or audits, reinforcing the likelihood of adherence to tax obligations among medium taxpayers.

H_{04}c stated that Deterrent measures have no significant effect on moderating effect on the relationship between tax awareness and Value Added Tax compliance among medium taxpayers in Nairobi County, Kenya. The study found that deterrent measures significantly moderate the relationship between tax awareness and Value Added Tax Compliance The null hypothesis is therefore rejected. β =0.674, P-value =0.000<0.05. This finding implies that as taxpayers become more aware of tax obligations, the presence of deterrent measures significantly bolsters their compliance behavior. Consequently, when taxpayers are informed about their VAT responsibilities and potential penalties for non-compliance, they are more likely to adhere to tax regulations. The high coefficient suggests a strong moderating impact, reinforcing the role of deterrent measures as an effective tool in enhancing VAT compliance through increased tax awareness.

4.13 Discussion of Findings

4.13.1 Digitalization and Value Added Tax Compliance

The first objective was to determine the effect of digitalization on Value Added Tax compliance among medium taxpayers in Nairobi County, Kenya. The study found that digitization has a positive and significant correlation to VAT compliance at 46.4%. The study found that coefficient regression analysis showed that digitization had a positive and significant effect on VAT compliance β=0.402 p-value =0.001<0.05. The positive correlation between digitalization and compliance aligns with TPB's concept of perceived behavioral control, as digital tools make compliance actions easier for taxpayers. This supports TPB’s notion that facilitating factors enhance the likelihood

of behavior following an intention. This finding indicated that as digitization of tax services improved the rate of compliance tends to improve significantly. Amitabh (2019) explored how digital tax filing influenced compliance among young professionals in India, concluding that ease of use and perceived benefits of online tax filing positively influenced compliance. These findings align with the current study, which also found a significant positive effect of digitalization on VAT compliance in Nairobi. Similarly, Olaoye and Ayodole (2019) examined digital tax administration in Nigeria and found that proper sensitization around online tax filing facilitated compliance, underscoring the importance of awareness alongside digital tools. Mwonge (2021) also supported this, showing that Uganda's e-Tax system improved tax revenue and compliance by simplifying the filing process. This evidence supports the current study's findings, as all studies demonstrated that digital systems positively impact tax compliance when designed for usability and public awareness. However, Mutai (2021) diverged slightly by emphasizing that effective digitalization relies heavily on infrastructure and user skills, suggesting that Nairobi's gains might be limited without addressing these factors.

4.13.2 Tax Morale and Value Added Tax Compliance

The second objective was to establish the effect of tax morale on Value Added Tax compliance among medium taxpayers in Nairobi County, Kenya. The study found that tax morale has a positive and significant correlation to VAT compliance at 42.5%. The study found that coefficient regression analysis showed that tax morale had a positive and significant effect on VAT compliance $\beta=0.295$ p-value $=0.016<0.05$. The findings implies that the higher the rates of morale to remit and comply with tax regulations the better the rates of compliance. Fischer and Schneider (2019) observed that tax morale correlates with compliance, though it often reflects an individual's attitude more than

their behavior. In alignment with the present study's findings ($\beta=0.295$, $p < 0.05$), they concluded that high tax morale is generally associated with greater compliance. Torgler's studies (2020, 2023) further support this finding, highlighting the role of intrinsic factors like trust and pro-democratic attitudes in bolstering tax morale. These studies corroborate the current findings by linking tax morale to compliance behavior, reinforcing that taxpayer attitudes and trust are influential. Conversely, Ahmad et al. (2020) found that students' perceptions of tax morale were significantly influenced by financial constraints and fairness rather than intrinsic attitudes, suggesting that socioeconomic factors can sometimes limit tax morale's influence on compliance. This variation indicates that tax morale's effect on compliance may depend on economic context, a variable not fully explored in the Nairobi study.

4.13.3 Tax Awareness and Value Added Tax Compliance

The third objective was to find out the effect of tax awareness on Value Added Tax compliance among medium taxpayers in Nairobi County, Kenya. The study found that tax awareness has a positive and significant correlation to VAT compliance at 47.8%. The study found that coefficient regression analysis showed that tax awareness had a positive and significant effect on VAT compliance $\beta=0.124$ p-value $=0.041<0.05$. The findings indicates that as tax awareness improves the VAT compliance tend to improve. The Ability to Pay Theory is partially supported in that awareness of tax obligations, as indicated in the study, is essential for compliance. However, the study did not focus directly on taxpayers' income or ability to pay, suggesting that future research may explore this theory in greater depth by examining how affordability impacts VAT compliance specifically. Klemm and Parys (2019) identified tax system simplicity as crucial to compliance, finding that awareness of tax obligations encourages voluntary compliance, a conclusion that aligns well with this study's finding of a positive impact

of tax awareness on VAT compliance (β=0.124, p < 0.05). Chilibasi (2022) also corroborated this by noting that formal tax education enhances compliance, indicating that informed taxpayers are more likely to comply. Similarly, Oladipupo and Obazee (2018) found that tax knowledge positively impacted compliance in Nigeria, emphasizing that tax education could bridge the knowledge gap among small and medium enterprises (SMEs). However, Otieno (2022) observed a divergence in Kenya's SMEs, reporting that despite high awareness, many SMEs still avoided VAT due to a lack of enforcement, suggesting that awareness alone might not suffice in contexts with minimal deterrent mechanisms.

4.13.4 Deterrent Measures and The Relationship Between Digitalization, Tax Morale and Tax Awareness on Value Added Tax Compliance

The fourth objective was to determine the moderating role of deterrent measures on the relationship between digitalization, tax morale and Tax awareness on Value Added Tax compliance among medium taxpayers in Nairobi County, Kenya. The study found that deterrent measures has a positive and significant correlation to VAT compliance at 52.7%. The study found that while digitalization generally leads to higher VAT compliance, this effect is significantly amplified under high deterrent measures. β=0.526 p-value =0.000<0.05.

The study further found that that while tax morale generally leads to higher VAT compliance, this effect is significantly amplified under high deterrent measures. β=0.248 p-value =0.000<0.05. Lastly the study demonstrates that while tax awareness has a positive effect on VAT compliance in the absence of strong deterrent measures, this effect is significantly amplified under high deterrent measures. β=0.674 p-value =0.000<0.05. Together, these findings underscore the critical role of deterrent measures

in moderating various factors that influence VAT compliance, revealing that such measures can strengthen the effects of digitalization, tax morale, and tax awareness among medium-sized taxpayers in Nairobi County. The study's findings align with the Economic Deterrence Theory, which emphasizes that perceived risk and enforcement significantly influence tax compliance. The conclusion that deterrent measures amplify the effects of digitalization, tax morale, and awareness on compliance behavior aligns well with this theory, highlighting that robust deterrence measures are effective in encouraging compliance among medium taxpayers. This finding aligns with Alm (2022), who asserted that strong deterrent measures enhance compliance by signaling robust enforcement, which reassures compliant taxpayers. Braithwaite (2019) further supported this by suggesting that fair and legitimate deterrence fosters trust and voluntary compliance. Bobek, Hageman, and Kelliher (2022) provided additional support, showing that deterrent measures positively influenced compliance behavior, though they noted that societal expectations and individual behavior indirectly shaped compliance as well. In contrast, Kilonzo (2021) observed that Kenya's tax amnesty did not increase compliance, indicating that deterrent measures need to be tailored to specific contexts to be effective. Ombasa (2020) similarly found that agency notices positively influenced compliance in debt recovery, but their impact on VAT compliance remained unexplored, leaving a gap that the Nairobi study fills by focusing on deterrent measures directly related to VAT compliance.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This section provides a summary of the investigation findings, draws conclusions related to the research objectives, and offers recommendations. Additionally, it identifies potential areas for future research.

5.2 Summary of Findings

5.2.1 Digitalization and Value Added Tax Compliance

The first objective was to investigate the impact of digitalization on Value Added Tax (VAT) compliance among medium taxpayers in Nairobi County, Kenya. The study revealed a positive and significant correlation between digitization and VAT compliance. Regression analysis indicates that digitization positively and significantly affects VAT compliance. This suggests that the increased use of digital systems in tax administration, such as online filing and payment platforms, enhances compliance rates among medium taxpayers. Digitalization likely simplifies the VAT compliance process by reducing the time and cost associated with manual filing and improving the accuracy of tax submissions. The findings reinforce the role of digital platforms in facilitating taxpayer access to information, enhancing transparency, and reducing errors or fraudulent practices in VAT reporting. These digital systems may also ease tracking and enforcement efforts for the tax authorities, further incentivizing compliance.

5.2.2 Tax Morale and Value Added Tax Compliance

The second objective aimed to assess the influence of tax morale on Value Added Tax (VAT) compliance among medium taxpayers in Nairobi County, Kenya. The study found a positive and significant correlation between tax morale and VAT compliance. Regression analysis showed that tax morale positively and significantly affects VAT

compliance. Tax morale, or the intrinsic motivation to pay taxes, was shown to be an influential factor in compliance levels among medium taxpayers. Higher tax morale may stem from positive perceptions of government accountability and social benefits from tax revenue. These findings suggest that when taxpayers perceive that taxes are used effectively for public good, their willingness to comply with VAT obligations increases. This underlines the importance of fostering a positive tax culture, where taxpayers feel a sense of duty or moral responsibility towards paying taxes, thereby enhancing voluntary compliance and potentially reducing the need for strict enforcement measures.

5.2.3 Tax Awareness and Value Added Tax Compliance

The third objective sought to examine the impact of tax awareness on Value Added Tax (VAT) compliance among medium taxpayers in Nairobi County, Kenya. The study identified a positive and significant correlation between tax awareness and VAT compliance. Regression analysis indicated that tax awareness positively and significantly influenced VAT compliance The findings suggest that when taxpayers are well-informed about tax requirements, procedures, and consequences of non-compliance, they are more likely to adhere to VAT obligations. Tax awareness programs, such as public education initiatives and informational campaigns, play a crucial role in fostering compliance by reducing confusion, clarifying procedures, and helping taxpayers understand their responsibilities. These insights underscore the importance of continuous taxpayer education as a strategic approach to improving compliance.

5.2.4 Deterrent Measures and The Relationship Between Digitalization, Tax Morale and Tax Awareness on Value Added Tax Compliance

The fourth objective aimed to determine the moderating effect of deterrent measures on the relationships between digitalization, tax morale, tax awareness, and Value Added Tax (VAT) compliance among medium taxpayers in Nairobi County, Kenya. The study revealed a positive and significant correlation between deterrent measures and VAT compliance. It was observed that digitalization, tax morale, and tax awareness all had amplified effects on VAT compliance under high deterrent measures (β values and p-values for each relationship were significant. Thus high deterrent measures significantly moderates the relationships between digitalization, tax morale, tax awareness, and Value Added Tax (VAT) compliance among medium taxpayers in Nairobi County, Kenya. This suggests that higher levels of deterrent measures such as penalties, audits, and legal actions enhance the effectiveness of digitalization, tax morale, and tax awareness in promoting compliance. Under high deterrent conditions, the positive effects of digitalization, tax morale, and tax awareness on compliance were amplified, indicating that while these factors independently encourage compliance, deterrent measures further reinforce these behaviors by increasing the perceived cost of non-compliance.

The findings underscore the importance of a balanced approach to VAT compliance that combines supportive measures (digitalization, tax education, and fostering tax morale) with deterrent mechanisms to create a robust compliance framework. Together, these components form a comprehensive strategy to address non-compliance, ensuring that medium taxpayers in Nairobi County adhere more consistently to VAT regulations.

5.3 Conclusion

The conclusion of study edged from the main objective which was to establish moderating role of deterrent measures on selected determinants on value added tax compliance among medium taxpayer in Nairobi County, Kenya.

The study concludes that digitalization plays a crucial role in enhancing Value Added Tax (VAT) compliance among medium taxpayers in Nairobi County, Kenya. The positive and significant correlation found suggests that as businesses adopt digital tools and processes, their compliance with VAT regulations improves. The regression analysis further underscores this effect, showing that for every unit increase in digitalization there is a corresponding increase in VAT compliance. This highlights the importance for tax authorities to promote digital initiatives among taxpayers to enhance compliance.

The findings indicate that tax morale positively influences Value Added Tax (VAT) compliance among medium taxpayers in Nairobi County, Kenya. The study concludes that when taxpayers have a positive attitude towards taxation, they are more likely to comply with VAT regulations. The significant correlation found underscores the motivational impact of tax morale on compliance behaviors. Tax authorities could consider strategies to bolster tax morale through transparency, fairness, and effective communication to foster greater compliance.

The study concludes that tax awareness significantly contributes to enhancing Value Added Tax (VAT) compliance among medium taxpayers in Nairobi County, Kenya. The positive correlation observed suggests that informed taxpayers are more likely to understand their tax obligations and comply accordingly. Enhancing tax education and awareness programs could therefore be a viable strategy for improving VAT

compliance rates. The findings emphasize the need for targeted educational initiatives that enhance taxpayers' understanding of VAT regulations and their obligations.

The study concludes that deterrent measures play a crucial role in moderating the relationships between digitalization, tax morale, tax awareness, and Value Added Tax (VAT) compliance among medium taxpayers in Nairobi County, Kenya. The significant correlation found between deterrent measures and VAT compliance suggests that robust deterrence enhances the effectiveness of digitalization, tax morale, and tax awareness in improving compliance. The study highlights the synergistic effect of strong deterrence alongside digital initiatives, positive tax morale, and heightened tax awareness on overall VAT compliance.

5.4 Recommendations

Based on the study's findings, it is recommends the following:

5.4.1 Government and Policy makers

The findings suggest that digitalization significantly enhances Value Added Tax (VAT) compliance among medium taxpayers in Nairobi County, Kenya. Therefore, it is recommended that the Kenyan government prioritize policies that expand and support digital tax infrastructure. Tax authorities, like the Kenya Revenue Authority (KRA), should consider implementing additional funding and resources for digital tax filing systems, ensuring they are user-friendly, reliable, and accessible. Policies could mandate training programs on e-filing for taxpayers, which would address gaps in user skills and technical knowledge. Additionally, policies aimed at strengthening data security in digital tax systems would likely enhance taxpayer trust, further encouraging compliance.

Regarding tax morale, it is recommended that the government adopt policies that promote transparency, fairness, and accountability in tax administration to foster positive taxpayer attitudes. Introducing public awareness campaigns that highlight how tax revenue is allocated may strengthen citizens' willingness to comply by showcasing the social benefits of tax contributions. These initiatives would support the development of a positive tax morale, reinforcing voluntary VAT compliance.

Lastly, for deterrent measures, the government should implement stronger enforcement policies that include penalties for non-compliance but are perceived as fair and consistently applied. High deterrent measures were found to strengthen compliance, so policies that clearly communicate consequences while maintaining fairness can help ensure that tax laws are followed effectively.

5.4.2 Practical Suggestions for Tax Authorities

From a practical perspective, KRA and tax management bodies should focus on integrating digital solutions into daily tax administration processes to support VAT compliance. KRA can work closely with business associations to conduct regular workshops and provide guidance on using digital tax systems. Practical steps, such as implementing mobile-friendly e-filing platforms and offering customer support for technical issues, could also address usability concerns, thus enhancing digital tax compliance.

To improve tax morale among medium taxpayers, KRA could adopt a more customer-centered approach. For instance, implementing feedback mechanisms where taxpayers can share their opinions about the tax process and addressing concerns promptly would make taxpayers feel valued, thereby fostering trust. Additionally, KRA should ensure

that tax policies are communicated transparently, and that enforcement actions are fair and consistent.

In terms of tax awareness, KRA should enhance outreach programs targeting medium taxpayers to provide ongoing education about VAT regulations, filing requirements, and the benefits of compliance. Practical efforts, such as easy-to-understand informational resources and a helpline for VAT-related questions, would make compliance easier for taxpayers, thus supporting higher VAT compliance levels. Taxpayers, on their part, should seek to stay informed about VAT obligations by participating in KRA-provided training and resources to ensure they remain compliant.

5.4.3 Theoretical Implications

The findings of this study support the Theory of Planned Behavior (TPB) by illustrating how attitudes and perceived behavioral control, as facilitated by digitalization and deterrent measures, contribute to VAT compliance intentions. The positive correlation between digitalization and compliance aligns with TPB's concept of perceived behavioral control, as digital tools make compliance actions easier for taxpayers. This supports TPB’s notion that facilitating factors enhance the likelihood of behavior following an intention.

The findings also resonate with the Innovation Diffusion Theory, which posits that new technologies will be adopted when perceived as advantageous. The study’s results indicate that digital tools, viewed as more efficient than manual processes, encourage compliance, supporting the theory’s argument that perceived usefulness is a driver of adoption.

Additionally, the study’s findings align with the Economic Deterrence Theory, which emphasizes that perceived risk and enforcement significantly influence tax compliance.

The conclusion that deterrent measures amplify the effects of digitalization, tax morale, and awareness on compliance behavior aligns well with this theory, highlighting that robust deterrence measures are effective in encouraging compliance among medium taxpayers.

Lastly, the Ability to Pay Theory is partially supported in that awareness of tax obligations, as indicated in the study, is essential for compliance. However, the study did not focus directly on taxpayers' income or ability to pay, suggesting that future research may explore this theory in greater depth by examining how affordability impacts VAT compliance specifically.

5.4.4 Suggestions for Future Research

Future research should explore the impact of digital literacy on VAT compliance, the role of cultural factors in shaping tax morale and compliance, the long-term impact of deterrent measures, and the potential moderating effects of economic cycles on the relationship between digitalization, tax morale, tax awareness, and VAT compliance. Future studies could expand to other counties to assess whether regional differences affect VAT compliance, which could provide insights into location-specific compliance challenges and strategies.

Second, this study focused on medium taxpayers, limiting generalizability to small or large taxpayers. Future research could explore whether the impact of digitalization, tax morale, and awareness on VAT compliance differs by business size to offer more tailored recommendations for different taxpayer categories.

Moreover, while this study examined deterrent measures broadly, further research could delve into specific types of deterrents (e.g., fines, audits) and their individual

effects on compliance. This would enable a more nuanced understanding of which enforcement mechanisms are most effective for VAT compliance.

Future study should be conducted on the effects of behavioral factors on VAT compliance.

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APPENDICES

Appendix I: Introduction Letter

RE: REQUEST FOR DATA COLLECTION

I am Emanuel Aghan, a master's student at Moi University, I am currently conducting a study on the **"DETERRENT MEASURES, DIGITALIZATION, TAXPAYER MORALE, TAXPAYER AWARENESS AND VALUE ADDED TAX COMPLIANCE AMONGST MEDIUM TAXPAYERS IN NORTH OF NAIROBI TAX DISTRICT, KENYA."** Kindly answer the following questions honestly and accurately as possible. The information given will be treated with a lot of confidentiality..

Yours Faithfully,

Emanuel Aghan

Appendix II: Questionnaire

Kindly answer the questions to the best of your knowledge. Please tick within the boxes and fill the questionnaire with applicable answer to enable the study to be successful.

SECTION A: Background information

1. What is your gender?

   Male ( ) Female ( )

2. Age? (years) 20-25 years [ ] 26-30 years[ ] 31-35 years [ ]36-40 years[ ] 41 years and over [ ]

3. Kindly indicate your highest level of education

   Certificate ( )

   Diploma/Professional ( )

   Undergraduate ( )

   Graduate ( )

   Doctorate ( )

SECTION B: DIGITALIZATION

Please indicate on the scale provided below by ticking (√) the extent to which you agree with the following statements. Strongly Agree=5, Agree=4, Neutral=3, Disagree=2, Strongly Disagree=1

Statements	**1**	**2**	**3**	**4**	**5**
Online taxation has reduced filing costs					
The top management in our organization is aware of the benefits of digitalization in enhancing tax compliance					
Our time is saved because of digitalization in tax administration					
Payment of taxes through mobile money has improved my tax compliance.					
Changes made in electronic filing system has eased my work of preparation of tax returns					
Electronic payment process is simple					

TAX MORALE

Please indicate on the scale provided below by ticking (√) the extent to which you agree with the following statements. Strongly Agree=5, Agree=4, Neutral=3, Disagree=2, Strongly Disagree=1

Statements	**1**	**2**	**3**	**4**	**5**
I trust the government with my tax payments, and this encourages me to effectively comply with all tax requirements.					
My faith often encourages me to pay all my taxes as provided for in tax laws because it is the right thing to do.					
When I pay taxes, my contribution does not count due to misappropriation of tax revenue by the government.					
I feel that tax revenue is often lost due to corruption and that discourages me from being compliant.					
I think the process of filing tax returns is too tedious, and that often discourages me.					

TAX AWARENESS

Please indicate on the scale provided below by ticking (√) the extent to which you agree with the following statements. Strongly Agree=5, Agree=4, Neutral=3, Disagree=2, Strongly Disagree=1

Statements	**1**	**2**	**3**	**4**	**5**
I can comfortably engage in filing tax returns without assistance					
I am aware of the possible tax risks in my area of operation					
I understand my tax liability					
I can comfortably engage in various tax calculations without assistance					
I am aware of tax due date					
I am aware of tax laws					

MODERATOR

DETERRENT MEASURES

Please indicate on the scale provided below by ticking (√) the extent to which you agree with the following statements. Strongly Agree=5, Agree=4, Neutral=3, Disagree=2, Strongly Disagree=1

Statements	**1**	**2**	**3**	**4**	**5**
Agency notices issued by KRA to the medium taxpayer help in deterring tax evasion					
Distrain actions by tax officers to medium taxpayer help in deterring tax evasion					
Penalties imposed by KRA are harsh and that prompts me to be tax compliant					
High tax rates deter me from being tax compliant					
PIN deactivated by the KRA for non-compliance is common method used by KRA to enforce compliance					

VALUE ADDED TAX COMPLIANCE

Please indicate on the scale provided below by ticking (√) the extent to which you agree with the following statements. Strongly Agree=5, Agree=4, Neutral=3, Disagree=2, Strongly Disagree=1

Statements	**1**	**2**	**3**	**4**	**5**
I always file my VAT returns as stipulated by the law					
I register for new tax obligations as and when I attain registration criteria					
I compute and pay my VAT correctly and in good time as stipulated by the law					
I file VAT returns voluntarily without being compelled to do so.					
I always declare the correct amount					

Appendix III: Data Collection Authorization Letter

KENYA REVENUE AUTHORITY

ISO 9001:2015 CERTIFIED

PUBLIC

KENYA SCHOOL OF REVENUE ADMINISTRATION

REF: KESRA/NBI/036

24th July 2024

TO: WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: REQUEST FOR ASSISTANCE TO EMMANUEL ODHIAMBO AGHAN OF REGISTRATION NO.: KESRA105/0081/2022 UNDERTAKING MASTERS AT KESRA

This is to confirm that the above named is a student at Kenya School of Revenue Administration (KESRA) Nairobi Campus pursuing Masters in Tax and Customs Administration.

The named student is undertaking Research on TOPIC: **"Enforcement measures digitalization, tax payer morale, tax payer awareness and value added tax compliance amongst medium taxpayers in North of Nairobi tax district, Kenya."**

The purpose of this letter is to request for your kind facilitation in enabling the student progress in his research project by allowing access to any relevant information and/or conduct interviews, which are relevant to the project.

Your support to the student in this regard will be highly appreciated.

Thank you.

KENYA SCHOOL OF REVENUE ADMINISTRATION
DEAN OF STUDIES
24 JUL 2024
ACADEMIC AFFAIRS

Damacrine Masira
Manager Academic Research,
KESRA

Appendix IV: NACOSTI Certificate

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **606602**

Date of Issue: **22/August/2024**

RESEARCH LICENSE

This is to Certify that Mr.. Emmanuel Odhiambo Aghan of Kenya School of Revenue Administration, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: ENFORCEMENT MEASURES, DIGITALIZATION, TAXPAYER MORALE, TAXPAYER AWARENESS AND VALUE ADDED TAX COMPLIANCE AMONGST MEDIUM TAXPAYERS IN NORTH OF NAIROBI TAX DISTRICT, KENYA for the period ending : 22/August/2025.

License No: **NACOSTI/P/24/39053**

606602

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions

Appendix V: Plagiarism Awareness Certificate

SR698

ISO 9001:2019 Certified Institution

THESIS WRITING COURSE

PLAGIARISM AWARENESS CERTIFICATE

This certificate is awarded to

EMMANUEL AGHAN

KESRA 105/0081/2022

In recognition for passing the University's plagiarism

Awareness test for Thesis **entitled: DETERRENT MEASURES, DIGITALIZATION, TAXPAYER MORALE, TAXPAYER AWARENESS AND VALUE ADDED TAX COMPLIANCE AMONGST MEDIUM TAXPAYERS IN NORTH OF NAIROBI TAX DISTRICT, KENYA** similarity index of 10% and striving to maintain academic integrity.

Word count:21457

Awarded by

Prof. Anne Syomwene Kisilu
CERM-ESA Project Leader Date: 20/09//2024