



ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

**THE EFFECTS OF DIGITAL TAX ADMINISTRATION SYSTEMS
IN ENHANCING TAXPAYER COMPLIANCE: EVIDENCE FROM
FEDERAL MINISTRY OF REVENUE IN ADDIS ABABA**

BY

FEDLU TEMAM

JANUARY 2026

ADDIS ABABA, ETHIOPIA

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BY

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ADVISOR – TAKELE FUFA (Ph.D.)

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COLLEGE OF BUSINESS AND ECONOMICS
APPROVAL SHEET

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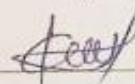
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DECLARATION

I, the undersigned, declare that this thesis “THE EFFECTS OF DIGITAL TAX ADMINISTRATION SYSTEMS IN ENHANCING TAXPAYER COMPLIANCE; EVIDENCE FROM FEDERAL MINISTRY OF REVENUE IN ADDIS ABABA” is my original work, prepared under the guidance of Takele F. (Ph.D.). All sources of materials used for this thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or full to any other higher learning institution to earn any degree.

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ENDORSEMENT

This thesis has been submitted to Addis Ababa University for examination with my approval as a university advisor.

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Finally, I alone take responsibility for any mistakes or omissions in this paper.

The Researcher.

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ACRONYMS AND ABBREVIATIONS

ANOVA	Analysis of Variance
BEPS	Base Erosion and Profit Shifting (OECD framework)
DTAS	Digital Tax Administration System
ECC	Ethiopian Customs Commission
ERCA	Ethiopian Revenue and Customs Authority
ERP	Enterprise Resource Planning
FMOR	Federal Ministry of Revenue
IFRS	International Financial Reporting Standards
MoR	Ministry of Revenue
NGO	Non-Governmental Organization
OECD	Organization for Economic Cooperation and Development
PAYE	Pay-As-You-Earn (salary-based tax system)
SD	Standard Deviation
SPSS	Statistical Package for the Social Sciences
TAM	Technology Acceptance Model
TCB	Taxpayer Compliance Behavior
UNECA	United Nations Economic Commission for Africa
VIF	Variance Inflation Factor

ABSTRACT

This study investigated the effect of digital tax administration system features on tax compliance of federal taxpayers in Addis Ababa, Ethiopia. It focused on six key dimensions: system usability, technological literacy, perceived trust, training and support, perceived benefits, and enforcement visibility. An explanatory research design was employed to examine the causal relationships between these variables and compliance behavior. Primary data were collected through structured questionnaires administered to sample 385 respondents selected from both category A and B taxpayer population. A mixed sampling method was employed, which included the simple random and convenience sampling methods. Descriptive statistics, correlation, and multiple regression analysis were employed to test the hypotheses. Overall, the results indicate that the issue of system functionality, especially usability and support, is more significant in influencing compliance than the concept of trust or deterrence. This is further evidence that taxpayers in Ethiopia are most likely to respond to systems that are functional and user-friendly, with responsive support. On the other hand, this research also has implications in the theoretical development of digital governance and taxpayer behavior in developing countries, as it proves that compliance is less influenced by institutional attitudes and more by utility. In this regard, the implications are clear, and it is imperative that efforts be made to improve digital tax systems and service delivery, as well as promote voluntary compliance through user-centric initiatives to improve Ethiopia's revenue systems and overall public sector transformation.

Keywords: Taxpayer Compliance Behaviour, Digital Taxation, Enforcement Visibility, Perceived Benefits, System Usability, Technological Literacy

CHAPTER ONE: INTRODUCTION

1.1. Background of the Study

Taxation is the engine that drives public services and infrastructure, and without it, schools, hospitals, and roads grind to a halt. However, the taxation system in Ethiopia is sputtering due to outdated and opaque systems of taxation, taxpayer ignorance, cumbersome filing procedures, and the general perception of unfairness, which together stifle compliance and hinder the tax base from growing to support the country's development goals (Wondimu & Tilahun, 2020). Furthermore, the lack of awareness campaigns and taxpayer education also means that citizens are unaware of the direct relationship between their contribution to the system and the benefits they receive from it, thus perpetuating the culture of resistance and evasion (Gebreyesus, 2019). To address these issues, it is imperative to move beyond the incremental changes to the system more efficient and less prone to discretion, along with taxpayer education that promotes fairness and mutuality, to generate the revenues required to drive the economy forward.

The digital tax administration in Ethiopia has evolved into a contemporary e-taxation system that provides an online registration, filing, and payment system to enhance compliance and transparency. Using the Ministry of Revenues e-Services platform, taxpayers can register, file Value Added Tax (VAT) and income tax returns, and make secure online payments connected with local banks and mobile operators (Ministry of Revenues, 2024). The e-Filing system enables monthly VAT returns and record-keeping, and customs services are also computerized through electronic clearance and declaration systems that reduce border delays (Ethiopian Customs Commission, 2024). Other enhancements include taxpayer education materials, online support desks, and compliance tracking systems that enable taxpayers to upload their records online, improving the system to be more efficiency (World Bank, 2023).

The shift to Digital Tax Administration Systems (DTAS) is a move towards the digitalization of processes. The digital interventions are meant to ensure efficiency, reduce corruption, and give taxpayers a better experience. Globally, the digitalization interventions in countries such as Kenya and Rwanda have shown promising results in terms of increased compliance rates and efficiency (Batt et al., 2020). The success of digitalization is dependent on various factors such as technology, digital literacy, among others.

Same vein, similar to many other developing economies, Ethiopia has also adopted the e-Service in order to address the compliance challenges, particularly among small and medium taxpayers. As Tekalign (2024) states, although the DTAS platforms, including e-filing and e-payment, have been rolled out, the adoption of the platforms is low due to a number of challenges, including low digital literacy, infrastructural problems, and the reluctance of taxpayers to adopt change. The study concluded that out of the sampled taxpayers in Addis Ababa, only 42% of them had managed to use the e-tax system successfully due to a number of challenges. In a similar trend, the International Center for Tax and Development - ICTD (2023) report on large and medium taxpayers indicated that, though the e-filing system had a positive impact on the administrative efficiency of the system, the behavioral impact on the taxpayers' voluntary compliance was mixed, with trust in the system and usefulness emerging as key challenges.

Despite the start of the process of digital tax reform, little is known about the behavioral influence on taxpayer compliance. Most of the literature, such as the studies by Gebremariam (2022) and Mascagni et al. (2021), has focused on the implementation, infrastructure, and administration of DTAS rather than the perceptions and behavioral responses. From a global perspective, literature on the Rwandese and Kenyan experiences has shown that DTAS has a positive influence on taxpayer compliance, mainly through usability, transparency, and benefits (Batt et al., 2020). However, little is known about the extent to which these factors influence taxpayer compliance in Ethiopia. For example, little is known about the influence of usability, technology, trust, and enforcement on taxpayer compliance. This study aims to bridge the knowledge gap on the behavioral responses and the technological roll-out of DTAS in Ethiopia.

1.2. Statement of the Problem

Tax compliance has been an enduring and essential issue within the Ethiopian government's revenue mobilization strategy, particularly with regard to digitalization. The federal ministry of revenue introduced the digital tax system as part of its digitalization strategy. In spite of all the efforts made by the government, the ongoing trend of substantial arrearage in terms of tax compliance has raised crucial issues about the digitalization strategy. For instance, only 37 percent of licensed businesses within Ethiopia are currently tax-compliant, with more than 46,000 registered taxpayers not complying with the law (FMOR Report, 2024). This represents a mere 60 percent of the total expected amount being collected, thereby reflecting the failure of digitalization to produce

the expected results with regard to taxpayer compliance. The problem, therefore, is not merely with the process but rather with the behavior of taxpayers, as they continue with such practices as underreporting and evasion.

The digital tax administration system was introduced with the strategic objective of minimizing administrative inefficiencies and improving compliance outcomes through automation, transparency, reduced discretionary powers, and lower compliance costs. Empirical evidence indicates that digital tax systems have the potential to improve compliance rates substantially (Batt et al., 2020). The specific context of Ethiopia (with limited digital infrastructure, low internet penetration, and diverse taxpayer characteristics) requires a localized examination of the effectiveness of digital tax systems (Gebremariam, 2022). In this regard, legacy constraints continue to impede the performance of tax administration in the country as well. Manual procedures, limited utilization of real-time data, and bureaucratic delays have historically undermined both taxpayer experience and administrative efficiency (Mascagni et al., 2021).

These changes have led to operational efficiencies, although some system-level issues still need to be addressed. In this case, small and micro businesses face some challenges regarding digital literacy, technical support, infrastructure, and trustworthiness of the digital space, which could potentially influence their participation and benefits in DTAS (World Bank, 2023). These factors call for further research on the importance of system usability, taxpayer literacy, and trustworthiness of digital spaces for taxpayer compliance. There is a need to shift away from enforcement-based models and towards digitally enabled, user-centric models that may have the potential to promote voluntary compliance (Wondimu & Tilahun, 2020).

Despite the strategic importance that is accorded to the implementation of DTAS, there has been a significant lack of research studies that assess the extent to which the implementation of DTAS has promoted taxpayer compliance. The ministry has introduced electronic filing and payment systems, but most research studies have focused on the use, infrastructure, and efficiency. For example, the research done on the case of large and medium taxpayers by ICTD (2023) indicated that, despite the efficiency that had been promoted by the introduction of the electronic filing system, the impact on taxpayer compliance was minimal, depending on the perception of the taxpayer.

Another research done by Negash (2024) indicated that only 42 percent of the taxpayers in the city had managed to use the electronic tax system, with most of the taxpayer experiencing difficulties

because of their lack of knowledge, lack of support, and lack of trust. It can, therefore, be concluded that the behavioral factors are important, yet not sufficiently explored, factors that influence the success or failure of DTAS. It is in this context that the current study set out to bridge the gap by assessing the effectiveness of DTAS in improving taxpayer compliance in the city of Addis Ababa, under the jurisdiction of the FMOR. In particular, it aimed to examine whether there is an improvement in the level of compliance among various groups of taxpayers as a result of the implementation of DTAS, what are the technological and behavioral constraints that affect the efficiency of DTAS, and how the perceptions of taxpayers affect their compliance behavior in a digital setting. By identifying the levels of compliance into various groups of taxpayers, the present study aimed to provide a more refined insight into the behavioral factors that affect the level of compliance of taxpayers in the digital tax administration system of the federal ministry of revenue in Addis Ababa.

1.3. Objectives of the Study

1.3.1. General Objective

To examine effectiveness of digital tax administration systems in improving taxpayer compliance within the Federal Ministry of Revenue in Addis Ababa.

1.3.2. Specific Objectives

1. To examine the effect of system usability of digital tax administration systems on taxpayer compliance behavior.
2. To investigate the effect of taxpayers' technological literacy on tax compliance behavior.
3. To evaluate the effect of perceived trust in digital tax administration systems on taxpayer compliance behavior.
4. To test the effect of training and support in utilizing digital tax administration systems on taxpayer compliance behavior.
5. To analyze the influence of perceived benefits of digital tax administration on taxpayer compliance behavior.
6. To examine the effect of enforcement visibility embedded in digital tax administration systems on taxpayers' compliance decisions.

1.4. Hypotheses

- Hypothesis 1 (H1): System usability within digital tax administration systems has a statistically significant positive effect on taxpayer compliance behavior.
- Hypothesis 2 (H2): The level of technological literacy of taxpayers has a significant impact on the adoption and use of digital tax administration systems.
- Hypothesis 3 (H3): Perceived trust in digital tax administration systems has a significant impact on taxpayers' willingness to comply with their tax obligations.
- Hypothesis 4 (H4): Access to training and support services has a significant impact on taxpayers' adoption and use of digital tax administration systems.
- Hypothesis 5 (H5): Perceived benefits of digital tax administration systems have a significant impact on taxpayers' motivation to comply voluntarily.
- Hypothesis 6 (H6): Enforcement visibility embedded in digital tax administration systems significantly influences taxpayers' compliance decisions.

1.5. Significance of the Study

This research has several important implications. Firstly, it offers an empirical perspective on the role of system usability, technological literacy, trust perceptions, and enforcement visibility in taxpayer compliance in a digital tax system. Secondly, it offers a set of recommendations to the FMoR on how to improve the design and functionality of the digital tax administration system. The findings of this research would be extremely valuable in improving taxpayer participation and compliance. Thirdly, this research has policy implications in that it would help policymakers identify areas where the government can improve its compliance strategy without incurring the costs of traditional enforcement. Finally, this study contributes to the body of knowledge as it proposes a compliance that incorporates technological, behavioral, and institutional perspectives. This framework is especially important in emerging economies that are in the process of digital transformation.

1.6. Scope of the Study

Geographically, this study is specific to the location of Addis Ababa, which is the capital and administrative center of Ethiopia and where the FMoR maintains a broad and concentrated base of taxpayers. Conceptually, this study is specific to six independent variables, namely system usability, technological literacy, trust in DTAS, training and support services, benefits of the system, and enforcement visibility, and their combined influence on taxpayer compliance behavior. In terms of methodology, this study is specific to a quantitative study design, where structured surveys were conducted to perform quantitative analysis and gain contextual insights. It makes it more important as it allows a more holistic investigation of the relevant technological and behavioral factors influencing digital tax compliance. Temporally, this study is specific to the period from August to September 2025, which is within the context of the post-implementation period of digital tax systems in Ethiopia.

1.7. Definition of Key Terms

System Usability – System usability is a system that is user-friendly reduces effort expectancy and encourages consistent use, hence improving compliance. (Venkatesh & Davis, 2000).

Technological Literacy - Taxpayers who lack digital literacy may choose not to use DTAS, hence non-compliance, particularly in the informal economy. (World Bank, 2023; Gebremariam (2022)

Perceived Trust in DTAS - The trust that taxpayers develop with regard to data privacy, accuracy, and integrity influences their voluntary compliance behavior. (McKnight et al., 2002; OECD, 2021)

Training and Support Services - The availability of help desks, training programs, and outreach programs enhances the voluntary use of DTAS among reluctant taxpayers. (Alm, 2019).

Perceived Benefits – This can be taken as the perception of taxpayers regarding the benefits of saving time and money with the help of DTAS influences their voluntary compliance behavior. (Mascagni et al. 2021).

Enforcement Visibility – Enforcement visibility is a perceived probability of being detected using DTAS can serve as a deterrent against evasion. (OECD, 2021).

Taxpayer Compliance Behavior - The dependent variable of interest - defined as timely, accurate, and complete tax reporting and payment. (Kirchler et al. (2008).

1.8. Organization of the Study

This paper was organized into five chapters. Chapter One: Introduction introduces the background, statement of the problem, research questions, objectives, significance, scope, and organization of the research work. Chapter Two: Review of Related Literature examines the theoretical models, empirical research, and conceptual discussions that are relevant to the framework of the research work. Chapter Three: Methodology discusses the research design, sampling techniques, data gathering tools, and methods of data analysis. Chapter Four: Data Analysis and Interpretation presented the results of the data analysis, relating it to the research questions and conceptual framework. Chapter Five: summarized the findings, drew conclusions from the research work, and provided suggestions that can guide future research works.

CHAPTER TWO: REVIEW OF THE RELATED LITERATURE

This study aims to examine the effect of digital tax administration systems on taxpayer compliance. It adopts a digital transformation lens to understand how different dimensions of digital taxation systems implementation - namely system usability, technological literacy, perceived trust, training & support, perceived benefits, and enforcement visibility - collectively influence compliance behaviour. Guided by both behavioral and institutional perspectives, it is proposed that this research will seek to assess the impact of digital modernization, as a process, on tax processes, tax models, and tax administration. Thus, it is within this context that this chapter will lay the theoretical, empirical, and conceptual foundation upon which this research will be based, with a view to systematically evaluating the effectiveness of DTAS as a tool to enhance voluntary tax compliance in Ethiopia.

2.1. Theoretical Literature Review

The theoretical literature part reviews concepts and fundamental theories concerning taxation and compliance, with emphasis placed on the taxation system and voluntary compliance behavior of taxpayers across various economies. The major dimensions of taxpayer behavior concerning digital tax administration systems are examined through fundamental theories. The theories include the theory of planned behavior, theory of reasoned action, and the theory of reasoned action with subjective norms.

2.1.1. Concept of Taxation

Taxation, which is a compulsory financial charge imposed by governments on citizens and organizations, is the cornerstone of public finance and enables governments to finance important public expenditures (Musgrave, 1959). This phenomenon, which is viewed as a constraint, is important in modern society and enables governments to finance important public expenditures that enhance the general welfare of citizens and the prosperity of nations.

Taxation is a mechanism of generating revenues for governments, which are used to finance a wide range of public expenditures. Some of these expenditures include, but are not limited to, healthcare, education, infrastructure development, national defense, and social welfare. Hence, without taxation, governments would not have the necessary revenues to finance important public expenditures, which would ultimately result in the reduction of the quality of life of citizens.

Moreover, the distribution of taxes is an important mechanism that ensures social justice and the reduction of economic inequalities. Hence, tax rates that require high-income earners to pay a higher percentage of their income to tax have been used in many nations.

Moreover, the aspect of taxation is also vital in the management of the macroeconomic environment. The government can utilize the aspect of taxation as a tool to stimulate or reduce economic growth, control inflation, and generate employment opportunities. The success of these strategies, however, is determined by various factors, including the economic environment, the responsiveness of consumers and industries to taxation, and the viability of the government's taxation strategies.

In conclusion, the aspect of taxation is vital and can be utilized as a tool by the government to finance public expenditure, improve the welfare of the public, and control the macroeconomic environment. Although the implementation of taxation strategies is complex and often debated, the fundamental fact is that it is vital and inevitable in the modern world, as it is necessary for the provision of public goods and services that benefit the larger community. The aspect of equity, efficiency, and macroeconomic environment is vital in the utilization of taxation as a catalyst for positive change in the larger community.

2.1.2. Digital Tax Administration System (DTAS)

Digital Tax Administration System (DTAS) Overall Description The use of technology to improve tax assessment and collection, surveillance of tax compliance, and provision of taxpayer services. This involves a paradigm shift in the model of use of existing tax systems, which were based on a paper file and impersonalized solutions to a more integrated and data-driven solution to improve efficiency, transparency, and service to taxpayers (OECD, 2023). The foundation of a DTAS would be the electronic filing of taxes, payment of taxes, and transaction tracking with risk profiling through sophisticated analytics. This could also include the creation and use of new technologies, like AI, ML, blockchain, etc., to improve the accuracy of information used in tax systems and to find ways to narrow down tax evasion 17 (World Bank, 2022). For example, the use of e-invoicing and e-receipts could allow for real-time surveillance of taxable transactions (OECD, 2023).

The benefits of DTAS are many. First, DTAS reduces the compliance cost of taxation by the taxpayer. This is done by simplifying the process and using user-friendly digital tools such as mobile applications and the web (Estevão, 2021). Second, DTAS maximizes revenues by expanding

the tax base and its collection using real-time data access and verification (Junquera-Varela et al., 2022). Finally, empowering taxpayers to monitor their duties without conflict promotes trust and transparency (Junquera-Varela et al., 2022). Despite the benefits associated with DTAS, it should be noted that DTAS also has its own limitations, especially in developing countries where digital taxation may not be possible owing to the lack of internet connectivity and digital knowledge (Santoro, Prichard & Mascagni, 2024). Generally, DTAS may prove to be revelational in terms of the effectiveness of revenue and customs authorities. This is because the relevant ministries will also have the power to improve compliance, reduce costs, and introduce other reforms that are in line with the country's digitalization strategy.

2.1.3. Features of Digital Tax Administration System

The advent of digital tax administration systems (DTAS) marks a watershed in the relationship between tax-payers and tax authorities, as well as in tax compliance. The shift, through a digital perspective, highlights a move towards a simpler, efficient, and transparent tax system. However, it is important to note that a DTAS depends on a number of core features, which in turn contribute to its success and modernization of the tax process.

System Usability - Another key characteristic of an effective DTAS is system usability. This, as a characteristic, is the ease with which taxpayers can use digital technology to finalize their compliance process, whether it be the submission of tax returns or payments, as well as other key services. The system that is easy to use, with simple instructions and a highly streamlined process, is highly usable. If a DTAS is highly usable, this means that the compliance costs of taxpayers are significantly lowered, as it is not as difficult to use the system (OECD, 2023). This, in turn, means that taxpayers are encouraged to use the system, as they find it to be a simple process to use, as opposed to a complicated one.

Technological Literacy - Another factor which is very much related to the usability of the system is the technological literacy of the system's users. It is very important to note that the success of any DTAS is inextricably linked with the technological literacy of the system's users. For example, in different settings, the level of digital literacy might vary considerably among the population, as discussed in the case of Ethiopia. It is very important to note that in the absence of technological literacy, the usability of the system might not result in the desired output.

Perceived Trust - Perceived trust in the system and the administering authority is another significant factor that affects taxpayers' engagement in the system. In other words, when taxpayers perceive that the digital tax system and the administering authority are transparent, secure, and responsive, they are able to establish trust in the system, which in turn reduces their resistance to tax compliance. In this respect, transparency in the DTAS implies that there is clarity in tax regulations and that there is availability of information on tax processes and communication from the tax authorities. In addition, security in the DTAS implies that there will be no security breaches in the digital tax system, while responsiveness implies that there will be effective communication with taxpayers. According to Santoro, Prichard, & Mascagni (2024), when there is a high level of trust in the digital tax system, there is a collaborative atmosphere that promotes the willingness to comply with the digital tax system. Conversely, when there is no trust in the digital tax system, there may arise suspicion that may lead to non-compliance with the digital tax system, which may in turn lead to a poor relationship between the tax authorities and taxpayers.

Training & Support - Moreover, the significance of training & support mechanisms should not be forgotten, particularly during the initial period of the implementation of DTAS. This includes the provision of help desks, tutorials, and mobile support, all of which are focused on ensuring ease of use of the system. According to the World Bank (2022), the significance of support mechanisms should always be emphasized, particularly during the transition towards the use of digital tax systems. This is due to the fact that, with the provision of support mechanisms, the government will be in a position to reduce the anxiety levels of taxpayers, thus ensuring the use of the system.

Perceived Benefits - Another factor that is likely to influence the satisfaction of the users of DTAS is the perceived benefits that the taxpayers stand to gain from the use of DTAS. The benefits that the taxpayers stand to gain from the use of DTAS may include the fast delivery of services, the elimination of paperwork, and the access that the taxpayers get to their records in real-time. The elimination of paperwork and the automation of processes are likely to result in the fast payment of taxes and the reduction of the time and effort that the taxpayers have to put in. The access that the taxpayers get to their records in digital form is likely to give the taxpayers a sense of control and transparency, as they are likely to access information related to their tax in real-time.

Enforcement Visibility - Enforcement visibility, or the system's capacity to identify non-compliance, is a critical component that strengthens deterrence and overall compliance outcomes.

Using real-time data analytics and notification systems, a DTAS can effectively identify anomalies, incongruities, and potential instances of tax fraud. This strengthened capacity to identify non-compliance not only acts as a deterrent but also enables tax authorities to take proactive steps to mitigate it (OECD, 2023). The knowledge that the system has the capacity to identify non-compliance is a powerful deterrent that promotes high levels of compliance with tax legislation to ensure that a fairer tax system is developed.

The successful implementation of a digital tax system is a complex and sophisticated process that calls for the integration of various critical system attributes. The main ingredients of a successful tax system include usability, awareness of technology, trust, training and support, benefits, and high levels of enforcement visibility. By focusing on these critical areas, tax authorities are not only able to successfully implement their tax systems but also create a culture of trust and compliance, ultimately leading to an efficient and equitable tax system for all.

2.1.4. Theoretical Foundation

Established theoretical frameworks will be a lens to look at the fundamental factors that influence taxpayers' interaction and involvement with Digital Tax Administration Systems (DTAS). Among others, the relevant theories related to digital taxation and behavioral compliance are Technology Acceptance Model (TAM), Digital Literacy & Accessibility, Institutional Trust Theory, Behavioral Interventions, and Deterrence Theory.

2.1.4.1. Technology Acceptance Model (TAM) - System Usability & Perceived Benefits

The Technology Acceptance Model (TAM), as developed by Davis (1989) and further extended by Venkatesh and Davis (2000), suggests that the acceptance of any technology is largely influenced by two major factors: perceived ease of use and perceived usefulness. These variables, which symbolize the individual user's perception of the relative ease of use of the system and the benefits that can be derived from using the system, have become the pillars of understanding technology acceptance in various sectors. This essay will attempt to examine the implications of the Technology Acceptance Model, specifically in relation to system usability and benefits, in the context of the digital taxation systems. It will be contended that a system that is efficient and user-friendly and provides concrete benefits in terms of ease of compliance and cost savings is vital to its adoption.

The basic idea behind the foundation of TAM is that an individual is more likely to adopt a particular technology if he/she finds it easy to use. This "ease of use," also known as effort expectancy, is the extent to which an individual believes that using a particular system will be effort-free. If an individual finds the system to be complex, cumbersome, and requires high expertise, then he/she is less likely to use that system, irrespective of the benefits that the system offers. When it comes to the context of DTAS, this idea is very important. As discussed earlier, tax compliance is a complex and daunting task. Thus, having a DTAS that is easy to use is very important. As Batt et al. (2020) argue, having an easy-to-use DTAS is very important because it reduces the compliance burden. When an individual finds the system easy to use, he/she is likely to use the system consistently. This will create a positive user experience. However, having a complex DTAS with complex navigation, complex terminology, and technical issues will make the complex nature of tax compliance even worse.

Apart from ease of use, TAM emphasizes that perceived usefulness is another vital factor that influences the adoption of technology. Perceived usefulness is defined as "the degree to which a person believes that using the particular system will enhance his or her performance." In other words, it is the perceived benefit that taxpayers believe they will gain from using DTAS, which will save them time, money, and minimize any possible errors and penalties. According to Mascagni et al. (2021), there is a direct relationship that exists between taxpayers' perception of time and cost savings and voluntary compliance with tax obligations.

A DTAS that enables taxpayers to file their returns faster, reduces the need to consult tax professionals, and provides taxpayers with accurate and timely information will greatly enhance taxpayers' perceived usefulness of DTAS. The availability of features that facilitate faster and smoother tax compliance, such as taxpayers being able to calculate their tax and file their returns online, will greatly enhance taxpayers' perceived usefulness of DTAS. In addition, taxpayers will be provided with personalized help and guidance that meets their individual needs.

2.1.4.2. Digital Literacy & Accessibility – Technological Literacy

In this regard, digital literacy and accessibility are key factors that affect the uptake and success of DTAS, especially in the informal sector. The World Bank (2023) highlights that the absence of digital literacy skills poses a major obstacle to the uptake of DTAS. This is particularly true for the informal sector, where digital literacy may not be sufficiently promoted. Moreover, Gebremariam

(2022) indicates the presence of inequalities in digital access, which results in exclusion and non-compliance.

The lack of digital literacy skills is a significant challenge for taxpayers who want to use the DTAS. This is because if taxpayers lack the required skills for computer use, internet access, and digital technology, they may experience difficulties and contribute to the reduction of tax compliance rates. The informal sector, which includes a variety of players with different educational and technological levels of awareness, may experience this problem.

In addition, as highlighted by Santoro, Prichard & Mascagni (2024), the digital divide further exacerbates the problem. Even if taxpayers possess a certain level of digital literacy skills, they might not have access to the internet or the devices necessary for operating the DTAS systems. The digital divide could have serious repercussions, especially for those who are located in distant areas, thus further widening the gap between those who can easily comply with tax regulations and those who cannot. This exclusion could lead to non-compliance, making it less effective and leading to disparities in the tax system.

In order to overcome these challenges, a holistic approach is required. Governments need to invest in digital literacy education specifically targeting taxpayers in the informal sector. These should focus on building basic competencies in computer usage, internet browsing, and familiarity with digital interfaces. Simultaneously, there should be initiatives to enhance digital infrastructure and internet accessibility at affordable rates, especially in non-served areas. It is only through a collective effort to bridge the digital literacy gap and ensure equal access to digital resources that the full potential of DTAS can be realized and effective tax administration can be achieved.

2.1.4.3. Institutional Trust Theory – Perceived Trust in DTAS

The 2.1.1.1. Institutional Trust Theory - Perceived Trust in DTAS

No modern system of taxation, after all, functions if there is no trust: Trust that the underpinnings—be they legal or economic—are sound. As tax administrators increasingly digitalize their operations for the sake of streamlining and efficiency benefits, understanding how trust affects DTAS is crucial. The ITT, and in particular the study of McKnight et al. (2002) provides a valid perspective for investigating the impact of trust perceptions over system reliability, data

confidentiality as well as accuracy from taxpayer compliance. In addition, the OECD (2021) highlights that secure and transparent DTAS seem to exert a positive impact on voluntary tax morale, which emphasizes the need to build trust in the digital age.

McKnight et al. (2002) maintain that trust is a multi-dimensional and multifaceted construct covering various elements such as system reliability, protection of the private data or accuracy. For 'DTAS', they need to have confidence that the system works as it should: no undue glitches etc, errors or bugs that would put doubt into their minds about its reliability. This takes proper system design, heavy testing and easy tech support.

The taxpayers must also trust that the DTAS can protect their private financial information from any unauthorized access or cyber breach. They could hesitate to use the system if there is a data breach or if it appears to be insecure, and may also push some taxpayers into tax evasion. Lastly, the accuracy of calculations, determinations, and alerts made by the system is important in terms of credibility with taxpayers. In this instance, any sloppiness in these areas could cause taxpayers to view the system as inequitable and incompetent.

This is reflected in the OECD (2021) report on transparency, security and tax morale in the digital environment. Transparency in DTAS can be familiarise as the degree of transparency in terms of how the system operates and utilises data- safeguard taxpayer rights. This gives taxpayers an account to justify why the system is designed as it is, and provides clear explanation of their responsibilities and entitlements. This fosters a sense of legitimacy in (and trust in) the DTAS. The security measures, including encryption and enhanced audits are just as important in building trust its ability to protect sensitive data – this is what will reduce compliance/enforcement costs by promoting partnerships with taxpayers.

2.1.4.4. Behavioral Interventions – Training & Support Services

Behavioral and educational interventions, such as training on implementation of introduction of new technologies, may also be necessary for management changes. As Alm (2019) posits, introduction of helpdesks, tutorials and taxpayer education programmes can enhance acceptability and usage by users of systems such as the DTAS. These are the kind of tools that you won't even notice, but it's hard to imagine living without. They are tools that remove one tiny bit of consumer

uncertainty, smooth over one more thing we don't feel like figuring out at the time, place us a little less at odds with something being new and different from what we're used to and make our lives incrementally.

FMOR (2022) further highlighted the importance of user adoption resistance that is being managed by government-led support programmes to facilitate technology adoption. Such programs that make the users feel they are being trusted can greatly reduce the degree of suspicion / concerns of user to accept such new technologies. If the government is seen to respond to user concerns and offer them help tailored to their needs, it can do a lot more ease user resistance and ensure a better experience. In conclusion, it seems that behavioral interventions, such as trainings reduce and support systems are ones of the key elements in successful adoption strategies.

2.1.4.5. Deterrence Theory – Enforcement Visibility

The deterrence theory, which is one of the most important theories in criminology and law enforcement, implies that the perceived risk of punishment is a major factor that discourages people from undertaking undesirable actions. One of the most important works on deterrence theory is Allingham and Sandmo (1972), which analyzed tax evasion and suggested that the perceived risk of being audited is a major factor that discourages people from evading tax.

Enforcement visibility is a measure of the degree to which people perceive that their actions are being monitored and that non-compliance will be detected and penalized. The higher the perceived enforcement visibility, the stronger the deterrence effect. The latest research carried out by the OECD (2021) supports this theory in relation to DTAS. The findings suggest that the use of automated audits and real-time monitoring technologies available in DTAS improves tax compliance due to increased enforcement visibility. The implementation of these technologies gives rise to a perception that tax authorities are better equipped to deal with non-compliance. This, in turn, discourages people from evading tax.

The implications of these findings are quite significant to policymakers as well as tax administrators. Investing in technologies that increase the visibility of the enforcement is likely to increase compliance rates as well as tax revenues. Moreover, it is important to note that the dissemination of information on the mechanisms used by the authorities is essential to maximize the impact of deterrence. Thus, by ensuring that individuals are aware of the increased risks of detection as well as punishment, authorities can leverage the principles of deterrence theory to enhance

compliance. However, it is essential to note that, apart from increasing visibility, it is also important to gain the trust of the taxpayers as well as respect their privacy.

2.1.5. Digital Tax Administrative Services in Varying Economies

The offerings represent a multi-faceted challenge that has met with mixed results in different economic environments. The developed and developing country contrasts indicate that there are many issues that affect the success or failure of DTAS implementation. There is a base of strong digital literacy and high levels of trust in institutions within developed economies as the inherent infrastructure for effective supply and demand for digital administrative services (OECD, 2021).

In the developing world, however, several barriers stand in the way of realising the potential benefits from DTAS programmes. One is the low level of digital connectivity that separates people with and without access to digital services (OECD, 2021). In addition, an informal economy in the developing world complicates the implementation for DTAS interventions as many exist and work outside of influential parties (World Bank, 2023). These disparities require an aggressive policy response in order to narrow and create an inclusive digital society. Simplified UI is becoming an imperative for those who are digitally illiterate (Davis 1989). An easy-to-use interface would attract more people to digital services and reduce the learning curve among the less tech-savvy. Second, digital literacy training is essential for developing a digitally literate society that can access and use digital-based services effectively (Gebremariam, 2022).

As third point, transparency and confidence building measures are crucial in creating a supportive climate for voluntary compliance as they can encourage citizens to use digital administrative services (McKnight et al., 2002). It will also work to instil confidence and interest of individuals in government bodies for governments that exhibit this level transparency and trust seeking. Conclusion Therefore, it is important to well understand the initial state of each economy so as to implement reasonable policies of promoting the digital tax admin system.

2.1.5.1. Modernizing Tax Administration in Ethiopia – Segmentation and the Digital Frontier

Reform of the Ethiopian tax administration is progressing on two fronts; change in the composition of domestic tax payers and a conscious pursuit of emerging value from the digital economy. The most significant achievement is the segmentation of taxpayers into different size and legal form

categories — done in the 2022/23 financial year, which steps away from one-size-fits-all to a more responsive and nuanced system.

Introduction of the new classification system provided for under Article 3 Proclamation No. 1395/2017 The new tax classification that has been in place has categorised taxpayers into two main categories 1. Category A – Comprising all such enterprises (referred to as legal persons having juridical personality) and individual entrepreneurs whose gross turnover in the preceding fiscal year exceeded Birr 2,000,000.” Category ‘B’ on the other hand are individual persons (individual entrepreneurs) whose annual turnover and not constituted as enterprises is less than the Birr 2,000,000 threshold. The advancement of the Ethiopian tax administration on two converging fronts – refashioning the domestic taxpayer base and courting for a cut of digital economy value – is underway. The first step in this direction is the classification of taxpayers by size and legal form – a change which was initiated in the 2022/23 fiscal year to replace the former crude one-size-fits-all approach with something more subtle and sensitive.

In accordance Article 3 of Proclamation No1395/2017, a new classification is introduced in which taxpayers are broadly classified into two main groups. 1 Category ‘A’ Every profit-making (legal person endowed with court personality) and individual collector whose annual turnover is Birr 2,000,000 or above. Category ‘B’ however, comprises only natural person (individual entrepreneur) with an annual turnover of less than Birr 2,000,000 that are not legal entities.

At the same time, the rise of a digital economy presents both an opportunity for transformation and a regulatory challenge. This has led to existing tax regimes designed to underpin traditional material and territorially based economies increasingly becoming less effective as a fiscal underpinning for the digitalized, more globalised and non-place bound economy (FMoR, 2022; UNECA, 2021). Digital economy taxation is an option that could increase Ethiopia’s tax base significantly and also provide fiscal space needed for further investment (Gebeyehu & Tilahun, 2022). But it is fraught with institutional and infrastructural problems. Its implementation requires the establishment of a digital nexus for non-resident suppliers, the development of VAT laws and the settlement of an operational structure to avoid double taxation (World Bank, 2020). The foregoing processes demand high-tech and digital infrastructure capacities that Ethiopia is in its incipient stages of building, as acknowledged by local and even foreign scholars (UNECA, 2021; Gebeyehu & Tilahun, 2022).

In sum, the pathway to establishing a tax system that is both robust and equitable in Ethiopia may involve perfecting the segmented traditional system, as it simultaneously builds up its legislative and technological architecture for dealing with the digital frontier. This involves amending domestic tax laws, international cooperation via OECD Inclusive Framework on BEPS (2022) and above all investing in the federal ministry of revenues' digital infrastructure and human resource base to institute a climate of transparency for all taxpayers to trust.

2.1.6. Tax Compliance Behavior

Tax compliance comes underpins of fiscal stability and equitable socio-economic development. It is a measure of extent to which individuals, companies or corporations pays their taxes. According to previous research by Allingham & Sandmo (1972), and the most recent study of Kirchler, Hoelzl & Wahl (2008), a set of variables influence tax compliance behavior such as the level of enforcement, trust toward institutions, and perceptions about fairness.

Deterrence theory would suggest that perceived risk of detection and penalty severity are key issues in the deterrence of tax evasion. Governments employ devices like audits, prosecution, and monetary sanctions to ensure compliance. However, relying too heavily on tax enforcement in the absence of goodwill enhancing mechanisms may alienate taxpayers and hence reduce compliance. This can be seen in the study conducted by Gangl et al. (2015).

It is also vital to consider tax-filers' institutional trust with their government. It happens when people believe that the money collected in taxes is spent for their universal benefit. These include, among others, communication, governmental responsibility and equitable arrangement of public services. On the contrary, perceived corruption, wastefulness or elite capture can reduce the willingness of taxpayers to comply (Torgler, 2007).

People are also influenced by their perception of the fairness of the tax system. When taxation is perceived as fair, people are more likely to respond favorably. That is also the case with regard to both horizontal and vertical equity as put forward by Feld and Frey (2007). The horizontal equity is to treat equals equally, and the vertical equity means unequal in given situations. ” In the face of perceived unfairness and preference toward certain categories, opposition may be aroused.” The tendency towards non-compliance could thus reflect this skepticism.

Finally, tax compliance behaviour is multi-dimensional and influenced by enforcement, trust and tax fairness. This Balanced approach of tax enforcement, trust building and tax equity is the bedrock to improving voluntary compliance and setting a firm foundation for long term fiscal sustainability.

2.1.7. Digital Tax Administration Systems and Tax Compliance Behavior

The emergence of digital taxation system has significantly transformed the tax compliance landscape, introducing both innovative opportunities and complex challenges. These systems - characterized by electronic filing, automated processing, and advanced data analytics, are designed to modernize tax collection, improve administrative efficiency, and foster voluntary compliance (OECD, 2023; Junquera-Varela et al., 2022). The interaction between digital infrastructure and taxpayer behavior is multidimensional, shaped by factors such as transparency, convenience, enforcement capacity, and public trust.

One of the most significant benefits of DTAS is the promotion of transparency. Digital platforms make it easier for taxpayers to file and pay taxes. This makes the tax process simpler and less ambiguous. This helps taxpayers understand their tax obligations better, thus promoting voluntary compliance (Santoro, Prichard & Mascagni, 2024). Additionally, the digital trail left by these platforms improves record-keeping and verification, thus making it difficult for taxpayers to evade taxes (World Bank, 2022). Convenience is another important aspect. These platforms, available through web portals and mobile apps, enable taxpayers to comply with their tax obligations from the comfort of their homes and at their own convenience. This saves taxpayers time and effort, especially small businesses and low-income earners (Estevão, 2021). Studies have shown that when tax processes are simplified, compliance rates improve (OECD, 2023).

In addition to the benefits of transparency and ease of use, DTAS also improves enforcement capacity. By integrating and cross-referencing data in real-time, tax authorities can more effectively identify inconsistencies and pinpoint high-risk cases. This enables more targeted enforcement efforts, raising the perceived probability of detection and thus discouraging non-compliance (Mbise & Baseka, 2022; OECD, 2023).

Nonetheless, these advantages are balanced against a number of challenges. For instance, issues of data protection and cybersecurity risks may erode public confidence, particularly if taxpayers feel that their personal financial data may be misused or compromised (Santoro et al., 2024). Moreover,

the existence of a digital divide, characterized by inequalities in internet access and digital skills, may leave some taxpayer segments disadvantaged, potentially worsening non-compliance among disadvantaged groups (World Bank, 2022).

Overall, the system provides a robust tool for improving tax compliance through increased transparency, simplified processes, and improved enforcement. However, to maximize its potential, policymakers must address challenges of digital inclusion, data protection, and capacity building. By striking a balance and promoting inclusive digital transformation, policymakers can ensure that the benefits of digital transformation are shared fairly, thus strengthening public confidence and facilitating sustainable revenue mobilization.

2.2. Empirical Studies Review

2.2.1. System Usability of digital tax administration system on tax compliance behavior

The Technology Acceptance Model (TAM), which was first presented by Davis in 1989, determined that perceived ease of use is an important factor in the adoption of technology. This theory has been empirically confirmed through numerous studies. For example, in a meta-analysis of different sectors, Venkatesh et al. (2012) confirmed the importance of usability as one of the strongest predictors of system use and satisfaction. With regards to E-Government, Al-Gahtani (2016) determined that the design of the interface and the complexity of the navigation structure have a significant negative effect on user compliance, especially when the use of digital technologies is mandatory, as is the case with filing taxes.

Within the Ethiopian setting, few studies have attempted to address these issues. In a survey conducted among small-medium tax-payers' in Addis Ababa, Negash (2024) found that 58% percent of the respondents deemed the digital taxation platform complex to use because payroll were not working and mobile friendliness was not available. Similarly, the finding of Tadesse & Alemu (2023) indicated that when taxpayers perceive a system as user-friendly, they are more likely to file taxes on time and without any assistance. This indicates that usability is a concern not only for taxpayers but also for the system.

Despite these contributions, the literature is limited in two respects: first, existing studies on usability are predominantly focused on its implementation with little attention to the extent to which perceived usability influences taxpayer's behavior, and second that previously documented evidence fails to explore whether there are differences in the system's usability across different

types of taxpayers like medium enterprises vis-a-vis small micro-enterprises who could vary significantly in their levels of digital literacy. Considering these insights, a clear hypothesis emerges regarding the effect of system usability on tax compliance:

H1: Higher perceived usability of digital tax administration positively and significantly influences taxpayer compliance.

This hypothesis argues that if the digital tools are user-friendly, intuitive, and efficient, this will result in more accurate, complete, and timely financial reporting. This, in turn, improves transparency, errors are reduced, and ultimately contributes to the integrity of financial information, which is a key foundation of successful tax assessment and compliance.

2.2.2. Technological Literacy and Tax Compliance

Previous foundational studies conducted by van Dijk (2005) have already established the fact that low levels of digital literacy are major hindrances to the uptake of financial technologies. This is also applicable with regard to the implementation of digital tax systems. Taxpayers with low levels of technology may find it difficult to access, understand, or utilize the online tax systems. This may lead to the increased use of third-party services or the continued use of traditional filing systems.

The psychological aspect of technological literacy is also important. Compeau & Higgins (1995) have already established the importance of self-efficacy, which is the belief that an individual can utilize technology. This is also applicable with regard to the implementation of digital tax systems. Taxpayers with low levels of self-efficacy may be unable to utilize the online tax systems, regardless of the fact that the systems are accessible and functioning.

These results are supported by recent empirical research. In a report on digital inclusion in tax systems, the OECD (2019) found that specialized training programs led to substantial improvements in software skills and compliance levels, especially in developing countries. In Ethiopia, Negash (2024) found that taxpayers with stronger digital literacy skills were more likely to submit taxes online and less likely to seek help. The author found that 61% of taxpayers who received basic digital skills training were able to complete their tax returns on their own, compared to 34% of those who did not receive training. Similarly, Tadesse and Alemu (2023) found that technological literacy was a statistically significant predictor of on-time and error-free tax returns by micro and small enterprises in Addis Ababa.

Although these findings are available, the current literature in Ethiopia is quite narrow in terms of scope and depth. Most of the literature is concerned with the readiness of infrastructure or the adoption rate, without adequate consideration of the relationship between technological literacy and taxpayer behavior. Furthermore, there is a need for a disaggregated analysis of different demographic groups, including age, education level, and size of business, which could affect digital literacy and compliance rates. Based on this the following proposed hypothesis:

H2: Digital literacy of tax administration positively has a positive and significant effect on taxpayer compliance.

Through addressing disparities in digital skills through user-centric design, comprehensive training programs, and initiatives that build taxpayer self-efficacy, tax authorities can foster an environment where digital tax systems are not only accessible but also actively utilized, ultimately leading to more efficient and compliant tax ecosystems.

2.2.3. *Trust in Digital Tax System on Taxpayer Compliance*

McKnight et al. (2002) showed that trust in e-filing systems is significantly related to voluntary adoption, implying that taxpayers are more likely to use digital platforms if they feel that they are safe and reliable. Gefen et al. (2003) showed that distrust in automated systems causes users to go back to manual systems even when automated systems are available. This behavior is especially important in the context of taxation, where risks (breach of confidentiality, mistakes, or discrimination) may deter taxpayers from using digital systems.

Institutional trust is also important. Pavlou (2003) highlighted the importance of trust in institutions that support digital systems, such as government and service providers, in increasing user acceptance and compliance. In the context of taxation, this means that taxpayers trust the transparency and fairness of tax administration using digital systems.

These theoretical arguments have been supported by recent empirical research conducted in Ethiopia. For instance, a study by Tadesse and Alemu (2023) demonstrated that taxpayers with higher levels of trust in the digital platforms of the Federal Ministry of Revenue were more likely to e-file and accurately report their income. Another study by Negash (2024) found that 47% of respondents in Addis Abba cited a lack of trust in the system, particularly regarding data misuse and fairness in audits, as a main reason for not using digital filing platforms.

Although these studies have shed some light on the topic in Ethiopia, the body of literature remains underdeveloped in two aspects: first, most studies concentrate on the infrastructure and deployment of the system, while ignoring the psychological and relational aspects of trust; second, there has been a lack of empirical research examining the impact of trust on different categories of taxpayers, such as small business and large business enterprises, or first-time and long-term filers. Based on these empirical insights, a clear hypothesis emerges:

H3: Higher trust in digital tax administration system has a positive and significant effect on taxpayer compliance.

This hypothesis posits that fostering trust, through robust system design, clear communication, and demonstrated reliability, can mitigate the inherent reluctance taxpayers may have towards new digital tax paradigms. Cultivating trust in digital tax systems is not merely a matter of technological implementation, but a strategic imperative for enhancing taxpayer compliance and ensuring the long-term efficacy of modern fiscal frameworks.

2.2.4. Training & Support Services on Taxpayer Compliance

Alavi & Leidner (2001) found that enhanced training is associated with 40% increase in the levels of ERP system adoption. This is another point which highlights the importance of an induction program to overcome the initial resistance to change and facilitate the convergence in processes. Also, Bradford & Florin (2003) reported that in-house training programs increase the likelihood of compliance with new accounting standards. This highlights even more how important training schemes are to filling the knowledge gap and in order to be up to date with new standards.

Besides such training programs, ongoing intervention support is necessary to sustain user engagement and avoid dropout. Igbaria et al. (1997), for example, found that having access to a responsive support system (help lines, tutorials and troubleshooting guides) led to reduced errors in use of financial software systems. In Ethiopia, these findings are corroborated by emerging local research. For example, Negash (2024) established that tax payers who were trained in using digital tax systems were more likely to file their taxes by themselves and on time. 68% of taxpayers who were provided with training on how to use digital tax systems filed their returns by themselves, against 39% of those not receiving such training. Tadesse & Alemu (2023) also observed that taxpayer's accessibility to support services particularly provided in local languages and mobile friendly formats were significant determinant of customer satisfaction and compliance. The study

discovered that taxpayers who had access to real-time assistance services has lower likelihood of dropping out from their digital filing process and resorting back to paper form tax compliance.

In view of these research revelations, it is clear that the digital tax system literature in Ethiopia has a scarcity nature. The majority of the studies concentrate on digital tax systems from their standpoint as infrastructure and rollout, while very few pay attention to behavioral and instructional properties of digital tax systems. Additionally, there is a lack of empirical research on the impact. Based on these empirical insights, the hypothesis is proposed:

H4: Access to digital tax related training and support services has positive and significant effect on taxpayer compliance.

The evidence strongly supports the hypothesis that investing in comprehensive training and accessible support services is a highly effective strategy for improving taxpayer compliance. Through empowering taxpayers with knowledge and providing timely assistance, governments can foster a more compliant and efficient tax ecosystem, ultimately contributing to greater economic stability.

2.2.5. Perceived Benefits of Digital Taxation on Taxpayer Compliance

In his diffusion of innovations theory, Rogers (2003) emphasized that perceived relative advantage is one factor that determines the adoption of technology. In relation to digital taxation, this means that taxpayers perceive that digital systems have an advantage over traditional systems in that they are more efficient. Another researcher, DeLone & McLean (2003), discovered that perceived benefits explained 60% of the success in implementing an information system. This is an indication that perceived benefits play an important role in motivating users to use the system.

Digital systems can also be useful in increasing accuracy and reducing administrative costs. These are very important issues to taxpayers. If taxpayers perceive that digital systems make their work easy in that they reduce administrative costs, they would be willing to comply with the law. This is very important in developing countries because most people perceive that traditional systems are complex.

In Ethiopia, emerging research evidence is confirming the global findings. Tadesse & Alemu (2023) discovered that when taxpayers perceive that digital systems are time-saving and cost-effective, they are likely to comply with the law. The researcher discovered that perceived benefits are

positively correlated with compliance. Negash (2024) discovered that 64% of the respondents in Addis Ababa cited convenience and reduced paperwork as key motivators for adopting digital filing systems.

In addition, the sense of fairness and equity in the application of digital taxation can contribute to greater acceptance. This is because digital platforms can facilitate the closing of the compliance gap by promoting a sense of shared responsibility. This is in line with the ICTD (2023) study, which found that digital platforms positively impacted the perception of procedural fairness among taxpayers in Ethiopia, especially in urban areas.

The literature on the Ethiopian context is limited with regard to the exploration of the perceived benefits as a behavioral factor, especially considering the positive trends identified by the literature. Most of the literature on the Ethiopian context is limited to the application of the system and its performance, with minimal consideration given to the perception of the benefits of the system by taxpayers. There is a lack of literature that explores the differences in the perception of the benefits of the system by various taxpayers, such as small businesses and large enterprises, which might perceive the benefits of the system differently considering their context of operation. Based on these findings, the following hypothesis is proposed:

H5: Perceived benefit of digital taxation has significantly positive effect on taxpayer compliance

The proposed hypothesis illustrates that perceived benefits of digital taxation, encompassing enhanced efficiency, transparency, data accuracy, reduced compliance costs, and increased fairness, are crucial drivers of taxpayer compliance. Effectively communicating these advantages helps authorities to foster a more compliant tax environment in the digital age, ultimately contributing to more robust and equitable public finances.

2.2.6. Enforcement Visibility on Taxpayer Compliance

The earliest research that established the existence of this relationship was conducted by Sutinen & Kuperan (1999), which showed that an increase in compliance rates of 35% resulted from visible audit activities. The research highlights the behavioral aspect of enforcement, which transcends the existence of regulations. Alm (2019) further showed that the enforcement of penalties for non-compliance resulted in an increased use of electronic filing systems, which shows that punitive

measures can be a powerful enabler of behavioral change in embracing digital engagement and process compliance.

The behavioral impact of enforcement visibility does not only extend to individuals but also to corporate entities. Hope et al. (2011) showed that strong enforcement mechanisms of IFRS regulations reduced earnings manipulation, which highlights the importance of regulatory vigilance in ensuring transparency and accountability in financial reporting.

With regards to Ethiopia, emerging literature has also attempted to investigate the significance of enforcement in the context of digital tax compliance. Tadesse & Alemu (2023) revealed that taxpayers who perceived higher probabilities of facing penalties under the digital tax system were more likely to file their tax returns and report their income correctly. According to their study, 72% of taxpayers who believed in active monitoring of their tax behavior by the FMoR voluntarily complied, compared to 46% of those who perceived weak or inconsistent enforcement. Similarly, Negash (2024) revealed that there was a positive correlation between taxpayers' compliance behavior and enforcement visibility, particularly for small and medium taxpayers in Addis Ababa.

With these pieces of evidence, the literature in Ethiopia has been limited in exploring the significance of enforcement visibility in the context of digital tax systems. Most of the literature has focused more on the legal and administrative aspects of the tax systems, without sufficient emphasis on the taxpayers' perception of the enforcement mechanisms. There is also a lack of empirical differences between taxpayers perceived and actual enforcement, and their effects on taxpayers' compliance behavior. Based on this the following proposed hypothesis:

H6: Enforcement visibility has a positive and significant effect on taxpayer compliance.

The empirical evidence supports the hypothesis that enforcement visibility is a cornerstone of effective tax administration. From individual tax compliance to corporate financial integrity, the consistent application and visible presence of enforcement mechanisms are crucial for fostering a culture of adherence and ensuring the equitable and efficient functioning of tax systems.

2.2.1. Research Gap

However, it is important to note that despite the major reforms, tax compliance remains a challenge, especially for small businesses and the informal economy (Alm, 2019). The FMOR introduced DTAS, which aims to improve efficiency, automation, and voluntary compliance. Although other

countries, like Kenya and Rwanda, have seen positive results after introducing digitalization, there is a lack of empirical evidence to support the success of the system in Ethiopia.

Most studies that have been conducted in Ethiopia focus more on infrastructure and administrative aspects rather than behavioral and experiential aspects of tax compliance (Gebremariam, 2022; World Bank, 2023). More specifically, important factors that include usability, technology literacy, trust, and digital interaction, among others, have not been sufficiently explored to determine their impact on tax compliance (Mascagni et al., 2021; Abebe & Deribe, 2023). In addition, tax compliance in Ethiopia, as seen in other countries, has been considered a single variable, while in reality, there could be differences in different socioeconomic classes, industries, and levels of digital access. Moreover, other important variables, like training, support, and enforcement, have not been sufficiently explored in the context of Ethiopia, which is a developing country (OECD, 2021).

Thus, the gap that has remained unaddressed through any comprehensive and taxpayer-centric analysis that unites the two aspects and measures the effectiveness of DTAS has been the gap that this research hopes to fill by examining the combined effect of six critical factors: usability, technology literacy, trust in DTAS, training and support services, benefits, and enforcement visibility on taxpayer compliance. Through the adoption of a quantitative research methodology and the analysis of taxpayer compliance, this research hopes to contribute towards the development of an adaptive and inclusive digital tax policy in Ethiopia.

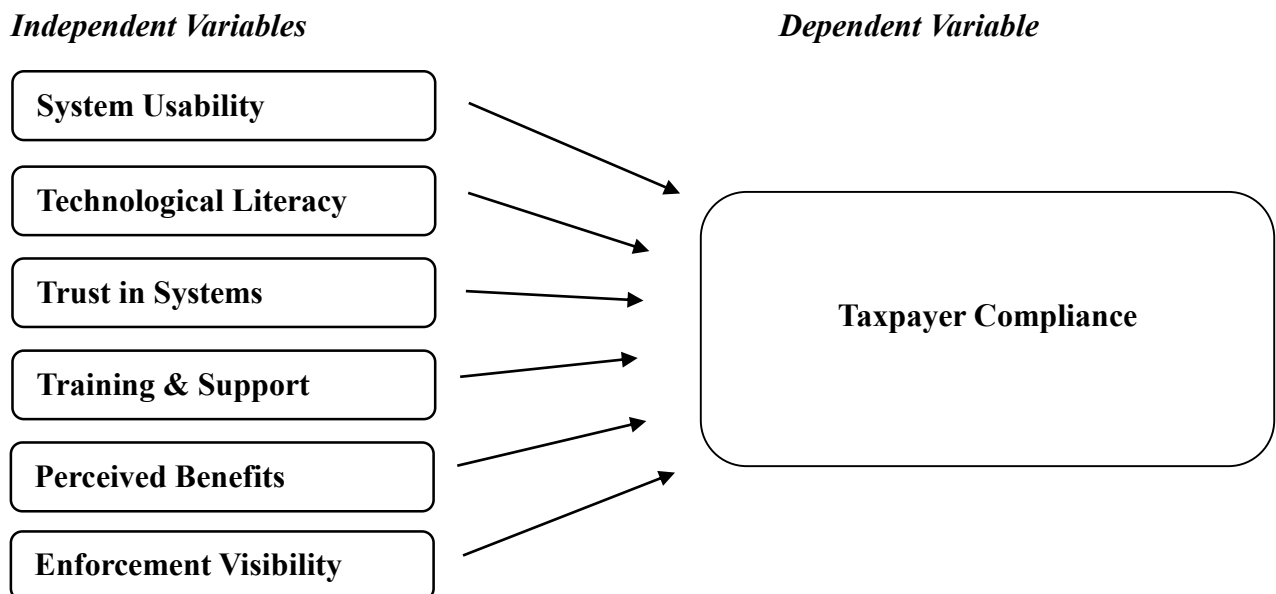
2.3. Conceptual Framework

A conceptual framework is developed to describe the relationship between various aspects of the implementation of the digital tax administration system and taxpayer compliance behavior. The various aspects of the implementation of the digital tax administration system, such as usability, technological literacy, trust, training & support, benefits, and enforcement visibility, are considered independent variables, whereas taxpayer compliance behavior is considered a dependent variable.

This conceptual framework was informed by the assumption that various aspects of the usability of the DTAS, such as ease of interaction and efficiency of the DTAS, have a direct impact on the adoption of the DTAS by taxpayers, as suggested by Venkatesh & Davis (2000). On the other hand, technological literacy of taxpayers, which refers to their familiarity with technology, was assumed to have a moderating impact on the usability of the DTAS and thus impact their engagement with it, as suggested by Gebremariam (2022). Perceived trust in the digital taxation system, which

encompasses various aspects such as data security, fairness, and transparency, was assumed to impact taxpayer compliance, as suggested by the OECD (2021).

In addition, the presence of sufficient training and support mechanisms is hypothesized to increase taxpayers' ability and reduce any potential barriers to compliance (Alm, 2019). The second factor in the model is perceived benefits, where taxpayers' perceptions of the benefits of compliance, such as reduced administrative burdens or efficiency gains, influence compliance (Mascagni et al. 2021). The last factor in the model is the factor of enforcement visibility, which refers to taxpayers' perceptions of the likelihood of detection and penalties in case of non-compliance (OECD, 2021). As seen in the diagram – Figure 1, the arrows show direct relationship between the independent and dependent variables.



(Source: Venkatesh & Davis, 2000; Gebremariam, 2022; OECD, 2021; Alm, 2019; Mascagni et al. 2021)

Figure 1. Conceptual Framework of the Study

CHAPTER THREE: RESEARCH METHODOLOGY

The research methodology is a scientific approach to research problems, which entails an explanation of the approach used in the research. The purpose of the research study is to establish the relationship between various aspects of the implementation of the digital tax administration system and taxpayer compliance behavior. The independent variables are system usability, technological literacy, perceived trust, training & support, perceived benefits, and enforcement visibility, while the dependent variable is taxpayer compliance behavior. The methodology, therefore, entails issues such as research design, research approach, the population to be studied, sample size, and sampling method. Furthermore, the methodology took into account issues such as the data source, data collection method, and data analysis.

3.1. Research Approach

The research employed a quantitative research design. This technique was concerned with assessing variables and testing relationships by means of the statistical package. In social science, methods of research tend to be divided into two broad categories: qualitative and quantitative. The qualitative methodology was based on lived experiences with interview, observation or text analysis. Its purpose was to explore the thinking and feeling of people. The qualitative approach, but studied patterns by way of numbers. It is based on structured data and statistical inference (Neuman, 2023).

The objective of this study was to establish the extent to which digital tax administration facilities were able to impact on tax compliance taxpayers. For that, the best fit was quantitative approach. It facilitated the author to assess the impacts of system usability, technical literacy, trust perception, availability of training and support services, perceived usefulness, and enforcement appearance on usage. Information was gathered from taxpayers, tax practitioner and revenue official. The findings were then interpreted in order to test hypotheses and determine patterns. This “multi-stakeholder” approach helped ensure that the findings could be used to inform policy and system improvements in Ethiopia’s digital tax authority.

3.2. Research Design

This study was conducted based on a structured practice of research design, which ruled all methodological decisions. The design of the study guaranteed that every step was in line with the aim of the study, and it effectively facilitated responses to research questions (Creswell, 2015).

There are three main types of research designs exploratory, descriptive and explanatory. In exploratory research, when a new topic is constructed, the critical components of a phenomenon are uncovered, along with identifying variables to be controlled. Descriptive research is aimed at measurement and summarising the characteristics of a population or phenomenon. Descriptive research investigates and describes relationships but does not explore cause-and-effect relationship (Kothari, 2004). As the aim of this research was to investigate how digit tax administration affects on taxpayer compliance, an explanatory design was considered to be most appropriate. More specifically, it used to offer an in-depth insight into how system usability, technological proficiency, perceived trust, training and support, perceived benefits, and enforcement visibility influenced compliance behaviour. This approach assisted in identifying the reasons behind the decisions of taxpayers on digital networks.

3.3. Target Population

The population for this study is defined as the complete set of taxpayers registered under the Federal Ministry of Revenues in Addis Ababa. These taxpayers are systematically categorized within the Ministry's segmented branch structure, which reflects the administrative stratification introduced under the 2015 (or 2022/23 G.C.) Ethiopian fiscal year segmentation policy. According to the policy there were 3 divisions of federal taxpayers group formed in Addis Ababa namely large, medium and small taxpayers. These categories were based on three thresholds. These were average annual turnover for the previous three year (45%), annual tax payment amount (vat, ToT, Excise tax, Employment tax) 50% and declared Asset value of the taxpayer. (5%).

The population is spread out in six branches, covering all classes of taxpayers, ranging from large to medium and small taxpayers. The Large Taxpayers Branch has 741 entities, while the Medium Taxpayers Branches No. 1 and No. 2 have 4,167 and 4,068 taxpayers respectively. The rest are covered by the three Small Taxpayer Branches: East Addis Ababa (12,616), West Addis Ababa (9,919), and Northwest Addis Ababa (9,031), which all add up to 40,542 (MoR, 2025).

This population is relevant to the research focus on taxpayer segmentation and digitalization. The population represents all taxpayers who are affected by the segmentation policy and is therefore critical to understanding taxpayer compliance behavior in relation to digitalization tools like e-filing systems. The inclusion of all three taxpayer classes enables a comparative analysis of taxpayer compliance behavior in relation to administrative strategies and digitalization tools like e-filing systems, which is relevant to businesses of all sizes and capacities. Additionally, this segmentation enables an analysis of taxpayer institutions and their operation, which has been noted in recent assessments by ICTD (2023). The comprehensive inclusion of segmented taxpayers ensures that all dynamics of digitalization and administration are covered in Ethiopia's tax landscape.

3.4. Sample Size Determination

This study adopts a statistically rigorous approach to ascertain the sample size that is appropriate to investigate the relationship between digital tax administration dimensions and taxpayer compliance behavior. In this study, using the standard sample size formula for finite populations (Federal taxpayers in Addis Ababa), the estimated sample size is calculated, which indicates that 385 respondents would be adequate to obtain a representative sample of Federal taxpayers residing in Addis Ababa – 40,542 registered taxpayers. Thus, initial sample size (n) is:

$$n = \frac{Z^2 * P * Q}{e^2} = \frac{(1.96^2) * .05 * .05}{(0.05^2)} = 384.16 \rightarrow 385$$

This calculation is based on a confidence level of 95% and a margin of error of 5%, which are standard parameters for most social science research. Thus, the research used a sample of 385 respondents who would take part in this survey. The sample size was established proportionally based on the proportion of the total population of each taxpayer category, as segmented by the Ministry of revenue. Table 1. Proportion of Registered Federal Taxpayers in Addis Ababa.

Table 1. Population and Sample Distribution

Taxpayer Branch Office	Number of Taxpayers (a)	Population Prop. (b = a/40,542)	Sample Size (c = 385*b)
Large Taxpayers Branch	741	1.8%	7
Medium Taxpayers Branch No. 1	4,167	10.3%	39
Medium Taxpayers Branch No. 2	4,068	10.0%	39
East Addis Ababa Small Taxpayers	12,616	31.1%	120

West Addis Ababa Small Taxpayers	9,919	24.5%	94
Northwest Addis Ababa Small Taxpayers	9,031	22.3%	86
Total	40,542		385

(Source – Compiled by researcher from FMoR, 2025)

Table 1 provides a detailed breakdown of the study population (registered federal taxpayers in Addis Ababa) and shows how the total sample size of 385 was proportionally allocated across the different taxpayer branch offices. The table is structured around the administrative segmentation of taxpayers, showing that the total population of 40,542 taxpayers is unevenly distributed across six branches. The East Addis Ababa Small Taxpayers Branch constitutes the largest segment, accounting for 31.1% of the total population, followed by the West (24.5%) and Northwest (22.3%) small taxpayer branches. Combined, these three branches for small taxpayers represent 77.9% of all taxpayers, highlighting that the tax base is predominantly composed of smaller entities. In contrast, the Large Taxpayers Branch, while critical in terms of revenue contribution, represents a much smaller segment of the population, comprising only 1.8%. The two medium taxpayer branches (Medium No. 1 and No. 2) hold a moderate share, together making up 20.3% of the population.

To ensure a statistically representative sample, the total sample size of 385 was distributed according to each branch's population proportion. This proportional allocation means that the East Addis Ababa Small Taxpayers Branch received the largest sample size (120), accurately reflecting its dominance in the population. Conversely, the Large Taxpayers Branch was allocated a smaller, yet representative, sample of 7 respondents. This method guarantees that the views and experiences captured in the study are representative of the entire taxpayer ecosystem in Addis Ababa.

3.5. Sampling Technique

The sampling strategy for this study was designed to ensure a representative cross-section of the taxpayer population within Addis Ababa. This study employed a convenience sampling technique to select participants. Given the operational constraints and strict confidentiality protocols surrounding taxpayer data, this non-probability method was the most feasible approach. The total sample of 385 respondents was proportionally allocated across the six taxpayer branches to roughly mirror the population structure. Within each branch, participants were selected based on their availability and willingness to take part during the data collection period. While this method does not allow for broad statistical generalization, it effectively provides the effect of system usability, technology

literacy, perceived trust, training and support, perceived benefit and enforcement visibility on taxpayer compliance behaviour.

3.6. Source of Data

The process of data collection is integral to any research work and involves the accumulation of pertinent and significant data (Arbnor, 2014). This process forms the foundation for data procurement and can be grouped into two categories: primary and secondary data. This study relied exclusively on primary data to investigate the relationship between digital tax administration system dimensions and taxpayer compliance behavior. Primary data were collected directly from individual and corporate taxpayers in Addis Ababa through structured questionnaire. These scales are designed to capture key variables, including system usability, technological literacy, perceived trust, training and support, perceived benefits, and enforcement visibility, as well as taxpayer compliance behavior.

The use of primary data ensures that the information is current, directly aligned with the study's objectives, and tailored to the Ethiopian context. It also allows for precise measurement of the constructs under investigation and supports robust statistical analysis. Through focusing solely on firsthand data, the study enhances the validity and relevance of its findings for understanding taxpayer behavior in a digitalized tax environment.

3.7. Data Collection Instruments

The survey method that is used to obtain primary data is chosen due to its appropriateness and practicality in terms of being a well-accepted diagnostic tool for respondents' perceptions (Creswell, 2015). This study employed a structured questionnaire as the primary data collection tool, specifically designed to measure all variables in the proposed conceptual framework. The survey instrument was developed by adapting validated measurement scales from established studies (like Venkatesh & Davis, 2000; Gebremariam, 2022; OECD, 2021; Alm, 2019; Mascagni et al. 2021) while ensuring contextual relevance to Ethiopia's digital tax administration system.

The questionnaire comprised two main sections. The first section collected essential demographic information including respondent age, gender, education level, taxpayer category, years of tax filing experience, and frequency of digital tax system usage. This demographic data enables analysis of potential subgroup differences in compliance behavior. The second section contained carefully

constructed Likert-scale items measuring each construct in the conceptual framework. Using a 5-point scale (1=Strongly Disagree to 5=Strongly Agree), the questionnaire assesses:

- System usability (ease of use, efficiency, interface design)
- Technological literacy (digital skills, troubleshooting ability)
- Perceived trust (data security, system fairness)
- Training adequacy (support resources, guidance materials)
- Perceived benefits (time savings, cost reductions)
- Enforcement visibility (detection likelihood, penalties)
- Compliance behavior (filing timeliness, declaration accuracy)

To ensure validity and reliability, the instrument underwent pretesting including cognitive testing with taxpayers, and pilot administration. Then the questionnaires were administered through multiple channels (online and paper-based) with Amharic and English language options to accommodate diverse taxpayer groups. This approach enabled strong measurement of how digital tax system influence compliance behaviour of taxpayer's specifically Federal taxpayers located in Addis Ababa.

3.8. Scale Validity

Validity refers to the extent to which the research instrument accurately captures the concepts it intends to measure (Saunders, 2003). In this study, both content and construct validity were carefully assessed to ensure the questionnaire effectively reflects the realities of taxpayer compliance and digital system usage. The instrument was adapted from prior studies on tax administration and modified to suit the Ethiopian context. Expert reviews were conducted by academic advisors, tax officers, and pilot respondents. Their feedback was incorporated to refine the questionnaire, particularly in framing items related to taxpayer (individual vs. corporate) and the frequency of digital tax system usage. These helped ensure that the final tool was contextually relevant and capable of capturing the behavioral and operational dimensions of compliance under digital administration.

3.9. Reliability Test

Reliability refers to the internal consistency of the measurement instrument, whether the items used to assess each construct consistently reflect the same underlying concept. In this study, Cronbach's Alpha was applied to evaluate the reliability of six independent and dependent variables related to

digital tax usage and compliance behavior. Each construct was measured using a 5-point Likert scale.

The results indicate strong internal consistency across all constructs. Training and Support (.901) showed the highest reliability, suggesting that respondents consistently interpreted the importance of capacity-building efforts in enhancing compliance. System Usability (.866) and Perceived Benefits (.883) also demonstrated high reliability, confirming that the items effectively captured user experience and perceived value of digital tax systems.

Table 2. Reliability Test Results

Measurement	Number of Items	Cronbach's Alpha
System Usability	5	.866
Technological Literacy	5	.737
Perceived Trust	5	.804
Training and Support	5	.901
Perceived Benefits	5	.883
Enforcement Visibility	5	.773
Taxpayer Compliance Behavior	5	.796
Reliability of all items	35	.878

Source: Own Survey, 2025

Perceived Trust (.804) and Enforcement Visibility (.717) showed good reliability, indicating coherent responses regarding institutional credibility and regulatory presence. Technological Literacy (.773), while slightly lower, remains within the acceptable range, suggesting some variability in digital proficiency among respondents. The dependent variable, Taxpayer Compliance Behavior, yielded a reliability score of .796, confirming that the construct is sufficiently stable for further analysis.

The overall reliability of the 35-item instrument is .878, reflecting excellent internal consistency. These results validate the measurement model and support its use in subsequent statistical procedures, including correlation, regression, and path analysis to examine the effect of digital tax administration systems on taxpayer compliance.

3.10. Data Collection Procedure

Data collection followed a structured on-site procedure using convenience sampling. After securing official permissions from the tax authorities, researchers visited each of the six branch offices according to a predetermined schedule. Data was collected over a four-week period during normal business hours, avoiding peak transaction times to minimize disruption.

At each branch, researchers approached taxpayers who had completed their transactions and were awaiting services or exiting the premises. The study's purpose was explained, and voluntary participation was requested. Willing respondents were provided with the self-administered questionnaire and could complete it in designated waiting areas. This approach ensured efficient data collection while maintaining the natural flow of branch operations.

Completed questionnaires were collected immediately and checked for completeness. All data was anonymized upon collection, with personal identifiers removed to ensure respondent confidentiality. The physical questionnaires were securely stored, and data was systematically entered into statistical software for analysis, maintaining the proportional representation across all taxpayer branches.

3.11. Data Analysis Techniques and Presentations

This study adopted a structured, quantitative data analysis approach to examine the relationship between key dimensions of digital tax administration system implementation namely system usability, technological literacy, perceived trust, training and support, perceived benefits, and enforcement visibility, and taxpayer compliance behavior.

Phase 1: Preliminary Data Analysis - The initial phase focused on preparing the dataset. This included cleaning the data, handling missing values, identifying outliers, and verifying accuracy. Descriptive statistics such as frequencies, means, standard deviations, and ranges were computed to summarize respondent characteristics and provide an overview of the data.

Phase 2: Inferential Statistical Analysis - To test the proposed relationships, the study applied Pearson correlation analysis to assess bivariate associations between each independent variable and taxpayer compliance behavior. Multiple regression analysis was used to evaluate the combined predictive power of all independent variables on compliance outcomes.

Phase 3: Results Presentation - Findings were presented using descriptive tables (including means, standard deviations, and reliability coefficients), correlation matrices, and hierarchical regression tables. Multiple linear regression outputs illustrated direct effects, while graphs were used to visualize interaction effects.

All statistical analyses were conducted using SPSS (Version 28). Visualizations were developed in Tableau to improve clarity and interpretation. Both statistical significance (p-values) and practical significance (effect sizes such as R^2 and Cohen's d) were reported to ensure a comprehensive understanding of the results. This analytical framework allowed for rigorous testing of the conceptual model and generated actionable insights for improving digital tax administration and enhancing taxpayer compliance in Ethiopia. The model is specified as:

- Independent variables –
 - System usability (ease of use, efficiency, interface design)
 - Technological literacy (digital skills, troubleshooting ability)
 - Perceived trust (data security, system fairness)
 - Training adequacy (support resources, guidance materials)
 - Perceived benefits (time savings, cost reductions)
 - Enforcement visibility (detection likelihood, penalties)
- Dependent variable
 - Compliance behavior (filing timeliness, declaration accuracy)

The multi-regression analysis model is set as depicted below:

$$TCB = \beta_0 + \beta_1SUS + \beta_2TLC + \beta_3PTR + \beta_4TRS + \beta_5PBN + \beta_6ENV + e$$

Where: System Usability → SUS

Technological Literacy → TCL

Perceived Trust → PTR

Training and Support → TRS

Perceived Benefits → PBN

Enforcement Visibility → ENV

Taxpayer Compliance Behavior → TCB

e = error term, β_0 = constant, term $\beta_{1, 2, 3, 4, 5}$ = coefficients of predictors

3.12. Ethical Considerations

This study followed key ethical principles throughout the research process. Four main concerns were considered: harm to participants, lack of informed consent, invasion of privacy, and deception, as outlined by Bryman (2011).

Based on this, first, the study did not expose participants to any form of harm. Although respondents were asked about their age and gender, this information was not detailed enough to identify anyone personally. Second, informed consent was respected. Participants were clearly informed about the purpose of the study and their right to participate voluntarily. Third, privacy was protected. Respondents had the option to skip any question they found sensitive. The nature of the study was not intrusive, which likely encouraged honest and willing participation. Fourth, it avoided deception. Participants were not misled about the research objectives or how their responses would be used.

By addressing these ethical concerns and meeting all necessary standards, the study maintained ethical integrity throughout its design and implementation.

CHAPTER FOUR: DATA ANALYSIS AND INTERPRETATIONS

This chapter presents the analysis and interpretation of data collected to examine the effect of digital tax administration systems on taxpayer compliance within the Federal Ministry of Revenue in Addis Ababa. The study investigates how the adoption and usage of digital platforms influence taxpayer behavior, filing accuracy, and overall compliance. To address the research objectives, the data have been systematically organized, analyzed, and interpreted. The chapter begins with the demographic profile of respondents, followed by descriptive and inferential analyses that explore usage patterns, compliance levels, and the relationship between taxpayer characteristics and digital engagement.

4.1. Response Rate

Table 3. Response Rate

Questionnaires	Frequency (N)	Percentage (%)
Total distributed	385	100.00%
Returned questionnaires	280	72.73%
Unreturned questionnaires	105	27.27%
Response errors	17	4.42%
Total valid and usable	263	68.31%

Source: Own Survey, 2025

A total of 385 questionnaires were distributed to registered taxpayers in Addis Ababa. Referring table 3, of these 385 distributed questionnaires, only 280 were returned, yielding a return rate of 72.73%. However, 17 responses (4.42%) were excluded due to errors or inconsistencies, resulting in 263 valid and usable responses, which accounts for 68.31% of the total distributed. This response rate reflects the willingness of taxpayers to engage with the study. All valid responses were screened and encoded prior to analysis. Despite a strong overall engagement, 105 out of 385 distributed questionnaires (27.27%) were not returned. This non-response rate may be attributed to several contextual factors. First, some taxpayers may have lacked sufficient time or motivation to complete the survey due to competing business or personal obligations. Second, limited digital literacy or unfamiliarity with survey formats could have discouraged participation, particularly among older or less formally educated individuals. Third, concerns about confidentiality or skepticism toward institutional research may have led some recipients to opt out. While the non-response rate is notable, the final valid sample of 263 respondents (68.31%) remains robust and representative, ensuring the reliability of subsequent analyses.

4.2. Personal Information of the Respondents

Table 4. Demographic Characteristics of Respondents

Characteristic	Category	Freq. (N)	(%)
Taxpayer Category	Individual	219	83.3%
	Corporate	44	16.7%
Gender	Male	104	39.5%
	Female	159	60.5%
Age Group	21–30 years	91	34.6%
	31–40 years	105	39.9%
	41–50 years	41	15.4%
	51–60 years	26	10.1%
Education Level	High School	14	5.3%
	Diploma	38	14.5%
	First Degree	173	65.8%
	Master's & above	38	14.5%
Business Sector	Construction	52	19.7%
	Agriculture	28	10.6%
	Service	97	36.8%
	Manufacturing	57	21.5%
	Others	29	11.4%
Business Model	Sole Proprietorship	80	30.3%
	Partnership	39	14.9%
	PLC	132	50.0%
	Others	12	4.8%
Years of Service	1–5 years	62	23.7%
	6–10 years	81	30.7%
	Above 10 years	120	45.6%
Digital Tax System Usage	Rarely	45	17.1%
	Occasionally	58	22.1%
	Frequently	121	46.0%
	Always	39	14.8%

Source: Own Survey, 2025

As far as the results in table 4 is concerned, the majority of respondents are individual taxpayers (83.3%), with corporate taxpayers making up 16.7%. This suggests that digital tax systems must be tailored to meet the needs of individuals, who may have less administrative support than corporations. Understanding their motivations and barriers is key to improving compliance.

With 60.5% female and 39.5% male respondents, the sample leans toward female representation. This suggests that women are actively engaged in business and tax-related activities in Addis Ababa. It may be worth exploring whether gender influences digital system adoption or compliance behavior, especially in terms of access to training or digital tools.

As far as the age category is concerned, the majority of respondents are between 21–40 years (74.5% combined), indicating a youthful and economically active population. This age group is typically more tech-savvy and adaptable to digital platforms, which aligns well with your study's focus on digital tax systems. The relatively low representation of older age groups may reflect generational gaps in digital literacy or business ownership.

A striking 80.3% of respondents hold a first degree or higher, with 65.8% having a bachelor's and 14.5% a master's or above. This high level of education suggests strong potential for digital engagement and understanding of tax obligations. It also implies that barriers to compliance may be less about literacy and more about system accessibility or trust.

The service sector dominates at 36.8%, followed by manufacturing (21.5%) and construction (19.7%). These sectors are typically more formalized and subject to regular tax obligations, making them ideal for digital tax system implementation. The agriculture sector (10.6%) and others (11.4%) may face unique challenges, such as limited infrastructure or seasonal income patterns.

Half of the respondents operate under Private Limited Companies (PLCs), while 30.3% are sole proprietors. This mix reflects both formal and informal business structures. PLCs may have more resources and incentives to adopt digital systems, whereas sole proprietors might require targeted support to improve compliance through digital means.

A substantial 45.6% of respondents have over 10 years of business experience, indicating a mature and experienced taxpayer base. This group may have established habits around tax filing, which could either support or hinder digital adoption depending on their openness to change. Meanwhile, the 23.7% with 1–5 years of experience may be more flexible and receptive to digital tools.

Usage patterns show that 46.0% of respondents use the system frequently, while 14.8% use it always. Combined, this means 60.8% are regular users. However, 39.2% still use it occasionally or rarely, indicating room for improvement. These figures suggest that while digital systems are gaining traction, there are still gaps in awareness, accessibility, or trust that need to be addressed.

The demographic profile of respondents underscores the relevance of digital tax systems, particularly among younger, well-educated individuals engaged in service-oriented businesses. With a majority demonstrating frequent usage, the data suggests strong potential for digital compliance. However, the notable share of occasional and rare users points to the need for targeted outreach and support. Additionally, variations in business models, sectors, and experience levels reveal importance in how taxpayers engage with digital platforms, offering valuable opportunities for tailored system design.

4.3. Digital Tax Administration System and Taxpayer Compliance

This study investigates effects of digital tax administration systems on taxpayer compliance behavior among taxpayers. The analysis focuses on six key dimensions that influence compliance: System Usability, Technological Literacy, Perceived Trust, Training & Support, Perceived Benefits, and Enforcement Visibility. These factors represent enablers of digital engagement and behavioral change, shaping how taxpayers interact with the system and fulfill their obligations.

To assess taxpayer perceptions, a five-point Likert scale was employed. Following Best (2005), responses were categorized as follows: mean scores between 1.01–1.80 indicate strong disagreement, 1.81–2.60 reflect disagreement, 2.81–3.40 represent neutrality, 3.41–4.20 indicate agreement, and 4.21–5.00 denote strong agreement. This scale allows for a nuanced understanding of how taxpayers evaluate the usability, trustworthiness, and effectiveness of digital tax platforms.

In addition to mean scores, standard deviation was used to measure response variability. A standard deviation above 1.000 suggests significant dispersion, indicating diverse experiences and attitudes among taxpayers. Such variation may stem from differences in taxpayer category (individual vs. corporate), digital literacy levels, business sector, or years of service. These factors contribute to the complexity of compliance behavior and highlight the need for tailored interventions.

Overall, this analysis provides insight into the behavioral mechanisms through which digital systems influence compliance. The findings offer practical implications for policymakers, tax administrators, and support institutions aiming to improve taxpayer engagement, reduce non-compliance, and enhance the efficiency of revenue collection through digital transformation.

4.3.1. System Usability and Taxpayer Compliance Behavior

Table 5. Description of System Usability (n = 263)

Statements	Mean	Std.
The digital tax system is easy to navigate and understand.	3.17	1.243
The interface of the digital tax system is user-friendly and intuitive.	3.58	1.548
I can complete my tax-related tasks efficiently using the digital tax system.	3.51	.980
The digital tax system provides clear instructions for filing and payment processes.	3.62	1.305
I rarely encounter technical difficulties when using the digital tax system.	4.29	1.331
Average	3.63	.924

(Source: Own Survey, 2025)

Referring the results in Table 5, five main indicators were used to evaluate the general usability of the digital tax administration systems. The overall mean of 3.63 (SD = 0.924) shows that participants held a fairly positive impression about the usability of the system. More specifically, systems stability was the item scoring highest with a mean of 4.29 (SD = 1.331). This indicates good usability without essential technical obstructions.

There was also high mean score for instruction clarity 3.62 (SD = 1.305) and interface intuition was likewise high at 3.58 (SD = 1.548). These scores indicate moderate satisfaction with the guidance and design features of the system. The efficiency of generating tax-related work was also moderately high (M = 3.51, SD = .980), which further supports its functional adequacy.

However, the values of ease of navigation and understanding had low scores, 3.17 (SD = 1.243), showing that some users can not reuse or use it as understood in the system. The high standard deviations, especially for items relating to the interfaces of the websites, indicate variance in user experience that could be related by diversity in skillset with digital media or previous exposure to online platforms or even classification as a taxpayer.

This implies that while the digital tax system is technically robust, its design and informational clarity may not be uniformly intuitive for all users. The variance in scores suggests that usability is not perceived consistently across the user base. This perceived ease of use is a critical factor, as it can directly influence taxpayer compliance behavior by reducing the perceived cost and effort

associated with tax filing. Enhancements to navigability and instructional clarity could further improve both user experience and compliance outcomes.

4.3.2. Technological Literacy and Taxpayer Compliance Behavior

Table 6. Description of Technological Literacy (n = 263)

Statements	Mean	Std.
I feel confident in using digital platforms for tax-related activities.	2.87	1.767
I have the necessary skills to operate the digital tax system effectively.	2.97	1.781
I can troubleshoot minor technical issues when using the digital tax system.	2.92	1.754
I understand how to access and use online resources for tax compliance.	3.08	1.795
I find it easy to adapt to new features or updates in the digital tax system.	3.14	1.700
Average	2.99	1.682

(Source: Own Survey, 2025)

Table 6 shows the data regarding the perceived technological competency of the respondents. On average, respondents expressed moderate confidence ($M = 2.99$; $SD = 1.682$) using technology for tax-related tasks. This implies that limited digital skills could be a barrier to using the digital tax administration system to its full potential.

Items that are related to confidence using digital platforms had some of the lowest ratings ($M = 2.87$, $SD = 1.767$). We find that most people are confused and anxious about tech in regards to doing their taxes. And the operability assessment on operating the system was considered to be 2.97 ($SD = 1.781$), indicating that users were not confident in using it effectively.

Troubleshooting minor technical difficulties was difficult, $M = 2.92$ ($SD = 1.754$). It indicates that users experience significant frustration, not being able to apply basic procedures by themselves and having to rely on external help for task accomplishment.

Knowledge of online resources for tax compliance was found to be slightly greater, with a mean value of 3.08 ($SD = 1.795$), which implied some degrees of familiarity with IT tools useful for compliance. The best score in this range was obtained for flexibility to new features or upgrades 3.14 ($SD = 1.700$). Yet this score is below the midpoint, suggesting users find it not very easy to adapt to system changes.

These findings, in totality, illustrate that taxpayers' technological or digital platform adoption is low and highly heterogeneous. This uneven skillset is a major factor in online interactions and management of tax obligations, particularly in self-service digital environments.

4.3.3. Perceived Trust and Taxpayer Compliance Behavior

Table 7. Description of Perceived Trust (n = 263)

Statements	Mean	Std.
I trust that the digital tax system keeps my personal and financial information secure.	3.52	1.847
I believe the digital tax system provides accurate calculations and assessments.	3.59	1.723
I feel confident that the digital tax system operates transparently and fairly.	3.86	1.566
I trust the digital tax system to process my payments without errors.	2.78	1.919
I believe the digital tax system is reliable and free from frequent technical failures.	3.47	1.855
Average	3.44	1.448

(Source: Own Survey, 2025)

Revealed in Table 7, respondents' trust score towards digital tax administration system was mildly positive at 3.44 (SD =1.448) as a mean average overall10 thoughts on" Trust in technology with an intention to use it (Its acceptance)" input from end user's perspective. Nevertheless, on an item level, the pattern of trust across individual system characteristics is more complex.

Perceived transparency and fairness were the most endorsed, (mean = 3.86; SD = 1.566). This implies that largely, users perceive the system to be neutral and fair, a central component in promoting voluntary compliance. By comparison, trust in the system's ability to pay without error was significantly lower (M = 2.78, SD = 1.919). It implies the level of distrust by user on a transactional reliability, what could affect their sensitivity on the usage of digital tax platforms.

Same vein, confidence in the correctness of tax calculations was also moderately strong, as indicated by a mean score of 3.59 (SD = 1.723), suggesting that most respondents trusted the system's capacity to yield valid assessments. Information security received a mean score of 3.52 (SD = 1.847), which indicates moderate trust in the system's ability to keep private and financial sensitive identity information. Similarly, perceived ease of use Perceived operational reliability: Users rated the ability for the RR to work correctly as somewhat reliable (M = 3.47, SD = 1.855), implying that while users believe in its stability there is some skepticism in its consistency of operation.

Collectively, the results demonstrate that payment processing and technical reliability are a concern, while users acknowledge system fairness accuracy and data protection facilities. The observed dimensions of trust are also expected to be related to more general attitudes concerning system use and may impact taxpayer compliance behaviour in particular amongst those in jurisdictions where digital platforms are the predominant medium for taxpaying activities.

4.3.4. Training & Technical Support and Taxpayer Compliance Behaviour

Table 8. Description of Training and Support (n = 263)

Statements	Mean	Std.
I have received adequate training on how to use the digital tax system.	3.94	1.371
The tax authority provides sufficient support to help me resolve technical issues.	2.78	1.313
Tutorials and guides for using the digital tax system are readily available and helpful.	3.40	1.564
I can easily access assistance when I encounter problems with the digital tax system.	3.24	1.622
The training and support provided have improved my ability to comply with tax requirements.	3.62	1.278
Average	3.40	1.139

(Source: Own Survey, 2025)

Regrading Training & Technical Support provided by the tax authority, the results in table 8 reveals that, on average, the combined mean score of 3.40 (SD = 1.139) implies a moderately positive attitude toward training and support services for use of DTS. Yet measures at the level of single items disclose considerable differences with respect to perceived sufficiency and availability of resources.

The fact that the best-scored aspect was that of satisfaction with the received training (3.94; SD = 1.371). This indicates a large proportion of respondents felt well-equipped to navigate the system, potentially fostering procedural confidence and encouraging adherence. The social influence construct or the effect of training and learned behavior on IFAs fulfilling their tax compliance responsibility is also rated high at 3.62 (SD = 1.278), pointing out that instructional intervention interventions are seen to work in changing voluntary compliance attitude.

In comparison, beliefs about the instrumental support received from tax authority were much lower (mean = 2.78; SD=1.313). This suggests that, for users not being institutional support sufficient to solve system issues, independent use of the system can be problematic, particularly for those who are less digitally literate. Nonetheless, low ratings of satisfaction were given with respect to the availability and usefulness of tutorials or guidance, scored at 3.40 (SD = 1.564). Meanwhile, the level of timely help upon system breakdown was relatively low with mean for M3 (M = 3.24, SD=1.622), which also indicates that real-time assistance does not readily support as required.

Taken as a whole, these results suggest that, while formal exercise intervention programs are generally effective and contribute toward readiness for compliance, broader support mechanisms (especially technical help and user support) seem less than robust. The sustained engagement in the digital tax system therefore might not rely solely on initial training but also on having support that is timely and accessible through the process.

4.3.5. Perceived Benefits and Taxpayer Compliance Behavior

Table 9. Description of Perceived Benefits (n = 263)

Statements	Mean	Std.
The digital tax system saves me time compared to traditional tax filing methods.	3.33	1.623
Using the digital tax system reduces the cost of complying with tax regulations.	4.32	1.200
The digital tax system simplifies the process of filing and paying taxes.	3.40	1.615
I find the digital tax system more convenient than manual tax processes.	3.60	1.490
The digital tax system provides real-time access to my tax records and obligations.	3.74	1.642
Average	3.68	1.158

(Source: Own Survey, 2025)

As far as the perceived benefits in relation to tax compliance behavior, the results in table 9 reveals that the overall mean score of 3.68 (SD = 1.158) indicates a generally favorable perception of the benefits associated with the digital tax system (DTS). Respondents acknowledged several advantages that may positively influence their compliance behavior, though the degree of endorsement varied across specific benefit dimensions.

The most strongly endorsed benefit was cost reduction, with a mean score of 4.32 (SD = 1.200). This suggests that users widely perceive the digital system as economically efficient, reducing the

financial burden typically associated with tax compliance. Such cost-related advantages may serve as a compelling incentive for continued use and voluntary engagement.

Real-time access to tax records and obligations was also rated positively, with a mean of 3.74 (SD = 1.642). This reflects appreciation for the system's ability to provide timely and transparent information, which can enhance users' sense of control and accountability in managing their tax affairs. Similarly, convenience was another notable factor, scoring 3.60 (SD = 1.490). Respondents generally found the digital platform more accessible than manual processes, indicating that ease of use contributes to its perceived value. Similarly, the system's role in simplifying filing and payment procedures was rated at 3.40 (SD = 1.615), suggesting that users recognize its potential to streamline traditionally complex tasks.

Nonetheless, time-saving benefits received a slightly lower score of 3.33 (SD = 1.623), though still above the midpoint. This implies that while efficiency is acknowledged, it may not be uniformly experienced across the respondent pool - possibly due to varying levels of familiarity with digital tools or differences in system navigation proficiency.

In summary, the data indicate that users generally perceive the digital tax system as beneficial, particularly in terms of cost efficiency, access to information, and convenience. These perceived advantages are likely to reinforce positive attitudes toward compliance, especially when the system is seen as reducing procedural burdens and enhancing user autonomy.

4.3.6. Enforcement Visibility and Taxpayer Compliance Behavior

Table 10. Description of Enforcement Visibility (n = 263)

Statements	Mean	Std.
I believe the digital tax system increases the likelihood of detecting non-compliance.	4.34	1.431
The digital tax system makes it easier for authorities to monitor tax evasion.	4.29	1.261
I am aware that the digital tax system can identify discrepancies in tax filings.	3.59	1.538
The presence of the digital tax system discourages me from underreporting income.	3.73	1.555
I feel that the digital tax system enhances the enforcement of tax laws.	3.61	1.407
Average	3.91	.993

(Source: Own Survey, 2025)

Table 10 illustrates the perception of taxpayers regarding enforcement visibility in relation to taxpayer compliance behavior. The overall mean score of 3.91 (SD = 0.993) reflects a strong perception among respondents that the tax system enhances enforcement visibility. This shows that users generally recognize the system's role in strengthening negligence and deterring non-compliant behavior.

The highest-rated item was the belief that the DTS increases the likelihood of detecting non-compliance, with a mean score of 4.34 (SD = 1.431). This indicates a widespread perception that digital mechanisms improve the capacity of tax authorities to identify irregularities, thereby reinforcing the credibility of enforcement efforts. Similarly, closely aligned with this is the view that the system facilitates monitoring of tax evasion, rated at 4.29 (SD = 1.261). These high scores suggest that respondents perceive the digital tax system as a tool that enhances institutional surveillance and accountability, which may contribute to a heightened sense of deterrence.

Awareness of the system's ability to detect discrepancies in tax filings was rated at 3.59 (SD = 1.538), indicating moderate recognition of its analytical capabilities. Similarly, the presence of the system as a deterrent to underreporting income received a mean score of 3.73 (SD = 1.555), suggesting that visibility alone may influence behavioral intentions, even in the absence of direct enforcement actions. Same token, perceptions of the system's contribution to overall enforcement of tax laws were rated at 3.61 (SD = 1.407), reinforcing the view that digital infrastructure plays a meaningful role in strengthening regulatory compliance.

Taken together, the findings suggest that enforcement visibility - enabled through digital monitoring, detection, and deterrence, is perceived as a key driver of taxpayer compliance. The data imply that when users believe their actions are observable and verifiable, they are more likely to adhere to regulatory expectations, underscoring the behavioral influence of perceived surveillance in digital tax environments.

4.3.7. Overall Taxpayer Compliance Behavior

Table 11. Description of Overall Taxpayer Compliance Behavior (n = 263)

Statements	Mean	Std.
I file my taxes on time without delays.	3.51	1.433
I accurately report all my income when filing taxes.	4.11	1.363

Statements	Mean	Std.
I ensure that I pay the correct amount of taxes owed.	3.50	.824
I comply with tax regulations even when enforcement is minimal.	3.52	1.408
I actively seek clarification when I am unsure about tax filing requirements.	3.54	.750
Average	3.64	.918

(Source: Own Survey, 2025)

Referring to Table 11, the overall mean score of 3.64 (SD = 0.918) suggests a generally positive level of self-reported compliance among taxpayers. However, the item-level data reveal nuanced variations across different behavioral indicators, reflecting the multidimensional nature of compliance.

The highest-rated item was the accurate reporting of income, with a mean score of 4.11 (SD = 1.363). This indicates a strong normative commitment to honesty in tax declarations, suggesting that respondents prioritize legal and ethical standards when disclosing financial information. Such behavior reflects internalized compliance, where individuals adhere to regulations not merely due to enforcement but due to personal conviction.

Timely filing of taxes (M = 3.51, SD = 1.433) and ensuring correct payment amounts (M = 3.50, SD = 0.824) were rated moderately, pointing to procedural adherence. The relatively high standard deviation for timely filing suggests variability in punctuality, possibly influenced by access to digital tools, clarity of deadlines, or individual organizational habits. Compliance in low-enforcement contexts was rated at 3.52 (SD = 1.408), indicating that while some taxpayers maintain compliance regardless of oversight, others may be more responsive to perceived enforcement visibility. This highlights the role of deterrence and perceived risk in shaping behavior. Proactive engagement - measured by the tendency to seek clarification when uncertain received a mean score of 3.54 (SD = 0.750). The low variability here suggests a consistent pattern of information-seeking behavior, which may reflect a broader culture of procedural diligence among the respondents.

Taken together, the results in Table 11 suggest that taxpayer compliance behavior is shaped by a combination of normative values, procedural discipline, and contextual awareness. While most respondents demonstrate a commitment to accurate reporting and regulatory adherence, variability in punctuality and enforcement sensitivity points to areas where compliance may be conditional or

situational. These findings underscore the importance of fostering both intrinsic motivation and system-level clarity to sustain consistent compliance across diverse taxpayer segments.

4.4. Inferential Analysis

The inferential analysis is a collection of method of drawing and measuring the reliability of conclusions about a population parameter based on the sample's statistics (Pallant, 2005). To address the objectives of the study, the inferential statistics encompassed correlational test, assumption test, and multiple linear regression analyses of the collected data.

4.4.1. Correlation Test

To address the study's objectives, inferential analysis was conducted using Pearson's correlation test to examine the strength and direction of relationships between digital tax system (DTS) adoption dimensions and taxpayer compliance behavior. Pearson's method was selected for its suitability in assessing linear associations among continuous variables. Correlation coefficients range from -1.0 to $+1.0$, with values interpreted according to Dancey and Reidy's (2004) guidelines: $0.10-0.29$ = weak, $0.30-0.49$ = moderate, and 0.50 and above = strong associations.

Table 12. Correlation Matrix

	SUS	TCL	PTR	TRS	PBN	ENV	TCB
System Usability	1						
Technological Literacy	.327**	1					
Perceived Trust	.431**	.198**	1				
Training and Support	.635**	.279**	.516**	1			
Perceived Benefits	.524**	.366**	.343**	.402**	1		
Enforcement Visibility	.390**	.238**	.375**	.483**	.371**	1	
Taxpayer Compliance Behavior	.727**	.393**	.560**	.661**	.555**	.495**	1
**. Correlation is significant at the 0.01 level (2-tailed).							

Source: SPSS output, 2025

As shown in Table 12, the strongest positive correlation with taxpayer compliance behavior was observed for system usability ($r = .727$, $p < .01$). This suggests that when users perceive the digital tax system as intuitive, stable, and easy to navigate, they are significantly more likely to comply with tax obligations. Usability appears to be a critical determinant of behavioral engagement, reinforcing the importance of interface design and operational reliability.

Training and support also demonstrated a strong correlation with compliance behavior ($r = .661, p < .01$), indicating that instructional resources and responsive assistance play a substantial role in facilitating accurate and timely tax filing. This finding highlights the behavioral impact of institutional support mechanisms in digital environments.

Perceived trust in the system showed a robust association with compliance ($r = .560, p < .01$), suggesting that confidence in data security, fairness, and transactional integrity contributes meaningfully to voluntary compliance. Trust functions as a psychological enabler, reducing perceived risk and enhancing user commitment.

Moderate correlations were found for perceived benefits ($r = .555, p < .01$) and technological literacy ($r = .393, p < .01$). These results imply that while convenience, cost savings, and digital proficiency support compliance, their influence may be contingent on broader system accessibility and user experience. Notably, technological literacy (though positively associated) shows the weakest correlation among the adoption dimensions, suggesting that technical skill alone is insufficient without complementary system features and support.

Enforcement visibility was also moderately correlated with compliance behavior ($r = .495, p < .01$), indicating that perceived monitoring and detection capabilities influence taxpayer decisions. The presence of digital oversight mechanisms may serve as a deterrent to non-compliance, reinforcing regulatory adherence.

Inter-variable correlations further reveal the interconnected nature of DTS adoption. For instance, training and support is strongly associated with system usability ($r = .635, p < .01$) and perceived trust ($r = .516, p < .01$), suggesting that well-supported users are more likely to perceive the system as usable and trustworthy. Similarly, perceived benefits correlates moderately with all other dimensions, reflecting its integrative role in shaping user attitudes.

The correlational analysis, in general, confirms that taxpayer compliance behavior is influenced by multiple facets of digital system adoption. System usability, training and support, and perceived trust emerge as the most influential predictors, while technological literacy, perceived benefits, and enforcement visibility offer complementary support. These findings underscore the need for holistic system design, one that integrates functional reliability, user empowerment, and institutional responsiveness, to foster sustained compliance in Ethiopia's digital tax administration landscape.

4.4.2. Assumption for Regression Model Test

Multiple linear regression is employed to evaluate the extent to which independent variables predict the outcome of a dependent variable. For the regression model to yield valid and reliable estimates, several statistical assumptions must be satisfied. These assumptions ensure that the model minimizes prediction error and maintains analytical integrity. The assumptions were tested prior to conducting the final regression analysis to ensure the suitability of the data for model estimation. Meeting these conditions is essential for drawing credible inferences from the regression results. Key assumptions include Multicollinearity, Normality, Homoscedasticity and Linearity tests.

4.4.2.1. Multicollinearity Test

Multicollinearity refers to the extent to which independent variables in a regression model are interrelated. When predictor variables exhibit high intercorrelation, typically with a Pearson correlation coefficient exceeding $r = .80$, may share overlapping predictive power, thereby compromising the reliability of coefficient estimates. In extreme cases (e.g., $r \geq .90$), it can distort the interpretation of individual variable effects and inflate standard errors. Collinearity Diagnostics via Tolerance and Variance Inflation Factor (VIF) is the primary method used to assess multicollinearity:

Tolerance measures the proportion of variance in a predictor that is not explained by other predictors. It is calculated as $1 - R^2$ for each variable. A tolerance value below 0.10 is considered indicative of multicollinearity. VIF is the reciprocal of tolerance ($VIF = 1 / \text{Tolerance}$) and quantifies the inflation of variance due to multicollinearity. A VIF value above 10 is typically regarded as problematic, though values above 5 may warrant caution depending on context.

Table 13: Collinearity Diagnostics

Model		Collinearity Statistics	
		Tolerance	VIF
1	System Usability	.500	2.000
	Technological Literacy	.833	1.200
	Perceived Trust	.693	1.443
	Training and Support	.486	2.059
	Perceived Benefits	.652	1.534
	Enforcement Visibility	.713	1.403

a. Dependent Variable: TCB

Source: Own Survey, 2025

Table 13 presents the collinearity statistics for the independent variables used in the regression model predicting project success. The VIF values range from 1.200 to 2.059, and tolerance values range from 0.486 to 0.833. These results fall within acceptable thresholds, indicating that multicollinearity is not a concern in this model. Specifically, none of the predictors exhibit excessive overlap in explanatory power, and the variance inflation remains within manageable limits.

For example, testing whether Perceived Trust predicts Taxpayer Compliance Behavior, and it is found that Perceived Trust has a tolerance of 0.693. That means 69.3% of its variance is unique, and only 31.7% is explained by other predictors, which is good. But assuming if the tolerance were 0.08, it would mean 92% of its variance is explained by other predictors, suggesting it overlaps too much and may not contribute distinct information. In short, higher tolerance means less multicollinearity, while lower tolerance implies potential problem.

Therefore, the regression model satisfies the assumption of non-collinearity, allowing for valid interpretation of individual predictors. As noted by Robert (2016), when variables are highly correlated, they may essentially measure the same construct or convey redundant information. In this case, the diagnostic results confirm that the predictors contribute distinct explanatory value, supporting the credibility of the regression analysis.

4.4.2.2. Homoscedasticity Test

The assumption of homoscedasticity, meaning “same variance”, is central to linear regression models. It describes a situation in which the error term is the same across all values of the independent variables. On the other hand, Heteroscedasticity (the violation of homoscedasticity) is present when the size of the error term differs across values of an independent variable. Residual scatter plots provide a visual examination of the assumption homoscedasticity between the predicted dependent variable scores and the errors of prediction.

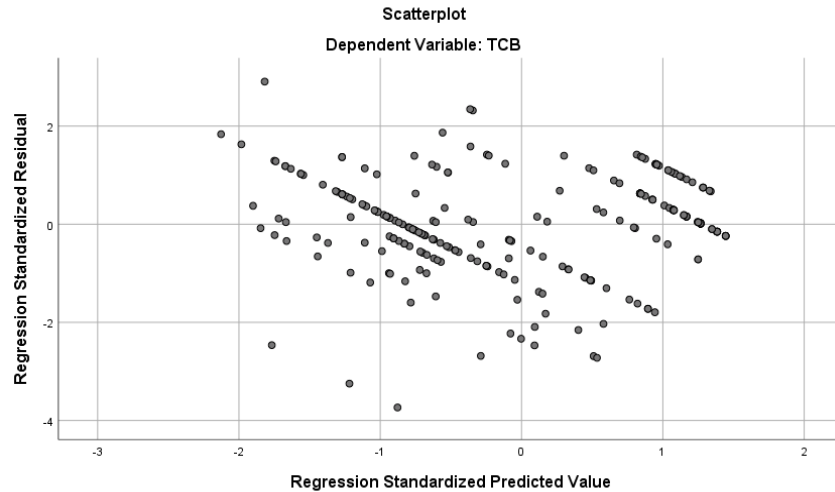


Figure 2. Scatter plot for Homoscedasticity Test

Since the plot in Figure 2 shows a fairly even cigar shape along its length (or the data are randomly distributed along the horizontal (0 -axis), it indicates there is no homoscedasticity issue. That means, the variance of the residuals about predicted tax compliance behavior (dependent variables) scores should be the same for all predicted scores (digital tax administration system).

4.4.2.3. Linearity Test

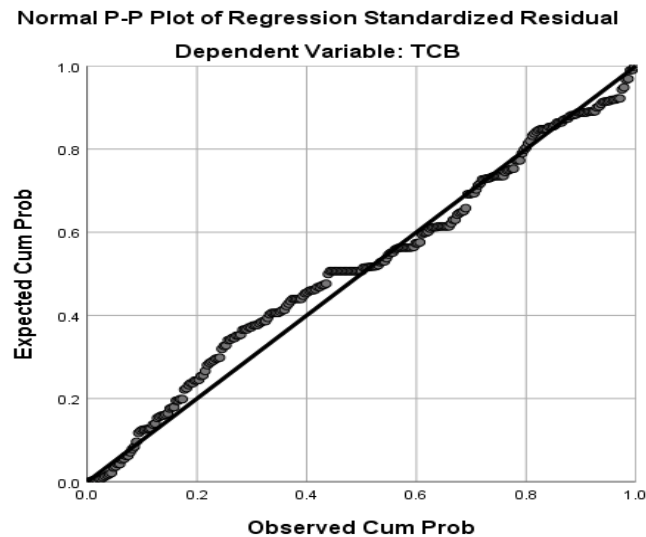


Figure 3. Linearity Test

In this study, the linearity test was used to check whether the relationship between the independent and dependent variables followed a straight-line pattern. Figure 3 presents a Q-Q plot that helps

visualize this. Most of the data points (the dots) fall closely along the straight line, which suggests that the data are normally distributed. When dots stray from the line, it signals a deviation from normality. In this case, the plot looked mostly straight, with only slight bends—like a gentle curve or a wiggly thread. This means the variables showed a fairly linear relationship, with only minor deviations.

4.4.2.4. Normality Test

Scores on each variable should be normally distributed. This can be checked by inspecting the histograms of scores on each variable. The residuals should be normally distributed about the predicted dependent variables scores (Pallant, 2005). One of the ways that these assumptions can be checked is by inspecting the residuals scatter plot and the Normal Probability Plot of the regression standardized residuals that were requested as part of the analysis. The most obvious way to tell if a distribution is approximately normal is to look at the histogram itself. If the graph is approximately bell-shaped and symmetric about the mean, it can usually be assumed normality. The normal probability plot is a graphical technique for normality testing. The data are plotted against a theoretical normal distribution in such a way that the points form an approximate straight line. This would suggest no major deviations from normality.

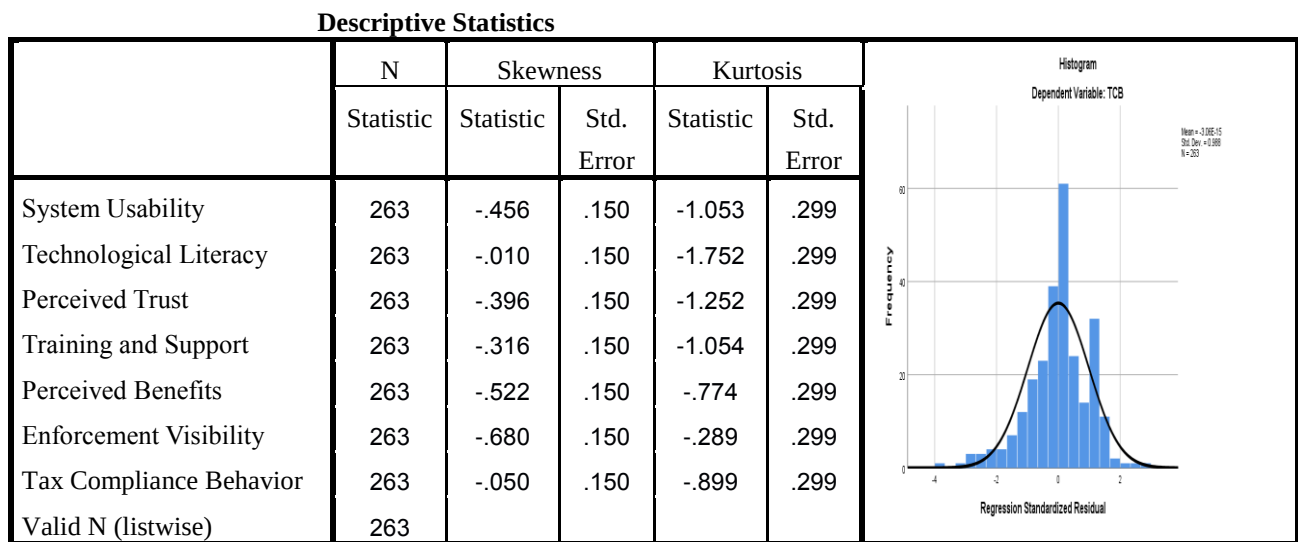


Figure 4. Histogram for Normality Test

Referring Figure 4, the analysis of normality via a histogram shows that there exists a gap in the data. The dataset is not normally distributed as a bell-shaped curve cannot be formed when plotted

in a graph. The frequency distribution of the dependent variable (tax compliance behavior) is symmetrical instead of either positively or negatively skewed. Thus, the observed data of the tax compliance behavior are normally distributed.

4.4.3. Regression Analysis

This part of the study used multiple linear regression to explore how digital tax system features influence taxpayer compliance. The goal was to see which factors matter most and how strongly they affect behavior. Six independent variables were included: system usability, technological literacy, perceived trust, training and support, perceived benefits, and enforcement visibility. The dependent variable was taxpayer compliance behavior. The analysis helped answer the main research question - how digital tax systems shape compliance in Addis Ababa. The regression output included three key parts: the model summary, the ANOVA test, and the regression coefficients. These results show how well the model fits and which variables have the strongest impact.

4.4.3.1. Model Summary

One of the SPSS outputs of the regression analysis is the model summary that includes the R-Squared and the standard of the error term for the model. R Squared, aka the coefficient of determination, tells the proportion of the variance in the dependent variable (project success) that can be explained by variation in the independent variables (project management). The Standard Error of the Estimate gives a margin of error for the prediction equation.

The model summary analysis shows how well the digital tax system explains taxpayer compliance. It uses values like R, R Square, Adjusted R Square, and Standard Error of the Estimate.

Table 14: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.822 ^a	.676	.669	.52835

a. Dependent Variable, TCB

b. Predictors: (constant), SUS, TCL, PTR, TRS, PBN, ENV

Source: Own Survey, 2025

As shown in Table 14, the correlation coefficient ($R = 0.822$) indicates there's a strong link between digital tax system features and compliance behavior. In simple terms, when the system works better,

people are more likely to comply. The R Square value (.669) means that about 67.6% of the change in compliance can be explained by the six factors studied. These include system usability, technological literacy, trust, support, benefits, and enforcement visibility. The remaining 32.4% comes from other influences not covered in this study. Similarly, the Adjusted R Square (.669) gives a more accurate picture. It filters out any predictors that don't add much value. This helps confirm that the model is reliable. Finally, the Standard Error (.528) shows how close the predicted values are to the actual ones. A smaller number means the model is doing a good job.

Similarly, The ANOVA test helps us check if the overall regression model is statistically meaningful. It tells us whether the combined effect of the digital tax system variables actually predicts taxpayer compliance, or if the results could have happened by chance.

4.4.3.2. ANOVA Test

Table 15: ANOVA Test

ANOVA ^a					
Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	149.202	6	24.867	89.081	.000 ^b
Residual	71.462	256	.279		
Total	220.664	262			

c. Dependent Variable, TCB

d. Predictors: (constant), SUS, TCL, PTR, TRS, PBN, ENV

Source: SPSS output, 2025

As shown in Table 15, the F-value is 149.202 and the p-value is .000. Since the p-value is less than 0.05, the model is statistically significant. This means the variation in taxpayer compliance is strongly linked to the six predictors: system usability, technological literacy, trust, support, benefits, and enforcement visibility. In short, the model works. The results didn't happen randomly. The digital tax system features, taken together, do a good job of explaining taxpayer behavior.

Table 16: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Err	Beta		

1	(Constant)	.378	.160		2.364	.019
	System Usability	.375	.050	.378	7.505	.000
	Technological Literacy	.056	.021	.103	2.644	.009
	Perceived Trust	.122	.027	.193	4.513	.000
	Training and Support	.148	.041	.184	3.609	.000
	Perceived Benefits	.110	.035	.138	3.136	.002
	Enforcement Visibility	.102	.039	.111	2.631	.009
a. Dependent Variable: TCB						

Source: SPSS output, 2025

The regression results in Table 16 confirm that all six predictors significantly influence taxpayer compliance ($p < .05$). Thus, the model expression is represented as:

$$TCB = .378 + .375 SUS + .056 TLC + .122 PTR + .148 TRS + .110 PBN + .102 EVN$$

Or in standardized terms:

$$TCB = .378 SUS + .103 TLC + .193 PTR + .184 TRS + .138 PBN + .111 EVN$$

Where:

System Usability → SUS
Technological Literacy → TCL
Perceived Trust → PTR
Training and Support → TRS
Perceived Benefits → PBN
Enforcement Visibility → ENV
Taxpayer Compliance Behavior → TCB

More specifically, the individual predictor's contribution is presented as:

- System Usability ($\beta = .378$) emerged as the strongest predictor. A one-standard-deviation increase in usability leads to a 0.378 standard-deviation rise in compliance. This supports H1: when the system is easy to navigate, taxpayers engage more consistently.

- Perceived Trust ($\beta = .193$) is the second strongest factor. A one-standard-deviation increase in trust yields a 0.193 standard-deviation rise in compliance. This supports H3: belief in fairness and security motivates compliance.
- Training and Support ($\beta = .184$) also plays a major role. A one-standard-deviation increase in support results in a 0.184 standard-deviation rise in compliance. This supports H4: guidance and technical help build confidence.
- Perceived Benefits ($\beta = .138$) significantly influence compliance. A one-standard-deviation increase in perceived benefits leads to a 0.138 standard-deviation rise in compliance. This supports H5: when taxpayers see clear advantages (time savings, cost reduction), compliance improves.
- Enforcement Visibility ($\beta = .111$) contributes meaningfully. A one-standard-deviation increase in visibility leads to a 0.111 standard-deviation rise in compliance. This supports H6: awareness of monitoring deters evasion.
- Technological Literacy ($\beta = .103$), though the smallest coefficient, remains significant. A one-standard-deviation increase in literacy leads to a 0.103 standard-deviation rise in compliance. This supports H2: digital skills enhance effective system use.

Together, these results show that taxpayer compliance is shaped by both technical and psychological factors. Usability, trust, support, and enforcement all matter. The more accessible and transparent the system is, the more likely people are to comply.

4.5. Discussion of the Results

The findings of this study confirm several established ideas in the literature on digital tax systems, while also revealing distinctive patterns that reflect Ethiopia's transitional digital environment. The regression results highlight system usability as the strongest predictor of taxpayer compliance in Addis Ababa ($\beta = .378$). This finding reinforces Kassim et al. (2021), who argued that ease of use enhances taxpayer engagement, but it also challenges studies such as Alabede et al. (2011), which emphasized perceived benefits as the dominant factor. In Ethiopia's transitional digital environment, taxpayers appear more pragmatic: they comply when the system is intuitive and accessible, not merely when efficiency gains are promised. This suggests that usability is not a secondary convenience but the primary compliance lever in emerging economies.

The role of perceived trust ($\beta = .193$) provides another layer of insight. Saad (2014) and Torgler (2007) positioned trust as central to voluntary compliance, and this finding confirms its significance. Yet, unlike in high-income contexts where trust often dominates, trust in this context ranked below usability. This divergence may reflect a transitional phase in digital governance, where taxpayers prioritize tangible system performance over institutional sentiment. It implies that trust will only grow in importance once usability and support stabilize.

Training and support ($\beta = .184$) also emerged as a strong determinant, nearly equal to trust. This finding aligns with Mashingaidze et al. (2022), who argued that user assistance is critical for digital adoption. However, it contests Mutua's (2019) claim that literacy itself is the primary barrier. In Ethiopia, literacy ($\beta = .103$) was the weakest predictor, precisely because usability and support compensate for skill gaps. This shifts the focus from individual capability to institutional scaffolding, suggesting that policymakers should invest less in assuming taxpayers must be digitally skilled and more in ensuring systems are intuitive and backed by responsive support services.

The effect of perceived benefits ($\beta = .138$) was significant but not dominant. OECD (2020) and Alabede et al. (2011) emphasized benefits such as efficiency and convenience as central to compliance, and these findings support their relevance. Yet, unlike those studies, benefits ranked lower than usability and trust, implying that taxpayers demand proof of functionality before valuing convenience. Benefits matter, but they are secondary to system performance in transitional digital environments, where practical usability and institutional credibility carry greater weight.

Enforcement visibility ($\beta = .111$) confirmed deterrence theory, consistent with Kirchler et al. (2008), who argued that monitoring encourages compliance. However, these findings show that visibility alone is insufficient. In Ethiopia, deterrence works best when paired with usability and support, undermining the assumption that fear of detection is enough to sustain compliance. This suggests that deterrence must be embedded within functional systems to avoid alienating taxpayers.

Finally, technological literacy ($\beta = .103$) was the weakest but still significant predictor. Mutua (2019) emphasized literacy as a major barrier in low-income settings, but these findings suggest otherwise. Even taxpayers with limited digital skills can comply if the system is intuitive and supported. This challenges the notion that literacy must precede compliance and instead highlights the compensatory role of institutional design and assistance.

Overall, the results show that taxpayer compliance is shaped by a balanced combination of technical and psychological factors. Unlike models where one or two variables dominate, this study demonstrates that compliance in Ethiopia depends on usability, trust, support, perceived benefits, enforcement visibility, and literacy working together. The strongest drivers - usability and trust - highlight the importance of system design and institutional credibility, while support and benefits reinforce user motivation. Through situating the analysis in Addis Ababa's public sector context, the study adds relevance often missing in global research, which tends to focus on private-sector or Western settings. The findings suggest that context-sensitive reforms are essential: Ethiopia's success will depend not only on secure platforms but on systems that are usable, trustworthy, and supported by strong training and assistance.

CHAPTER FIVE: FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the major findings of the study, conclusions, and recommendations.

5.1. Summary of Major Findings

This section presents the major findings from both descriptive and inferential analyses, examining how features of the digital tax administration system influence taxpayer compliance behavior (TCB) in Addis Ababa. Six core variables were assessed: system usability, technological literacy, perceived trust, training and support, perceived benefits, and enforcement visibility.

- System Usability was also positively rated ($M = 4.29$) as the system is rarely difficult to use. This shows relatively a very strong effect on compliance ($B = .378$). A user-friendly platform encourages taxpayers to engage more consistently. This supports Hypothesis H1 and reinforces the value of intuitive system design.
- Similarly, Technological Literacy recorded the lowest mean ($M = 2.87$) and ($M = 2.92$) implying that majority of the respondents were confused and anxious about tech in regards to reporting their taxes; and were not confident in using it effectively. Besides, a smallest but significant effect ($B = .103$) was also evidenced. While digital fluency supports smoother interaction with the system, its influence was less pronounced than usability or support. This supports Hypothesis H2 and suggests that well-designed systems can partially offset gaps in digital skills.
- Regarding perceived trust, system transparency and fairness were highly endorsed, (mean = 3.86). consequently, high effect of perceived trust on compliance ($B = .193$) is also evidenced. Since trust in the system's fairness and security matters, it was also the dominant factor in this context. This supports Hypothesis H3 as it reveals a convergence with from global literature, where trust often plays a central role.
- Training and Support followed closely as the taxpayers strongly acknowledged the provision of adequate training on how to use the digital tax ($M = 3.94$) that would have a strong effect ($B = .184$). Taxpayers who received guidance and assistance were more confident and consistent in using the system. This finding highlights the importance of accessible help channels and supports Hypothesis H4.

- Perceived Benefits emerged as influential factor in both descriptive and inferential terms. It recorded the highest mean score ($M = 4.32$), indicating the most strongly endorsed benefit was cost reduction. The regression analysis confirmed its impact, with a coefficient of ($B = .138$). A one-standard-deviation increase in perceived benefits leads to a 0.262 standard-deviation rise in compliance, supporting Hypothesis H5.
- Enforcement Visibility, preceding technological literacy, had also highest mean score ($M = 4.34$) as the respondents acknowledged that digital tax system increases the likelihood of detecting non-compliance. However, a low significant effect ($B = .111$) was evidenced in this study, suggesting that taxpayers are more likely to comply when they know the system can detect errors or evasion. This supports Hypothesis H6 and confirms the role of deterrence in digital tax systems.

Overall, the findings show that taxpayer compliance is shaped by a combination of perceived usability, trust, training support, and perceived benefit or value. These insights underscore the need for digital tax reforms that prioritize accessibility, responsiveness, and user-centered design.

5.2. Conclusion

This study set out to examine how features of the digital tax administration system influence taxpayer compliance behavior within the Federal Ministry of Revenue in Addis Ababa. From the researcher's perspective, the evidence demonstrates that compliance is not the product of a single driver but rather the outcome of a constellation of interrelated factors. System usability, perceived trust, training and support, perceived benefits, technical literacy and enforcement visibility each play a role, though their relative importance varies depending on the Ethiopian context.

What emerges most clearly is the primacy of practical utility and institutional support. Taxpayers are more likely to comply when they perceive tangible benefits such as reduced paperwork, time savings, and easier access to records, and when they receive adequate assistance in navigating the system. These findings underscore that in transitional digital environments, efficiency and responsiveness carry more weight than abstract notions of fairness or deterrence. While usability and trust remain critical structural elements, they are most effective when paired with benefits and support that taxpayers can immediately experience. In many high-income contexts, trust and deterrence dominate compliance models. Yet in Addis Ababa, Ethiopia, trust in digital systems is still developing, and deterrence alone is insufficient to sustain compliance. Instead, taxpayers prioritize systems that work, accessible, and provide help when needed. This insight shifts the focus from individual capability (like digital literacy) to institutional responsibility (enforcement), emphasizing the need for intuitive design and strong support services.

In conclusion, this study contributes to a deeper understanding of how digital systems can enhance tax compliance in developing economies. By situating the analysis within Addis Ababa's public sector, it provides evidence that practical value and institutional scaffolding outweigh abstract sentiment in shaping compliance behavior. For policymakers, system designers, and administrators, the message is clear: digital reforms must be designed not only to be secure and transparent but also to be usable, beneficial, and supportive. Only then will digital tax systems achieve their promise of improving institutional efficiency and strengthening taxpayer engagement.

5.3. Recommendations

Drawing from the study's findings, the following recommendations are proposed to enhance taxpayer compliance through improved digital tax administration systems:

- **Strengthen Perceived Benefits through Service Innovation** - Since perceived benefits had the strongest influence on compliance, tax authorities are advised to continue to innovate and communicate the practical advantages of digital systems. This includes faster processing times, simplified procedures, and easier access to tax records. Promoting these benefits through targeted awareness campaigns can further encourage voluntary compliance.
- **Expand and Diversify Training and Support Services** - Given the significant role of training and support, it is essential to invest in user assistance infrastructure. This could include multilingual help desks, mobile-based tutorials, in-person orientation sessions, and interactive guides embedded within the system. Special attention should be given to first-time users and small business taxpayers who may require additional support.
- **Enhance System Usability through User-Centered Design** - Improving the interface and navigation of the digital tax platform can reduce user frustration and increase engagement. Regular usability testing, feedback loops, and design updates should be institutionalized to ensure the system remains intuitive and accessible to a diverse taxpayer base.
- **Promote Digital Literacy among Taxpayers** - Although technological literacy had a relatively low effect, it remains a barrier for some users. Tax authorities should collaborate with educational institutions, business associations, and community organizations to offer digital skills training tailored to tax-related tasks. This will help bridge the digital divide and improve overall system adoption.
- **Build Trust through Transparency and Data Security** – since perceived trust had the next high effect on compliance, it is a foundational element of long-term compliance. Authorities should prioritize transparency in system operations, ensure data privacy, and communicate clearly about how taxpayer information is protected. Publishing audit trails, system performance reports, and grievance redress mechanisms can help build institutional credibility.

- **Maintain Enforcement Visibility without Overreliance on Deterrence** - Enforcement mechanisms should remain highly visible but less punitive. The system should be designed to detect non-compliance while also guiding users toward correction and education. Balanced enforcement builds accountability without discouraging engagement.
- **Tailor Reforms to Local Contexts and User Realities** - It highlights that the importance of context-sensitive design, thus, future reforms should be informed by local user behavior, infrastructure limitations, and cultural attitudes toward taxation. Periodic assessments and consultations can ensure that digital systems evolve in alignment with taxpayer needs.

These recommendations aim to support the Federal Ministry of Revenue and other stakeholders in designing digital tax systems that are not only technically sound but also socially responsive. By focusing on usability, support, and perceived value, the government can strengthen taxpayer engagement and improve revenue performance in a sustainable and inclusive manner.

Theoretical and Managerial Implications

Theoretical Implication

This research adds to the small but emerging field of literature on digital governance and tax compliance with building on empirical evidence in a developing country setting. This supports previous theories positing that we can expect a linkage from system usability and perceived usefulness, acceptability to institutional encouragements to behavioural effects. But it also complicates established thinking, especially the importance of trust in models regarding compliance. Trust, in contrast to previous studies within high-income settings, was found to have the least importance in this context. It is interesting to infer that utility and user freedom can weigh heavier than a sense of institutional goodwill in nascent digital landscapes. The results also appear to lend credence to a multi-dimension theory of compliance, in which technical design features, the user experience dimension and enforcement effects interact to affect taxpayer behavior. This integrated view may be used to guide future theoretical models that consider contextual and infrastructural variations in different regions.

Managerial Implications

Managers of tax authorities and system designers would find the results actionable. Firstly, the decisive impact of perceived benefits and support services indicates the importance of user centered design for service provision. Tax software needs to serve to not just work, but be clear and easy and responsive. Second, the salience of training and support implies that funds are needed in taxpayer education and assistance infrastructure. Different user needs should be represented by respective levels of help desks, tutorials and mobile support channels. Third, although with lesser effect, trust still is a long-run objective. Managers need to concentrate on transparency, data protection and regular communication in order to gradually create trust for digital systems. Lastly, enforcement must be at a visibility level somewhere in between: visible enough to serve as deterrent to being non-compliant without becoming punishment for engaging. These lessons learned can inform future efforts to design more inclusive, efficient, and adaptive digital tax systems that support Ethiopia's wider public sector reform objectives.

Limitations and Directions for Future Research

Although this research generates some useful findings on the effect of digital tax administration systems in determining taxpayer compliance in Addis Ababa, there are a number of limitations that should be recognized. Firstly, the geographic distribution of taxpaying members was limited to taxpayers in the city. The generalization of the findings is therefore constrained by whether taxpayer experiences in rural settings or locations with more nascent digital infrastructure and system access differ substantially. Further, the design of this study was cross-sectional using one time-point data collection. Consequently, it does not consider changes in behaviour or enhancements to systems that may occur over time, and the long-term effects on compliance following digital adoption.

A further limitation is that the information collected is self-reported through structured questionnaires. Although the latter approach may ensure comparability, it is also potentially susceptible to response bias, including social desirability bias (i.e., participants might report more often than not being digitally proficient or compliant). In addition, qualitative methods (e.g., interviews or focus groups) were not used in the study, which could have helped to understand more about motivation, challenges, and perceptions of taxpayers. Finally, the study's focus on six system-variables was narrow. Several other potentially important variables like policy predictability, economic environment and bureaucratic culture were not measured in the regression analysis.

To overcome these restrictions and extremes of the existing literature, larger geographic coverage (e.g. regional and rural taxpayers) would be desirable for future studies. This could yield a more generalizable picture of digital tax system uptake rate in Ethiopia. Longitudinal studies should also be considered to monitor dynamics in taxpayer behaviour over time and the continued effect of system improvements or policy changes. Mixed methods - using quantitative and qualitative data would add depth to the analysis and lend greater depth to understandings of taxpayer experiences.

In addition, other factors such as taxpayer education, economic incentives or perceptions of fairness with regards to tax enforcement could be investigated as well in future research. Comparative analyses across public and private sector digital platforms can also tell us about the variance in usability, trust, and efficacy between user types. By focusing on these axes, we believe future research can add up to the complexity of digital tax administration and its capacity to increase compliance and institutional performance.

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Appendices

Appendix I - Questionnaire to be filled by federal taxpayers in Addis Ababa

Dear Respondent,

My name is Fedlu Temam., a postgraduate student at Addis Ababa University, College of business and Economics I am currently conducting a research study entitled:

“The Effect of Digital Tax Administration Systems in Enhancing Taxpayer Compliance: Evidence from the Federal Ministry of Revenue in Addis Ababa.”

The purpose of this study is to examine how various dimensions of digital tax administration - such as system usability, technological literacy, perceived trust, training and support, perceived benefits, and enforcement visibility - affect taxpayer compliance behavior. Your organization has been selected as part of the study due to its relevance and engagement with Ethiopia’s digital tax systems.

Your participation in this survey is entirely voluntary, and all responses will be kept strictly confidential and used solely for academic purposes. The questionnaire is designed to be straightforward and should take no more than 15 minutes to complete. There are no right or wrong answers; your honest and thoughtful responses are highly valuable to the success of this research.

Should you have any questions or require clarification, please feel free to contact me at mohafedlu981@gmail.com or +251 921325691.

Thank you in advance for your time and cooperation.

Sincerely,

Fedlu Temam

Postgraduate Student at college of Business and Economics

Addis Ababa University

General Information

Your Participation is Voluntary

Do not write your name on the Questionnaire

Part I - Demographic Information –

Please tick (✓) or fill in the appropriate response.

1. Gender: ☐ Male ☐ Female
2. Age Group: ☐ 18–25 ☐ 26–35 ☐ 36–45
☐ 46–55 ☐ 56 and above
3. Educational Level: ☐ High School ☐ Diploma ☐ 1st Degree
☐ Master's Degree or above
4. Employment Type: ☐ Employed ☐ Self-employed
5. Monthly Income (ETB): ☐ Less than 5,000 ☐ 5,001–10,000 ☐ 10,001–20,000
☐ Above 20,000
6. Sector: ☐ Public ☐ Private ☐ NGO
☐ Other: _____
7. Taxpayer Category: ☐ Individual ☐ Corporate ☐ Other: _____
8. Years of Tax Filing Experience:
☐ Less than 1 year ☐ 1–3 years ☐ 4–6 years
☐ More than 6 years
9. Frequency of Digital Tax System Usage:
☐ Rarely ☐ Occasionally ☐ Frequently ☐ Always

Part – II Questions related to Digital Tax Administration System

Questionnaire: Digital Tax Administration System in terms of system usability, technological literacy, perceived trust, training and support, perceived benefits, and enforcement visibility.

Instructions: Please indicate your level of agreement with each statement by selecting the appropriate response.

Scale: 1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

1. Digital Tax Administration System	Likert Scale				
1.1 System Usability	1	2	3	4	5
The digital tax system is easy to navigate and understand.					
The interface of the digital tax system is user-friendly and intuitive.					
I can complete my tax-related tasks efficiently using the digital tax system.					
The digital tax system provides clear instructions for filing and payment processes.					
I rarely encounter technical difficulties when using the digital tax system.					
1.2 Technological Literacy	1	2	3	4	5
I feel confident in using digital platforms for tax-related activities.					
I have the necessary skills to operate the digital tax system effectively.					
I can troubleshoot minor technical issues when using the digital tax system.					
I understand how to access and use online resources for tax compliance.					
I find it easy to adapt to new features or updates in the digital tax system.					
1.3 Perceived Trust	1	2	3	4	5
I trust that the digital tax system keeps my personal and financial information secure.					
I believe the digital tax system provides accurate calculations and assessments.					
I feel confident that the digital tax system operates transparently and fairly.					
I trust the digital tax system to process my payments without errors.					
I believe the digital tax system is reliable and free from frequent technical failures.					
1.4 Training & Support	1	2	3	4	5
I have received adequate training on how to use the digital tax system.					
The tax authority provides sufficient support to help me resolve technical issues.					

Tutorials and guides for using the digital tax system are readily available and helpful.

I can easily access assistance when I encounter problems with the digital tax system.

The training and support provided have improved my ability to comply with tax requirements.

1.5 Perceived Benefits

The digital tax system saves me time compared to traditional tax filing methods.

Using the digital tax system reduces the cost of complying with tax regulations.

The digital tax system simplifies the process of filing and paying taxes.

I find the digital tax system more convenient than manual tax processes.

The digital tax system provides real-time access to my tax records and obligations.

1.6 Enforcement Visibility

I believe the digital tax system increases the likelihood of detecting non-compliance.

The digital tax system makes it easier for authorities to monitor tax evasion.

I am aware that the digital tax system can identify discrepancies in tax filings.

The presence of the digital tax system discourages me from underreporting income.

I feel that the digital tax system enhances the enforcement of tax laws.

Part III Questions related to Taxpayer Compliance Behavior

Instructions: Please indicate your level of agreement with each statement by selecting the appropriate response.

Scale: 1 - Strongly Disagree 2 - Disagree 3 - Neutral 4 - Agree 5 - Strongly Agree

2. Taxpayer Compliance Behavior

I file my taxes on time without delays.

I accurately report all my income when filing taxes.

I ensure that I pay the correct amount of taxes owed.

I comply with tax regulations even when enforcement is minimal.

I actively seek clarification when I am unsure about tax filing requirements.

(Source: Venkatesh & Davis, 2000; Gebremariam, 2022; OECD, 2021; Alm, 2019; Mascagni et al. 2021)

Many Thanks for Your Valued Time!!!

Appendix II SPSS Outputs

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.822 ^a	.676	.669	.52835

a. Predictors: (Constant), ENV, TCL, PTR, PBN, SUS, TRS

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	149.202	6	24.867	89.081	.000 ^b
	Residual	71.462	256	.279		
	Total	220.664	262			

a. Dependent Variable: TCB

b. Predictors: (Constant), ENV, TCL, PTR, PBN, SUS, TRS

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.378	.160		2.364	.019
	SUS	.375	.050	.378	7.505	.000
	TCL	.056	.021	.103	2.644	.009
	PTR	.122	.027	.193	4.513	.000
	TRS	.148	.041	.184	3.609	.000
	PBN	.110	.035	.138	3.136	.002
	ENV	.102	.039	.111	2.631	.009

a. Dependent Variable: TCB

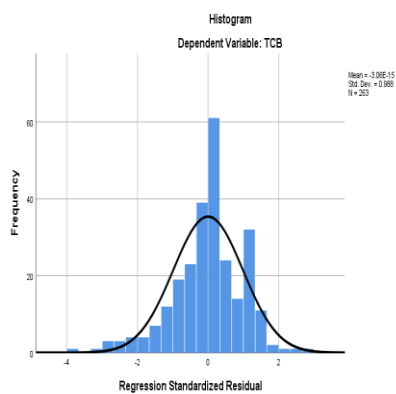
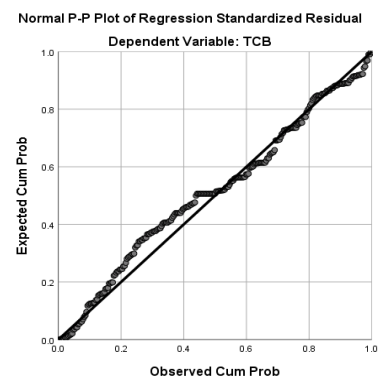
Coefficients^a

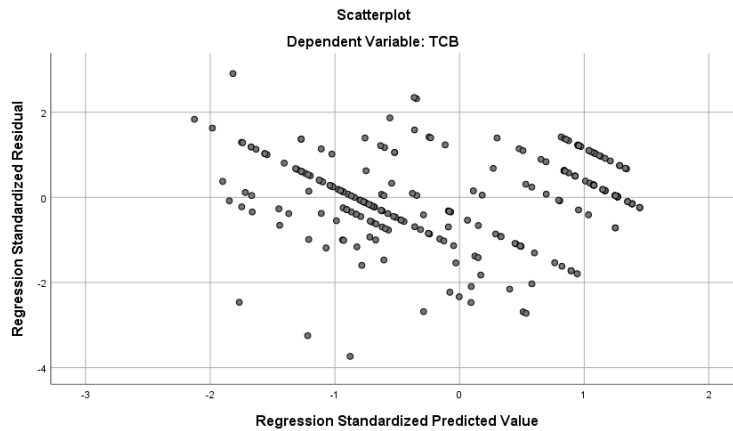
		Collinearity Statistics	
Model		Tolerance	VIF
1	SUS	.500	2.000
	TCL	.833	1.200
	PTR	.693	1.443
	TRS	.486	2.059
	PBN	.652	1.534
	ENV	.713	1.403

a. Dependent Variable: TCB

Descriptive Statistics

	N	Skewness		Kurtosis	
		Statistic	Std. Error	Statistic	Std. Error
SUS	263	-.456	.150	-1.053	.299
TCL	263	-.010	.150	-1.752	.299
PTR	263	-.396	.150	-1.252	.299
TRS	263	-.316	.150	-1.054	.299
PBN	263	-.522	.150	-.774	.299
ENV	263	-.680	.150	-.289	.299
TCB	263	-.050	.150	-.899	.299
Valid N (listwise)	263				





Correlations

		SUS	TCL	PTR	TRS	PBN	ENV	TCB
SUS	Pearson Correlation	1	.327**	.431**	.635**	.524**	.390**	.727**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	263	263	263	263	263	263	263
TCL	Pearson Correlation	.327**	1	.198**	.279**	.366**	.238**	.393**
	Sig. (2-tailed)	.000		.001	.000	.000	.000	.000
	N	263	263	263	263	263	263	263
PTR	Pearson Correlation	.431**	.198**	1	.516**	.343**	.375**	.560**
	Sig. (2-tailed)	.000	.001		.000	.000	.000	.000
	N	263	263	263	263	263	263	263
TRS	Pearson Correlation	.635**	.279**	.516**	1	.402**	.483**	.661**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
	N	263	263	263	263	263	263	263
PBN	Pearson Correlation	.524**	.366**	.343**	.402**	1	.371**	.555**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	263	263	263	263	263	263	263
ENV	Pearson Correlation	.390**	.238**	.375**	.483**	.371**	1	.495**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	263	263	263	263	263	263	263
TCB	Pearson Correlation	.727**	.393**	.560**	.661**	.555**	.495**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	263	263	263	263	263	263	263

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

Table A. Federal Taxpayer Branch Offices in Addis Ababa

Branch Name	Location / Area
Large Taxpayers Branch	Saris , Mullege Building Center
Medium Taxpayers Branch No,1	Nifas Silk Lafto Sub-City, German squar, wegari kefiyalew building
Medium Taxpayer No,2	Mexico-kera road, Kassa Grand mall
North west Addis Ababa Small Taxpayers	Lideta in front of Balcha Hospital , Capston Building
East Addis Ababa Small Taxpayers	Megenanga, lem Hotel
West Addis Ababa Small Taxpayers	In front of Lideta church , beside Leghar Hospital

Source: MOR, 2025)