



**UNIVERSITY OF  
KWAZULU-NATAL**

**THE EFFECTIVENESS OF ELECTRONIC FISCAL DEVICES IN  
ENSURING TAX COMPLIANCE AMONG SMALL BUSINESS OWNERS OF  
ARUSHA-TANZANIA**

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## **ACRONYMS**

ANOVA	: Analysis of Variance
B2B	: Business-to-Business
CMVRS	: Central Motor Vehicle Registration System
EFD	: Electronic Fiscal Device
EFP	: Electronic Fiscal Printer
ESD	: Electronic Signature Device
ETR	: Electronic Tax Register
ITAX	: Income Tax System
SME	: Small and Medium Businesses
SPSS	: Statistical Package for the Social Sciences
TAM	: Technology Acceptance Model
TAM	: Technology Acceptance Model
TANCIS	: Tanzania Customs Integrated System
TANSAD	: Tanzania Single Administrative Document
TRA	: Tanzania Revenue Authority
TZS	: Tanzanian Shillings
USD	: United States Dollar
UTAUT	: Unified Theory of Acceptance and Use of Technology
UTAUT	: Unified Theory of Technology Acceptance and Use
VAT	: Value Added Tax
VIF	: Variance Inflation Factor

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## **ABSTRACT**

This study assessed the contribution of Electronic Fiscal Devices (EFDs) in tax compliance among small business owners of Arusha, Tanzania. The government of Tanzania invests effort to ensure that revenue adequately supports development projects; however, there is continued reliance on external sources of funds to support development projects. This poses a question on how the introduction of EFDs would increase tax compliance for sustainable government income generation.

The first objective of the study determined whether the fear of whistle-blowers impacts the rate of using Electronic Fiscal Devices. Secondly, the study determined whether the perceived level of punishment due to non-compliance impacts the rate of EFD use. Furthermore, the study determined the impact of EFD use on audit effectiveness, the level of transparency and fairness in tax procedures. Lastly, the study determined the impact of EFD use, the level of transparency, fairness in tax procedures, and the audit effectiveness on tax compliance.

Overall the study used mixed methods. In addition, the study used a quantitative sample of 279 respondents obtained through systematic sampling. Also, it used a qualitative sample of 10 respondents obtained conveniently. Additionally, face and content verification were used for validity confirmation, and the Cronbach Alpha tested the reliability of the data. All quantitative questions used a 5-level Likert scale. Data was analysed using descriptive procedures, One Way ANOVA, Chi-Square, and ordinal regression. The following were the findings of the study: First, the fear of whistle-blowers determined the rate of using EFDs. On the other hand, audit effectiveness impacted tax compliance. Lastly, the use of EFDs in tax audits impacted tax compliance.

# **CHAPTER 1 : INTRODUCTION AND BACKGROUND OF THE STUDY**

## **1.1 Background of the Study**

All government authorities need sufficient income to run their operations. The collected government income is necessary for supporting governmental activities such as development projects, the provision of public services and administrative expenditures (Lojanica, 2015; Adenyi & Adesunloro, 2017). According to Hoffman and Gibson (2009) and Alade (2015), the income structure of the government is made up of two parts; income that originates from inside sources and that which is financed externally. Examples of inside sources include; taxation, fines, fees, interest and dividends from investments, while the donations and gifts received from donors represents income originating from outside sources (Al-Khulaifi, 2012; Muriithi, 2013). Arguably, a large part of the income generated by many governments all over the world comes from taxation (Afuberoh & Okoye, 2014; Okwori & Sule, 2016). For example, in the 2019/2020 financial year, Tanzanian tax revenue was projected to contribute 85.7 % of the national income by ( Government of Tanzania, 2019).

Because of the importance of taxation, several efforts are in place to improve the collection of government revenues under the custodian of the Tanzania Revenue Authority (Tanzania Revenue Authority, 2017). First, the Tanzania Revenue Authority redefined its administrative blocks to cover small administrative geographical areas, down to the smallest unit called a “block” (Malima, 2013; Lubua, 2014). This smallest unit of administrative organisation helps the revenue authority to reach out to taxpayers in their localities (Kagoro, 2011; Chege, Kiragu, Lagat, & Muthoni, 2015). Moreover, the Tanzania Revenue Authority uses online information systems to enable citizens who are located in various places to have access to tax services (Hoffman & Gibson, 2009). Some of online systems which the Tanzania Revenue Authority uses in performing its tasks are: the Income Tax System (ITAX), Tanzania Customs Integrated System (TANCIS), Central Motor Vehicle Registration System (CMVRS), the Electronic Fiscal Devices (EFDs), and others which are accessed through the website(Enahoro & Jayeola, 2012; Ministry of Finance Tanzania, 2015).

The use of EFDs is important because it provides a mechanism to link most taxpayers with the revenue authority (Kira, 2016; Bostan, Popescu, Istrate, Robu, & Hurjui, 2017). The relevance of EFDs is evident in studies by Chege, Kiragu, Lagat and Muthoni (2015), and

Kira (2016), who attributed the increase of Value Added Tax (VAT) after the roll-out of EFDs in Tanzania. Regardless of the success in revenue collection due to different administrative controls and the use of EFDs (and related information systems), it is undisputable that Tanzania needs more income to detach itself from its dependency on donors, as about 14.3% of government income originates from non-tax sources, including foreign aid and loans (Muriithi, 2013; Price-waters Coopers, 2019).

In order to increase revenue collection, there is a need to increase the compliance among small business owners who form above 80% of all entrepreneurs and who contribute up to 35% of the total Gross Domestic Product (GDP) of Tanzania (Machogu & Amayi, 2013; Tanzania Chamber of Commerce, Industry and Agriculture, 2009). Currently, the government encourages citizens to report (whistle-blow) incidences of misconduct by taxpayers to increase compliance (Lubua, 2014; Chege, Kiragu, Lagat, & Muthoni, 2015). In addition, the government emphasises the imposition of punitive measures on non-compliant taxpayers. Nevertheless, it is unfortunate that many eligible taxpayers still avoid paying tax voluntarily (Aumeerun, Jugurnath, & Soondrum, 2016; Innocenti & Rablen, 2017). With this background, the question as to whether whistle-blowers and punishment enhance compliance through the use of EFDs remains unanswered; the current study addresses this question.

Furthermore, although studies conducted in Tanzania acknowledge the role of EFDs in raising revenue among VAT traders (Chege, Kiragu, Lagat, & Muthoni, 2015; Gberegbe & Umoren, 2017). However, it is understood that non-VAT traders represent a complicated segment of revenue collection (Ikasu, 2014). The category of non-VAT traders is mostly comprised of small businesses, which make up 95 percent of all business activities in Tanzania (Tanzania Revenue Authority, 2018). The failure to address this category of traders means that the government to miss out on collection of eligible tax. Additionally, none of these studies integrates the impact of Electronic Fiscal Devices with the determinants of tax compliance. Such determinants include the audit effectiveness, fairness in tax procedures, and the level of transparency in tax processes (Muhrtala & Ogundeji, 2013; Ade, Akanbi, & Tubosun, 2017). The current study addresses these knowledge gaps together with the impact of EFDs on tax compliance. Consequently, the study is more focused on small business owners, because they are the largest group of business owners,

and their compliance would significantly enhance income revenue (Tanzania Revenue Authority, 2018).

## **1.2 The Research Problem**

The efficiency of the Tanzania Revenue Authority (TRA) in lawfully collecting revenues in the form of tax, requires an effective tax administration system (Batrancea, Nichita, & Batrancea, 2012; Emmanuel, Ajanya, & Audu, 2013). Knowing its territorial challenges, the Tanzania Revenue Authority engages itself in the use of electronic devices to improve accuracy and efficiency in tax management (Mandari, Koloseni, & Nguridada, 2017). The use of electronic systems, such as Electronic Fiscal Devices (EFDs), is intended to address challenges of tax avoidance as the result of non-issuance of tax invoices (or receipts) and poor record-keeping; whereby less than 20% of taxpayers are thought to be compliant (Muturi, 2015; Maisiba & Atambo, 2016).

In the area of Value Added Tax (VAT), the use of Electronic Fiscal Devices is proven to impact revenue collection across Africa (Ndayisenga & Shukla, 2016; Adenyi & Adesunloro, 2017). This is supported by studies by Chege, Kiragu, Lagat and Muthoni (2015), Kira (2016), and Mandari, Koloseni and Nguridada (2017), who conducted their studies on the Value Added Tax (VAT) segment, in Tanzania. Moreover, the government acknowledges the increase in revenue collection after the rollout of Electronic Fiscal Devices: for example, there was a 7.01% increase in revenue in 2017/2018 (Tanzania Revenue Authority, 2018). Nonetheless, the impact of EFDs on the compliance of small business owners in Tanzania remains unknown; this is the reason for the current interest of the study on the role of EFDs on tax compliance. At the time of this study, the impact of EFDs on tax compliance in Tanzania was unknown.

In addition, studies by Muhrtala and Ogundeji (2013), and Gurama, Mansor and Pantamee (2015) acknowledge the role of the effectiveness of tax audit, the perceived fairness and transparency in tax procedures in ensuring voluntary compliance. In the context of the current study, the research determined whether the rate of using EFDs impacted these variables; this would equally affect the level of tax compliance (Haji, 2015; Devos & Zackrisson, 2015). In the same line, the study determined if the rate of EFD use, the effectiveness of tax audit, the perceived fairness and transparency in tax procedures impacted tax compliance, within the context of the current study.

Moreover, the Tanzania Revenue Authority is currently influencing the public to report unethical issues by businesses, especially where they fail to comply with tax laws, including the failure to use EFDs (Tanzania Revenue Authority, 2019). In this case, the whistle-blower would be awarded 3% of the total amount of tax to be recovered (Mannion, Blenkinsopp, & Powell, 2018). Given this incentive and effort, it is unfortunate that the information about the effectiveness of whistle-blowing in different tax aspects together with the fear of punishment is unclear. This study partly addresses this aspect by determining the impact of whistle-blowers and the fear of punishment on the rate of EFD use.

### **1.3 Research Objectives**

Overall, this study assesses the impact of Electronic Fiscal Devices (EFDs) in ensuring that small business owners of Arusha Region are complying with the Tanzanian tax laws. The following objectives are specific to the study.

- i.) To determine whether the fear of whistle-blowers impacts the rate of using Electronic Fiscal Devices
- ii.) To determine whether the perceived level of punishment due to non-compliance impacts the rate of using Electronic Fiscal Devices
- iii.) To determine the impact of using Electronic Fiscal Devices to the perceived effectiveness of the audit process, the perceived level of transparency and the perceived fairness in tax procedures.
- iv.) To determine whether the rate of using Electronic Fiscal Devices, the perceived level of transparency, the perceived fairness in tax procedures, and the perceived audit effectiveness impact the level of tax compliance

### **1.4. Research Questions**

- i.) What is the impact of whistle-blowers on the rate of using Electronic Fiscal Devices among small business owners?
- ii.) To what extent does the perceived level of punishment due to non-compliance influence the rate of use of EFDs among small business owners?

- iii.) What is the impact of using Electronic Fiscal Devices on the perceived effectiveness of the audit process, the perceived level of transparency and the perceived fairness in tax procedures?
- iv.) What is the impact of the rate of using Electronic Fiscal Devices, the perceived level of transparency, perceived fairness in tax procedures, and the perceived audit effectiveness on the level of tax compliance?

### **1.5 The Significance of this Study**

This study has the following relevance to the Tanzanian community, countries with economic and cultural characteristics similar to those of Tanzania, and the world academic community.

#### *i.) Theoretical relevance of the study*

This study incorporates theories and research views from studies in the area of tax compliance and technology (Electronic Fiscal Devices use). Therefore, it seeks to advance the knowledge about the influence of Electronic Fiscal Devices to tax compliance. In particular, it relates the use of Electronic Fiscal Devices with theoretical determinants of tax compliance, such as the level of punishment due to non-compliance, the level of transparency, audit effectiveness, fairness in tax procedures, and the probability of being reported by others. These variables are further discussed in sections 2.2, 2.3 and 2.4. Moreover, it determines the moderating impact of Electronic Fiscal Devices to the level of tax compliance, amid the mentioned determinants.

#### *ii.) Practical relevance*

In practice, the study benefits the following stakeholders of revenue collection:

- *Taxpayers*

Generally, the outcome of this study will be useful in aiding taxpayers to understand the influence of Electronic Fiscal Devices on tax compliance. In particular, the study is more interested in small businesses which are not registered for Value Added Tax. Overall, the report by Tanzanian Investment (2016) suggests Small and Medium Businesses (SMEs) form about 95% of all business activities in the country; furthermore, small businesses account for a large share of capital and people (Ministry of Finance Tanzania, 2015). Knowing that, the compliance of small taxpayers cannot be ignored; the current study is beneficial to taxpayers as it will improve their knowledge of the importance of compliance.

It will further improve their knowledge regarding the relevance of using Electronic Fiscal Devices in their business transactions.

- *The revenue authority*

The role of the Tanzania Revenue Authority is to assess, collect and account for tax revenue collections (Tanzania Revenue Authority, 2019). In addition, the authority is accountable for administering the revenue laws, promoting voluntary tax compliance, improving service provision, and counteracting fraud and tax evasion (Chege, Kiragu, Lagat, & Muthoni, 2015). Furthermore, it advises the government on fiscal policy issues. In developing countries, the operation of small businesses in the informal sector is a challenge to tax collection (Adenyi & Adesunloro, 2017). The results from this study are significant in updating the strategies of the revenue authorities that will enhance collection of taxes from small taxpayers.

- *Policymakers*

Policymakers form an important component of governance because they develop policies, guidelines and operating standards for a given area (Badara, 2012; Alade, 2015). This study makes a practical contribution to the policymaking process because it identifies risk areas for tax compliance associated with small business owners using Electronic Fiscal Devices. In turn, the result can be used for updating the existing policies to match the current situation suitable for the growth of small businesses and enhanced revenue collection through the Tanzania Revenue Authority.

- *Tax consultants*

Tax consultants play a role in ensuring that the rightful tax is collected voluntarily. Since they are experts in tax laws and auditing, the revenue authority entrusts them to work on behalf of the customer on tax compliance-related matters (Tanzania Revenue Authority, 2018). Moreover, they assist taxpayers in establishing and submitting returns. The results of this study will enhance the knowledge and awareness of tax consultants on factors which affect the compliance of small business owners.

## **1.6 The Scope of the Study**

This section summarises the scope of the study in three key areas:

*i.) Geographical scope*

This study was conducted in Arusha region found in Tanzania. Geographically, Tanzania is located in the Eastern part of Africa (refer figure 1.1). The most recent census was in 2012, and it reported that the Tanzania had the population size of 44,928,923 people; the currently population estimation is 60,000,000 (National Bureau of Statistics, 2013). The total area of the country is 947,303 km<sup>2</sup> and the Lower-Middle-Income status (National Bureau of Statistics, 2013).



*Figure 1-1: The location of Tanzania in the Map of Africa*

Source: (World Atlas, 2021)

In the current study, the researcher chose the Arusha tax region as the case for study. Arusha is located in the northern part of Tanzania, as indicated in figure 1.2. The region was a good representation of the taxable population of Tanzania because of economic diversity of its people. It has taxpayers ranging from those living in villages to the city council, therefore representing a diversified sample of Tanzanian taxpayers (Tanzania Revenue Authority, 2017). Furthermore, the Arusha Region was relevant to the study because it was reported as the second-highest region in terms of tax revenue collections;

therefore, it contributes significantly to the economy of Tanzania (Tanzania Revenue Authority, 2017). Accordingly, the accessibility of the information required by the study was assured by the Tanzania Revenue Authority office of Arusha, because the researcher is an employee of the authority. Furthermore, the Tanzania Revenue Authority administration granted the researcher the permission to pursue this study; therefore, the location simplifies the research process and has relevance to the Tanzanian population.



Figure 1-2: Regions of Tanzania and the location of Arusha

Source: (On the World Map, 2021)

ii.) *The knowledge area*

As specified in its objectives, the current study focuses on small business owners. In Tanzania, small business owners are categorised based on their turnover (Tanzania Revenue Authority, 2018). According to the Tanzania Revenue Authority, the threshold for the taxpayer to be eligible for the small business category is TZS 20 million (approximately US\$ 8,700). In the literature, there are limited studies conducted in this category of taxpayers. Generally, previous studies on Electronic Fiscal Devices, targeted

Value Added Tax-registered businesses (Chege, Kiragu, Lagat, & Muthoni, 2015; Bostan, Popescu, Istrate, Robu, & Hurjui, 2017). The current study integrates the concept of Electronic Fiscal Devices and their usefulness in taxation within the small business perspective. Being a new concept, conclusions and recommendations of the study are based on the data gathered from small business owners based in Arusha, Tanzania.

*iii.) Methodological scope*

This study applied the mixed research approach (both quantitative and qualitative) in its operations; however, the quantitative approach was primary in decision-making. A survey strategy was used whereby questionnaires were distributed to targeted participants. Additionally, unstructured interviews were conducted to formulate the basis for hypothesis development and to supplement features, which could not be well covered by the questionnaires.

### **1.7 The Philosophy of the study**

Overall, the current study is operationalised with reference to objectives set in section 1.3 and hypotheses presented in section 2.5. The main theme is to determine the influence of Electronic Fiscal Devices use to tax compliance. Since the study looks at causal relationships, it is ontologically objective. It embraces hypothesis testing to meet its objectives (Aliyu, Bello, Kasim, & Martin, 2014). It advocates for facts, rather than personal opinions by the researcher (Edirisingha, 2012). Furthermore, the epistemology of the study is positivism. Overall, positivism is objective in its view of reality (De Vaus, 2001). It embraces the ontological view that when the knowledge is unveiled by the researcher, it can be verified (Gialdino, 2009; Edirisingha, 2012). A follow-up research would end up with similar conclusions, should it observe conditions set by its predecessor.

Overall, positivism prefers studying the relationship between the variables of the scenario under study (Creswell, 2003; Ramaprasad & Papagari, 2009). Therefore, before commencing the study, the researcher must establish hypotheses for testing. These hypotheses are to be supported from existing theories of the literature. The researcher may adopt an existing theory in establishing the basis for the study; or develop a framework to guide the study. Some of scientific procedures followed by the two stances include formulating hypotheses, testing hypotheses, choosing the technique for measuring the tested concepts, and rejecting or confirming hypotheses. The researcher is able to make

decisions based on this predefined procedure. The current study is operationalised based on these two philosophical stances.

## **1.8 Structure of the Thesis**

This thesis is organised into chapters, which are further divided into sections and subsections. This organisation is explained below -

### *i.) Chapter 1: Introduction and Background of the Study*

The first chapter of the study sets the basis for establishing the problem under study. It provides the historical background of the problem and the motivation to the research gap addressed. It also introduces the objectives to be addressed by the study. Other sections of the chapter include the research questions, the significance of the study, the scope of the study, philosophy of the study, and the structure of this research report.

### *ii.) Chapter 2: Literature Review*

The second chapter reviews the literature relevant to the study. The reviewed literature is on tax compliance and the use of EFDs or other related technologies. The first component of the literature introduced the concept of the use of EFDs in taxation. This is followed by a discussion of factors for EFD use. Moreover, the chapter discusses the following theories of tax compliance: the Standard Model of tax evasion, the Fiscal Exchange Model, and the Fischer Model of tax compliance. Other technological theories discussed are: The Technology Acceptance Model and Unified Theory of Acceptance and Use. The other component of the literature discussed tax compliance and the use of Electronic Fiscal Devices in business in the Tanzanian context, and the conceptualisation of the research gap. Generally, the purpose of this chapter is to provide a theoretical foundation, a conceptual framework, to interact with existing studies and to identify a research gap.

### *iii.) Chapter 3: Research Methodology*

The objective of Chapter 3 was to discuss different methods used in the research process. It begins by introducing the research paradigm of the study. This is the summary of philosophies and designs embraced by the study. Furthermore, the chapter explains the research population, sampling frame, and the sample of the study. Sampling methods are equally discussed. Other sections of the chapter include data collection methods, data analysis methods, and validity and reliability of the study.

iv.) *Chapter 4: Whistle-blowing and Electronic Fiscal Devices*

Chapter 4 presents, interprets, and discusses results of the impact of whistle-blowing to tax compliance. The first part of the chapter discusses the relationship between the use of Electronic Fiscal Devices and demographic variables. The other part of the chapter discusses the impact of whistle-blowing on the rate of using EFDs.

v.) *Chapter 5: The Impact of Punishment on the use of Electronic Fiscal Devices*

This chapter presents and discusses data on the impact of punishment due to non-compliance on the rate of using EFDs. It begins with the introduction of the concept of punishment in taxation, and seeks to know whether the perceived level of punishment severity is related to demographic variables. Another component of the chapter discussed the relationship between the fear of punishment among taxpayers, and its impact on the use of Electronic Fiscal Devices.

vi.) *Chapter 6: The Impact of EFD Use on Audit Effectiveness, Transparency and Fairness*

This chapter forms the second segment of this study. It concentrates on the impact of the rate of using Electronic Fiscal Devices on variables such as audit effectiveness, transparency, and fairness in tax procedures. The first component is on audit effectiveness, the second is on fairness in tax processes, and the third is on transparency.

vii.) *Chapter 7: Tax Compliance in an EFD-Enabled Environment*

The seventh chapter is on tax compliance in an Electronic Fiscal Device-enabled environment. It begins with showing the characteristics of demographic variables in relation to tax compliance. This is followed by the relationship between the rate of using Electronic Fiscal Devices and tax compliance. Other tested relationships are as follows: audit effectiveness and tax compliance, fairness of tax procedures and tax compliance, and transparency in tax procedures and compliance.

viii.) *Chapter 8: Synthesis, conclusions and recommendations of the study*

This is the last chapter of the study. The chapter summarises the research work, and makes specific conclusions on each aspect of the study. Furthermore, the chapter presents limitations characterising the current study, and specific recommendations. Another

element of the chapter is the presentation of theoretical contributions of the study. Future areas of study with reference to using Electronic Fiscal Devices and tax compliance are equally highlighted.

### **1.9 Chapter Summary**

This chapter forms the foundation of the current study. It begins with setting the background through a discussion on circumstances surrounding EFDs and tax revenue in Tanzania. Through the background of the study, this chapter showed that government authorities largely depend on income tax to meet their administrative and development responsibilities. In addition, it revealed the perceived importance of EFDs in tax collection, plus other measures implemented by the revenue authority to ensure revenue collection.

The setting of the background was followed by the identification of the research gap. Generally, the study was interested in determining the implications of integrating Electronic Fiscal Devices with tax compliance. Furthermore, the study identified specific objectives as indicated in section 1.3. The study determined: whether the fear of whistleblowers impacted the rate of using Electronic Fiscal Devices, whether the perceived level of punishment due to non-compliance impacted the rate of using Electronic Fiscal Devices, and determined the impact of using Electronic Fiscal Devices to the perceived effectiveness of the audit process, the perceived level of transparency and the perceived fairness in tax procedures. The last objective determined whether the rate of using Electronic Fiscal Devices, the perceived level of transparency and perceived fairness in tax procedures, and the perceived audit effectiveness influenced the level of tax compliance.

Accordingly, this chapter presented the justification for the study through its significance in different spheres of life. The chapter suggested that the study is useful to different stakeholders, including researchers. The output of the current study adds to the knowledge on the impact of EFDs to tax compliance. Additionally, the study benefits taxpayers and the revenue authority. Both stakeholders of taxation benefit from the information on the role of EFDs to voluntary compliance.

Furthermore, the chapter presented the scope of the study based on three categories: geographical scope, methodological scope and the knowledge area. Geographically, the study was confined to the Arusha tax region, located in the northern part of Tanzania.

Furthermore, the study focuses on small business owners as the knowledge area. Methodologically, the study uses mixed methods, where the quantitative approach forms the basis for decision-making.

Philosophically, the current study is ontologically objective. Moreover, its epistemological stance is positivism. The study is structured into eight chapters. The first three (3) chapters set the proposal for this study. They consist of the background information, the literature and the methodology. Chapters 4 to 7 present findings of the study. Also, these chapters analyse, interpret and discuss the findings of the study. The last chapter makes important conclusions and recommendations on different aspects of the study.

## **CHAPTER 2 : LITERATURE REVIEW**

### **2.1 Introduction**

In this chapter, the research presents the literature relevant to the current study. The chapter provides the review of the literature, from both theoretical and empirical evidence. The first section presents an explanation of the uses of Electronic Fiscal Devices (EFDs) in taxation. After this section comes the discussion of theories relevant to the current study. These theories range from the Standard Model of Tax Evasion, the Fiscal Exchange Model, the Fischer Model of Taxation and theories on technology adoption. The third section of the chapter comprises the outcomes of related empirical evidence. The empirical evidence discussed includes voluntary compliance and the use of EFDs, factors for the use of EFDs, challenges of EFDs, Critics of the Taxation System of Tanzania, the tax audit procedure and the relevance of EFDs in taxation. The fourth section presents the conceptual framework of the study, where the linkage between important variables and objectives (presented in section 1.3) are established. The last section summarises the whole chapter.

### **2.2. Electronic Fiscal Devices (EFDs) use in taxation**

Changes in technology significantly affect the workplace and service sector (Hassan Darwish, Sahraei, Zakrifar, & Talebi, 2014; Cascio & Montealegre, 2016). One aspect of technological change is the advancement of computer use in business and office-related activities. The use of computers brought significant changes on how to do different operations in social, economic and political activities (Cascio & Montealegre, 2016). The use of automated systems has led to the growth and expansion of businesses through allowing the processing of a large number of transactions within a short time (Hassan Darwish, Sahraei, Zakrifar, & Talebi, 2014; Lubua & Pretorius, 2019). Arguably, computer effects on businesses due to computerisation extend to government systems as well. This is the reason for adopting Electronic Fiscal Devices and supporting computer systems within the Tanzania Revenue Authority (TRA).

Generally, the nature of business determines the type of the EFD machine used. For example, Mandari, Koloseni, and Nguridada (2017) suggest that for handling the tax in retail business, they broadly use a fiscal device known as Electronic Tax Register (ETR), which prints receipts manually. Additionally, the Electronic Fiscal Printer (EFP) operates after its integration with the computerised system. Every transaction printed through the

device is captured in the organisation's database, as well as in that of the revenue authority (Berkowsky, Sharit, & Czaja, 2017). The Electronic Signature Device (ESD) is another form of EFD that adds a special string of numbers for every sales invoice raised in a computerised system. The signature is more valuable where validating the business-to-business transactions is required. Lastly, another type of EFD is applicable to petrol stations, with the ability to issue a receipt based on the value of the pumped fuel; the device is known as the Electronic Fiscal Pump Printer (Al-Maghrebi, Ahmad, & Palil, 2016). Depending on the type of business and the magnitude of sales transactions, all these devices have the common purpose of generating and sending the sales information to the revenue authority (Gwaro, Maina, & Kwasira, 2016). The user is expected to communicate transactions conducted in the business to the authority on a real-time basis (Naibei & Siringi, 2011; Lubua, 2014).

In Tanzania, Electronic Fiscal Devices (EFDs) were introduced to partly automate the taxation process and improve the collection of Value Added Tax (Tanzania Revenue Authority, 2018). Moreover, they monitor the movement of sales and stocks to businesses; the latter forms basis for the general income tax estimation to business (Akinboade, 2015). The EFD machine is expected to submit all business transactions to the tax authority, synchronously (Lubua, 2014; Mandari, Koloseni, & Nguridada, 2017). The availability of business transaction reports reduces the workload required to determine outstanding tax, while enhancing the accuracy of the tax estimation process (Martin, Obongo, Magutu, & Onsongo, 2010; Kira, 2016). Ultimately, if used properly, EFDs contribute to the reduction of disputes between taxpayers and the revenue authority (Mativo, Muturi, & Nyang'au, 2015). Despite the usefulness of EFDs, their application is still challenged by a low level of acceptance by taxpayers in the Tanzanian context (Ikasu, 2014). This is probably the reason for unstable tax collection during the period between 2012 and 2018, where the rise and fall in collection was observed (Tanzania Revenue Authority, 2019). Therefore, it is necessary to establish a scholarly position of the influence of EFDs in enhancing tax compliance.

### **2.3 Theoretical Review**

This section discusses theories important to the current study; the theories focus mainly on tax compliance and technological adoption. Overall, the first category of theories provides

a general structure of understanding reasons for tax compliance, while those on technology adoption focus on factors for accepting and using a new technology.

### **2.3.1 Theories of Tax Compliance**

The literature presents numerous theories of tax compliance. Some of the prominent theories of tax compliance include the Standard Model of Tax Evasion, the Fiscal Exchange Model, and the Fischer's Model of Tax Compliance, the Haig-Simons definition of income, and Samuelson's definition of depreciation. The current study uses the Standard Model of Tax Evasion, the Fiscal Exchange Model, and Fischer's Model of Tax Compliance, because they adequately address the theme underlying the current research and provide the required basis for developing objectives and assumptions.

#### ***2.3.1.1 The Standard Model of Tax Evasion***

This economic model explains the behaviour of taxpayers towards tax compliance. The model is under the assumption that taxpayers are usually inclined to make decisions which maximise their income (Muhrtala & Ogundeji, 2013; Gurama, Mansor, & Pantamee, 2015). Literature shows that many taxpayers understate their tax submissions to maximise their profit (Sá, Martins, & Gomes, 2014). In this perspective, the Standard Model of Tax Evasion introduced two key variables, which determine tax evasion. The variables are the perceived probability of being detected (caught) and the perceived level of punishment due to non-compliance (Batrancea, Nichita, & Batrancea, 2012). The relationship between the variables in the Standard Model of Tax Evasion is given in equation 2.1.

Equation 2-1: The Standard Model of Tax Evasion

$$y = f (X_1, X_2), \text{ where,}$$

$y_1$ : The extent of tax evasion,

$x_1$ : The probability of being detected, and

$x_2$ : The perceived level of punishment

#### **i.) Detection probability**

The probability of being detected is defined through the perception of the taxpayer that they will be detected if they present false tax information to the revenue authority (Benno, 2003). The increase of the probability increases the compliance, and vice versa (Badara,

2012; Gemmell & Ratto, 2012). One of the determinants of the probability of detection is random tax auditing (Ştefura, 2012; Birskyte, 2013; Kiri, 2016). If the audit exercise is done frequently, it is easy to define risk areas that could lead to non-compliance. Another determinant of the probability of detection, is the level to which the revenue authority has access to business information. If the information accessible to the revenue authority is high, regardless of the desire by the taxpayer to hide, the probability of detection increases (Badara, 2012). Unfortunately, the probability of accessing the information in most public institutions such as Government Revenue Authorities is traditionally low, because of poor record-keeping and the use of physical filing systems (Akinboade, 2015; Chariye, 2016).

Since frequent audits are an important tool in lowering the chance of tax avoidance, Gurama, Mansor and Pantamee (2015) and Haryani, Motwani, and Matharu (2015) suggest two major approaches for the audit process: desk audit and field audit. In the first approach, the auditor gathers all available information pertaining to the taxpayer's business. The information may be manual or from electronic systems (Devos & Zackrisson, 2015). Such reports include filled tax returns, custom reports, reports from EFDs and others (Nyamwananza, 2014). At this stage, it is the responsibility of the auditor to verify the accuracy of the tax liability declared by the taxpayer through submitted business reports.

According to Haji (2015) and Gangl, Hofmann and Kirchler (2015), the detection probability of misrepresented tax is high when electronic systems are used compared to manual systems. Manual reports can be easily destroyed, because they are not immediately shared with the revenue authority (Hassan Darwish, Sahraei, Zakrifar, & Talebi, 2014). Preliminary information shows that the revenue authority of Tanzania uses electronic systems for desk audit, which is an important step for a detailed audit. The field audit follows and can use both types of evidence. Ultimately, field audit and desk audit, when conducted well, have a chance of reducing the probability of undetected non-compliance.

## **ii.) Punishment due to non-compliance**

The level of punishment imposed is another variable thought to determine tax compliance. Tax evaders will always look for loopholes to pay low tax (Murphy, 2008; Mohdali, Isa, & Yusoff, 2014). The revenue authority is obliged to establish a control mechanism for

identifying non-compliance behaviour (Doran, 2009; Gberegbe & Umoren, 2017). Studies acknowledge the level of punishment due to non-compliance as an important regulator of tax compliance (Cătălina, Dobre, & Șerba, 2013). When the punishment is severe, tax evaders opt to comply (Murphy, 2008). This is because the cost of non-compliance is higher than that of full compliance (Nzioki & Peter, 2014). Common punishments include imprisonment, penalties, and the interest on delayed or avoided amount (Mohdali, Isa, & Yusoff, 2014). The current study seeks to investigate whether the fear of punishment due to non-compliance impacts the rate of using Electronic Fiscal Devices.

### ***2.3.1.2 Fiscal Exchange Model***

The Fiscal Exchange Model suggests that citizens' trust of the government relates to the quality of public services offered (Alabede, Ariffin, & Idris, 2011; Gangl, Hofmann, & Kirchler, 2015). Where the trust is high, and government expenditures are relevant, taxpayers are likely to comply with the tax system (Palil, Hamid, & Hanafiah, 2013; Engida & Baisa, 2014). In the study by Nur-tegin (2008) and Vries (2013), the perception by citizens about the quality of services received is the combination of factors such as the level of accountability shown by officials, the perceived level of transparency in administrative processes, the perceived fairness to recipients, and the efficiency in service provision (Al-Maghrebi, Ahmad, & Palil, 2016). The achievement of these standards depends on the strength of the internal controls of the government (Sevilla, 2005; Simangunson, 2014; Aramide & Bashir, 2015). Strong internal controls allow the organisation to detect any deviation that may affect the expected output (Gurama, Mansor, & Pantamee, 2015). Factors that enhance the trust are expounded below.

#### **i.) Accountability**

Being accountable is the extent to which the government is answerable to the public for all the decisions it has made (Ame, Chanya, & John, 2013; Aramide & Bashir, 2015). The government has a social and political contract with its citizens, with the obligation to fulfil its responsibilities (Modugu, Eragbhe, & Izedonmi, 2012; Gurama, Mansor, & Pantamee, 2015). To enhance accountability and ameliorate administrative complexities, the government is advised to decentralise most of its services to local communities to allow easier access by citizens (Aramide & Bashir, 2015). In this case the performance measurement is an effective tool for internal control that enhances the accountability of

work done by the public sector (Harrison, Rouse, & Villiers, 2012; Emmanuel, Ajanya, & Audu, 2013). Some of the performance measures include financial performance, customer satisfaction, and compliance to statutory directives (Curristine, Lonti, & Joumard, 2007).

Unfortunately, in many cases citizens are uncomfortable with the level of accountability shown by government organs, especially in developing countries (D'Attoma, Volintiru, & Steinmo, 2017). For example, studies show that complaints by citizens on the poor condition of public services are not attended to on time in most public offices of developing countries (Chariye, 2016; Deyganto, 2018). Furthermore, access to services is characterised by bureaucracy, the factor that affects the level of service delivery. There are cases where the client may delay accessing tax services because of poor record-keeping (Meijer, 2001). Another factor which affects the general accessibility of services in the public sector, is the level of corruption. Unfortunately, the corruption index in most African countries is still high; this affects the level of accountability and voluntary tax compliance (Ajaz & Ahmad, 2010). In the current study we seek to investigate whether the use of Electronic Fiscal Devices affects audit effectiveness; audit effectiveness is an important element of accountability in taxation (Mohdali, Isa, & Yusoff, 2014).

## **ii.) Transparency**

This is another condition which determines the value of public services provided by the government. It is necessary for the government to share with citizens the information concerning its operations in a timely manner (Harrison, Rouse, & Villiers, 2012). This is the reason why Devos and Zackrisson (2015) commented that public information needs to be available whenever needed by the citizens to enable them to make different decisions. People have a choice of agreeing or refusing the service based on the information made available to them, and the status of the service. In addition to this, transparency raises the confidence of the citizens in the government's conduct (Grimmelikhuijsen, Porumbescu, Hong, & Im, 2013). Under a transparent environment, government officials know that citizens check them. The feedback that citizens get as the result of a transparent environment can be used in holding government officials accountable for their actions. In this regard, transparency becomes a factor influencing officials to work hard knowing that they will be responsible for any wrongdoing (Jun, Feng, & Wang, 2014; Song, 2016). Unfortunately, the lack of transparency in an organisation is a sign of a corrupt regime. In

Tanzania, the introduction of Electronic Fiscal Devices and associated information systems aims at enhancing transparency. The current study is interested in determining whether the rate of using EFDs impacts the perceived level of transparency in the tax process.

### **iii.) Fairness**

Fairness in government services is another factor determining the perception of taxpayers on government spending. Fairness comes in a number of perspectives; the first is the distributive perspective (Gberegbe & Umoren, 2017). This perspective focuses on fair distribution of public services among different groups of the society. There should not be one group of people with more privileges in taxation. For instance, politicians in developing countries are accused of favouring themselves with better social services than citizens (Faizal & Palil, 2015). This builds a negative perception on the way public money is used, and it may affect the willingness of taxpayers“ to comply with governing laws (Kagoro, 2011; Gurama, Mansor, & Pantamee, 2015).

On the other hand, procedural fairness is the second perspective of fairness in public services (Gberegbe & Umoren, 2017). In the taxation environment, this is the fairness of services given by tax officers to taxpayers (Kagoro, 2011). The literature explains that fair treatment in tax processes and simplified tax laws reduce taxpayers“ complaints (Thomas, 2012). If clients do not have any grudge with the tax system, the likeliness of complying with tax laws is high. The unfair environment creates an environment for corruption to thrive. It is unarguable that the use of information systems is meant to enhance efficiency in business processes and taxation as well, because where efficiency is enhanced, corruption is unlikely and fairness thrives.

Moreover, retributive fairness presents the third perspective in public services (Gberegbe & Umoren, 2017). This refers to the fairness of the punishment imposed on taxpayers as a result of their failure to comply. Penalties, fines and the interest on accrued amounts are important to enforce compliance if not abused. Where mistreatment prevails, penalties may facilitate non-compliant behaviour (Batrancea, Nichita, & Batrancea, 2012). This happens in most cases where the tax officer is required to use their professional judgment to determine the appropriate level of punishment for the taxpayer. The current study understands that fairness could be a tool to enhance compliance; therefore, it tests the

impact of EFDs on the perceived procedural fairness in taxation. Furthermore, the study tests the impact of perceived fairness on the level of tax compliance.

#### **iv.) Efficiency in government operations**

Efficiency in government operations is the last determinant of the perception of taxpayers on the quality of government operations. The study by Akinboade (2015) suggests that the efficiency in government operations determines the desire of taxpayers to comply with tax laws. Studies suggest factors such as the time taken, the operation cost, and the quality of service received among determinants of efficiency in public services (Alabede, Ariffin, & Idris, 2011; Igbeng, Beredugo, & Adu, 2015). Citizens are expecting services within a short time, with reasonable costs and with the desired level of quality. However, many developing countries are still facing challenges of becoming efficient in providing services (Gwaro, Maina, & Kwasira, 2016).

Reasons for inefficiency in public operations include inadequate laws or standards to implement plans, and interventions from politicians (Al-Khulaifi, 2012; Sá, Martins, & Gomes, 2014). In the central government setting, when expenses are incurred without meeting necessary procedures they are a sign of inefficiency in government spending, and they may put the country into heavy debt (Curristine, Lonti, & Joumard, 2007). Such habits by the government increase the tax burden to citizens who contribute their money to support the government. As the result, the morale of taxpayers is likely to deteriorate. Although the current study has no variable that addresses this aspect directly, it was convinced that the use of EFDs was to promote efficiency in taxation operations. This is the reason why the study tested the impact of the rate of using Electronic Fiscal Devices on audit effectiveness. An effective audit is the one that helps the revenue authority to obtain financial statements representing a true and fair view of the business (Devos & Zackrisson, 2015). It further tested the impact of audit effectiveness to the level of tax compliance expressed by taxpayers.

#### **2.3.1.3 Fischer Model of Tax Compliance**

The Fischer Model of Tax Compliance identifies the role of social, economic and psychological aspects in influencing tax compliance behaviour among taxpayers (Lawan, 2017). The determining factors for tax compliance are categorised as follows: demographic

characteristics, the opportunity for non-compliance, the attitudes and perceptions of taxpayers, and the tax system (Chau & Leung, 2009; Sapiei, Kasipillai, & Eze, 2014). Figure 2.1 presents Fischer’s model; this is followed by explanations of the variables defining it.

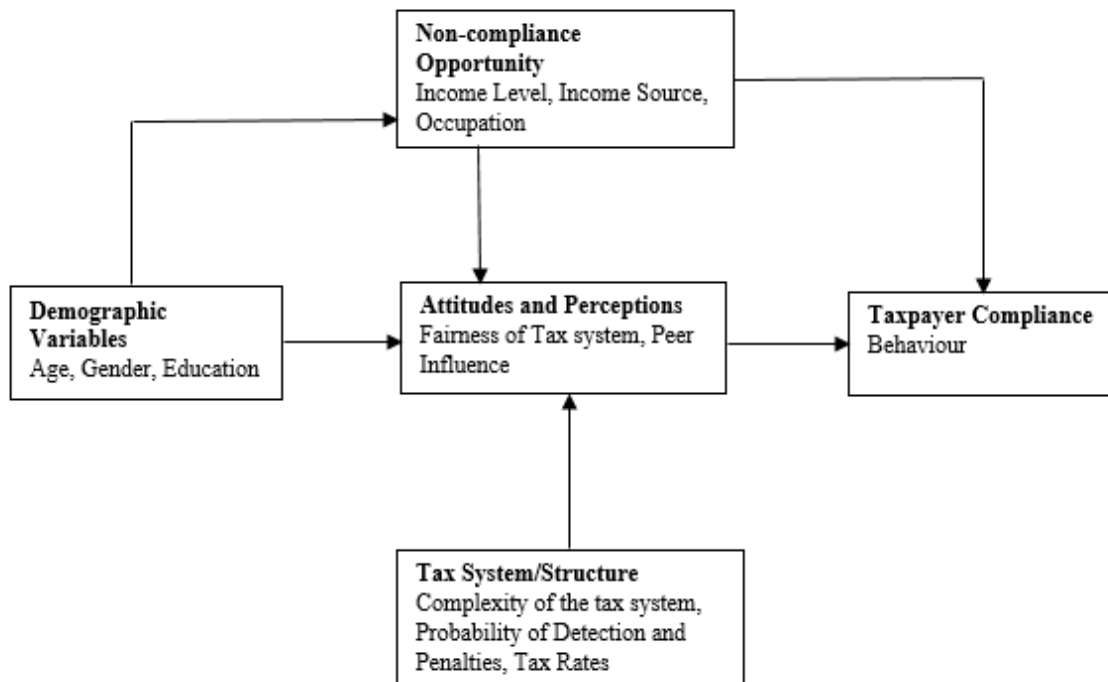


Figure 2-1: Fischer’s Model

Source: (Bruce-Twum, 2014)

### i.) Demographic factors for tax compliance

Studies conducted by Alm and Torgler (2006) and Cascio and Montealegre (2016) have shown that demographic characteristics are useful in understanding differences in human behaviour. This is partly the motivation for engaging demographic variables in behavioural models, including the Fischer Model of Tax Compliance. For example, Gwaro, Maina, and Kwasira (2016) suggested that, in the African context, female taxpayers are more compliant than males because they do not want to take the risk of non-compliance.

Accordingly, the study by Bruce-Twum (2014) commented that senior citizens are likely to be more compliant with government tax requirements than the younger generation. Furthermore, senior citizens are more likely to participate in social responsibilities than the

younger generation (Al-Mamun, Entebang, Mansor, & Yasser, 2014). This is possibly because their life experience in participating or ignoring government and social responsibilities has become a good teacher. In this regard, the chance of complying with tax regulations is higher among senior members of the society than among the younger generation (Hofmann, Voracek, Bock, & Kirchler, 2017).

Additionally, Fischer's model identifies education as the other factor for tax compliance. The assumption is that people with higher education easily understand the precepts of taxation, than their counterparts (Birskyte, 2013). Nonetheless, there are also cases where an educated person may decide to use the knowledge they possess against laws and regulations; in this case, the moral education is more important (Machogu & Amayi, 2013). Arguably, the significance of education and age is to build moral ethics and positive attitudes toward voluntary tax compliance (Machogu & Amayi, 2013; Antwi, Inusah, Mohammed, & Hamza, 2015).

## **ii.) Non-compliance opportunities**

The presence of non-compliance opportunities is another determinant of compliance (Gemmell & Ratto, 2012; Ştefura, 2012). The study by Mativo, Muturi and Nyang'au (2015) identifies the income level among factors for non-compliance. For example, the taxpayer who has a huge income and a large tax liability is likely to opt for non-compliance. This is because; non-compliance has a very high reward (Awan, 2014). In addition, someone with a low income may be tempted to retain tax to boost their capital (Fagariba, 2016). Therefore, it is necessary to study the general situation of a person in terms of their income level to understand what could be the motive for non-compliance. Another reason that offers an opportunity for non-compliance is the nature of the source of income. In a case where the income is easy to hide, the business owner is likely not to comply with taxation (Rosid, Evans, & Tran-Nam, 2018). The income is easy to hide where the chain of custody is not perfect. The source and destination of the product are not easy to trace (Chau & Leung, 2009).

Furthermore, the level of corruption within the society is another factor for avoiding tax (Kamleitner, Korunka, & Kirchler, 2012). Where tax officers are bribed, they will conduct their investigation with a blind eye. Unfortunately, the corruption index is still ranked high

in African countries, and this is not a good sign for tax compliance (Gberegbe & Umoren, 2017). In this case, the model proposes that higher income earners develop a greater desire of committing tax evasion compared to low income earners, because the increase in income increases the tax liabilities (Palil, Hamid, & Hanafiah, 2013; Al-Mamun, Entebang, Mansor, & Yasser, 2014).

### **iii.) Nature and source of income**

The literature suggests that taxpayers whose information regarding their sources of income cannot be easily traced by the third party are likely to evade paying tax (Fjeldstad, Katera, & Msami, 2007; Agbi, 2014). Money laundering is among the ways that can be used to evade taxes by hiding the source of income. Another group that is likely to hide the source of income more easily, is consultants, because their work is difficult to trace in the African context (Deyganto, 2018). In addition, small businesses are easily hidden, especially where the government does not know the source of the traded goods. In Africa, most small businesses operate in the informal sector, whereby it is difficult to trace them. These businesses may be seasonal due to small amounts of capital; others are mobile or located in surveyed areas (Dube & Casale, 2017).

Moreover, it has been established that taxpayers whose occupations are highly reputable in society are more compliant than those with lower reputation (Cătălina, Dobre, & Șerba, 2013; Nkwe, 2013). Those with a high reputation fear losing their reputation if found non-compliant. On the contrary, it is important to acknowledge some special cases where esteemed people with high status in the society may use their position to seek tax avoidance (Bauwens, 2016; Tanzi, 2017; Kgomoeswana, 2018). Incumbents tend to shield themselves with their status from settling tax liabilities. Unfortunately, taxpayers under this category have high authority in the government and society; they may opt to impact policies to favour their tax-evasion behaviour (Sá, Martins, & Gomes, 2014).

### **iv.) Attitude and perception**

The attitude and perception of an individual are two interrelated variables. Their perception is regulated by things such as beliefs, norms and customs that are within the society (Bobek, Hageman, & Kelliher, 2013; Obafemi, 2014; Fagariba, 2016). Regulating factors may influence the perception of taxpayers toward their compliance behaviour. Besides, the

attitude and perception of the taxpayers may be affected by the fairness reflected in the tax system and the peer influence. With regard to the fairness of the tax system, taxpayers are motivated to pay taxes if the government system is well structured to avoid the misuse of public funds (Alabede, Ariffin, & Idris, 2011; Çevik & Yeniçeri, 2013). The tax is an investment by taxpayers and a good return is expected through government services (Razak & Adafula, 2013). Their level of compliance is likely to be affected if the government misuses the fund. In the current study, the perception of respondents in different aspects of taxation is studied. It will determine whether their perception affects compliance.

#### **v.) Taxation system**

This variable refers to a legal structure guiding the assessment and collection of taxes. This may extend to include facilities for interpreting and enforcing the law (Kibassa, 2012). It provides guidance to users (both employees and taxpayers) on their obligations, limitations and punishments in case of non-compliance (Saad, 2014; Mukhlis, Utomo, & Soesetio, 2015). In this part of the study, the focus is on how the organisation structure and/or the functioning of the system (of taxation) influence the compliance. The functioning of the tax system is the subject of its complexity, the level of punishments and tax rates established through the law (Kosack & Fung, 2013). Moreover, the stability of the tax system structure, relates to the probability of tax evasion (Kagoro, 2011; Çevik & Yeniçeri, 2013). The tax structure that undergoes frequent changes may result in the failure of taxpayers to comply due to lack of understanding (Ştefura, 2012).

#### **2.3.2 Theories of Technology Adoption and Use**

The following are examples of widely discussed theories of technology use: The Unified Theory of Acceptance and Use of Technology, Technology Acceptance Model, the Motivational Model of Microcomputer Usage, and the Theory of Planned Behaviour. The current study engages two theories, which collectively address issues raised by other theories and are specifically on the adoption of the technology by an organisation. Theories which are considered in this part of discussion include the Technology Acceptance Model (Figure 2-2), and the Unified Theory of Acceptance and Use of Technology (Figure 2-3). Engaging these theories is important because the study is technological. Specifically, the study looked at how the rate of using EFDs is affected by the perceived level of

punishment and the probability of being reported by others. Furthermore, the study addressed the impact of EFDs on the perceived audit effectiveness, the perceived level of transparency, and the perceived fairness in tax procedures.

### 2.3.2.1 The Technology Acceptance Model

The first version of the Technology Acceptance Model was established in 1989 (Davis, Bagozzi, & Warshaw, 1989). The intention of this model was to provide a framework for the adoption of technology to an organisation. Specifically, the framework focused on the adoption of computers and associated technologies to the organisation (Davis, Bagozzi, & Warshaw, 1989; Bagozzi, 2007). The original Technology Acceptance Model presented two main factors determining how people use the technology; the factors are the ease of use and the perceived usefulness (Chuttur, 2009). Figure 2-2 presents the first version of the Technology Acceptance Model.

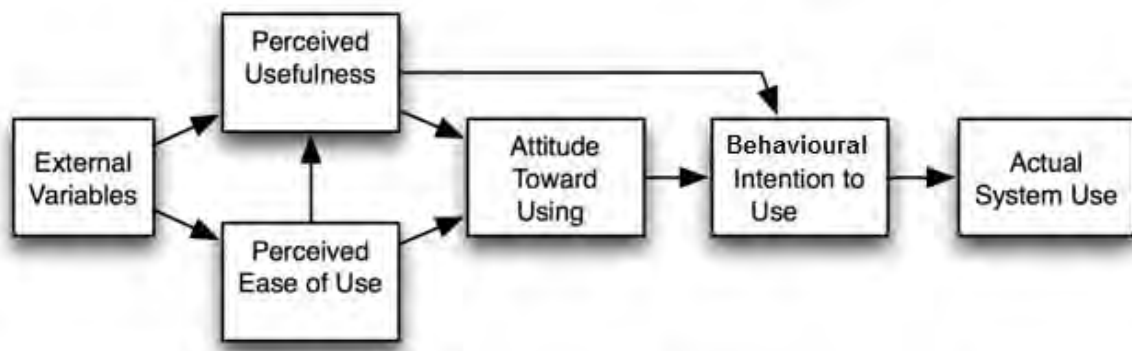


Figure 2-2: Technology Acceptance Model (TAM 1)

Source: (Davis, Bagozzi, & Warshaw, 1989)

The first version of the Technology Acceptance Model ignited a debate among scholars. Some of critical issues raised by the model include its questionable heuristic value, limited predictive power and its practicability in the adoption of the new technology (Bagozzi, 2007; Chuttur, 2009). These critics led to the development of two other series of the Technology Acceptance Model, that is, Technology Acceptance Models 2 and 3. According to (Venkatesh, Morris, Davis, & Davis, 2003; Venkatesh & Bala, 2008), Figure 2-3 presents the latest version of the Technology Acceptance Model. At this stage of the model, there are three critical variables determining the decision to use the new technology; however, they are under the influence of different independent variables as shown in Figure 2-3. The critical variables are the subjected norms, the ease of use and the

perceived usefulness of the technology; these variables are discussed with their relationships in the next part.

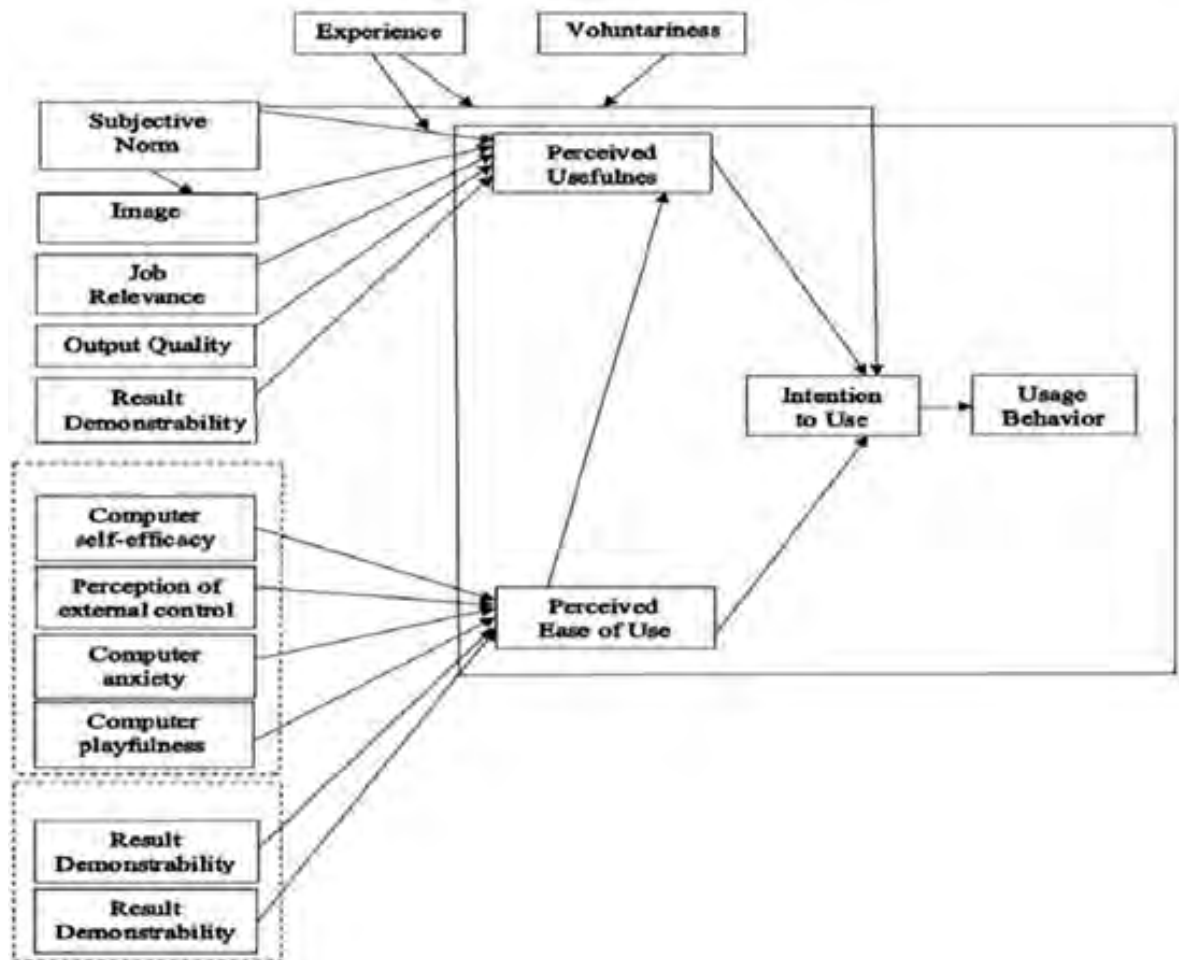


Figure 2-3: Technology Acceptance Model (TAM 3)

Source: (Venkatesh & Bala, 2008)

### i.) The perceived usefulness

The perceived usefulness is one of the variables broadly discussed in studies about technology adoption, one being the Technology Acceptance Model (Godoe & Johansen, 2012; Chen, Rong, Ma, Qu, & Xiong, 2017). The perceived usefulness is a critical variable because it affects the intention to use the technology; this intention is further demonstrated through the expressed user behaviour (Mohammadi & Isanejad, 2018). According to the model presented in Figure 2-3, the perceived usefulness is under the influence of different factors. The factors include subjective norms, job relevance, the quality of output, the image of the user, results demonstrability, and the perceived ease of use.

Therefore, to enhance the perception of taxpayers on the usefulness of the tax system and EFDs in particular, the revenue authority has the responsibility of understanding these factors and their impact on the perceived usefulness (Mandari, Koloseni, & Nguridada, 2017). For example, if the use of the technology affects the quality of the work output, the technology will be ignored (Surendran, 2012; Chen, Rong, Ma, Qu, & Xiong, 2017). In this case, the desired work of EFDs is to keep records for tax estimate.

Furthermore, the model presented in Figure 2-3 suggested the experience of the user as an important factor in determining the usefulness of the new technology. If the user lacks the required experience, they are likely to find its adoption to be difficult (Kira, 2016). The best approach of enhancing the knowledge of people with limited experience on the new technology is training (Selamat & Jaffar, 2011; Lubua & Semlambo, 2017). Furthermore, people must voluntarily use the technology for a smooth adoption (Selamat & Jaffar, 2011). Users are likely to drop the new technology if they get pushed into it (Godoe & Johansen, 2012); apparently, this position is against the current practice by the revenue authority, where people are punished whenever they stop using EFDs. This is the reason why the current study determines the impact of punishments imposed to the rate of using EFDs.

## **ii.) The ease of use**

Figure 2-3 identified the ease of use of the technology as an important factor for successful adoption. The ease of use is simply the simplicity of using the technology. Selamat and Jaffar (2011) and Kakar (2017) said that technology which is simple and does not require complex procedures for handling it, makes it easy to use. Furthermore, the study by Venkatesh and Bala (2008) defined the ease of use by the complexity of procedures involved when using the technology. The perceived ease of use affects the perception of users on the usefulness of the new technology and their intention to engage in its use. Furthermore, the ease of use receives influence from variables such as the user self-efficacy, the perception of external controls, computer anxiety, and computer playfulness (Godoe & Johansen, 2012; Niehaves & Plattfaut, 2014). If the user is not conversant with the technology they will struggle with the use; also, they are likely to develop anxiety, which affects the use (Lubua & Pretorius, 2018; Wang, Zhang, Su, & Deng, 2019). Besides, external factors such as electrical power or signal strength affect the use; many times, users fail to use EFD because of such factors.

Based on the Technology Acceptance Model (Figure 2-3), the ease of use influences the perceived usefulness and the intention to use the technology. This position is supported by studies by Taherdoost (2018) and Wang, Zhang, Su and Deng (2019) who collectively acknowledged the importance of the simplicity of the technology in ensuring that the technology becomes useful to people. In the Technology Acceptance Model, the ultimate dependent variable is the usage behaviour; it is equated to the rate of using EFDs in the current study (Venkatesh & Bala, 2008). The Technology Acceptance Model is limited because there is no explanation as to whether the usage behaviour influences organisations' operations in areas such as task effectiveness and fairness or even transparency. The current study extends its proposition to determine the impact of usage behaviour (or the rate of use) on the effectiveness of operations, fairness and transparency in tax procedures.

#### ***2.3.2.2 Unified Theory of Acceptance and Use of Technology (UTAUT)***

The Unified Theory of Acceptance and Use of Technology (UTAUT) was first published in 2003, in effort to have a theory that would take care of earlier versions of technology adoption, especially the Technology Acceptance Model (Venkatesh, Morris, Davis, & Davis, 2003). The model advocated for four constructs (Figure 2-4) influencing the adoption of the new technology; the constructs are the performance expectancy, effort expectancy, social influence, and facilitating conditions. The first three constructs (that is, the performance expectancy, effort expectancy, and social influence) directly determine usage intention and behaviour, while the social influence is theorised to influence the usage behaviour. In addition, the gender, age, the voluntariness of use, and the experience of the user are the moderating factors of the model. Figure 2-4 presents the first version of the Unified Theory of Technology Acceptance and Use.

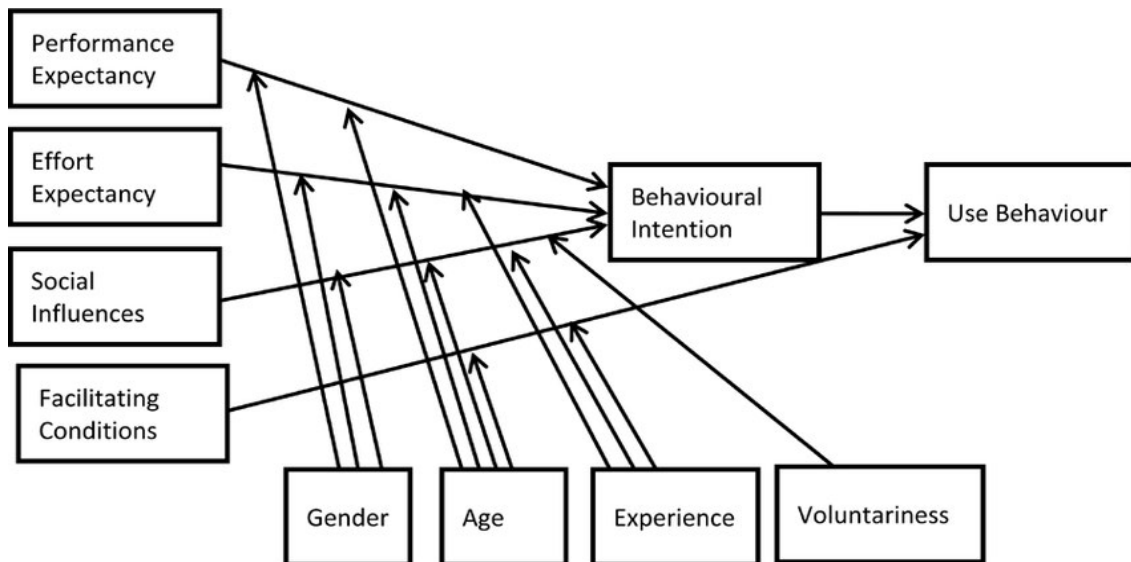


Figure 2-4: Unified Theory of Technology Acceptance and Use (UTAUT 1)

Source: (Venkatesh & Bala, 2008)

In the year 2012, the first version of the Unified Theory of Acceptance and Use of Technology was modified to accommodate three further variables (Venkatesh, Thong, & Xu, 2012). The added variables are the hedonic motivation, price value, and habits of users. Furthermore, the second version of the model removed voluntariness as the moderating variable. The current study bases its discussion on the second version of the UTAUT theory, released in 2012, as shown in the next part and in Figure 2-5.

**i.) Performance expectancy**

The variable known as the perceived usefulness discussed in the Technology Acceptance Model, in section 2.3.2.1 carries the same value as the performance expectance of the Unified Theory of Acceptance and Use of Technology. This simply explains how well the technology is performing different activities or tasks of the user (Dwivedi, Rana, Jeyaraj, Clement, & Williams, 2019). The technology is useful if it supports most of the activities (Dwivedi, Rana, Jeyaraj, Clement, & Williams, 2019; Liu, et al., 2019). The performance expectancy affects the behavioural intention and eventually affects the use behaviour.

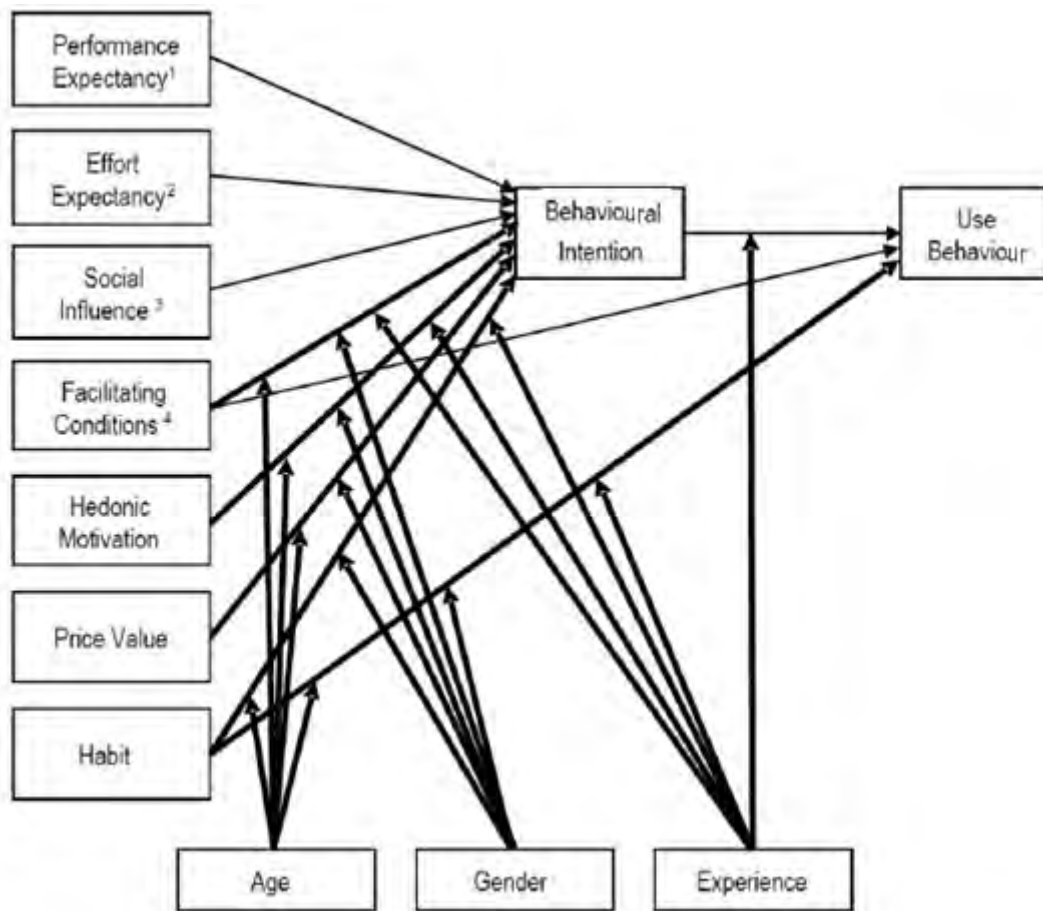


Figure 2-5: Unified Theory of Acceptance and Use of Technology (UTAUT 2)

Source: (Venkatesh, Thong, & Xu, 2012)

**ii.) Perceived enjoyment**

The perceived enjoyment is another variable important in determining the usefulness of the system. Teo and Noyes (2011) and Kakar (2017) said that input variables such as the possessed skills, organisational support, and perceived complexity of the technology are relevant in enhancing enjoyment during their use. Arguably, someone with limited skills will struggle during the use, therefore, not enjoy using it (Chao, 2019). If the organisation offers less support, system failure may hamper the use; hence, less enjoyment. Moreover, a less complicated system is easy to use, therefore, makes the process enjoyable (Mohammadi & Isanejad, 2018). This variable is not within the Technology Acceptance Model; however, where the system is easy to use, it contributes to its enjoyment (Chen, Rong, Ma, Qu, & Xiong, 2017).

### **iii.) Social Pressure**

Social pressure is one of the key variables identified to influence the attitude of users toward technology use or its rate of use (Feld & Frey, 2007). Other studies call it social influence or subjective norms (Graf-Vlachy, Buhtz, & König, 2018). The basis for this variable is that some people will adopt and use technology because of the pressure from their peers. If a group of taxpayers chooses to embrace the technology, the likeliness of their peers to embrace the same technology is high (Lorenz & Katharina, 2017). The social pressure is high where the technology adoption is associated with the norms of the society. In a case where the adopted technology differs from what people embrace, it will be difficult for it to be accepted (Graf-Vlachy, Buhtz, & König, 2018). The revenue authority emphasises the adoption of EFDs against the tradition of taxpayers; this is the reason why business owners fiercely opposed the adoption (Tanzania Revenue Authority, 2017). The Tanzanian government imposed punishments to enforce the implementation; the question remains whether these punishments affect the rate of EFD use.

### **iv.) Facilitating Conditions and other Adoption Factors**

This variable explains that users are likely to use the technology if the organisation is ready to support its use and provide the necessary infrastructure (Naujokaitiene, Tereseviciene, & Zydziunaite, 2015). This is supported by things such as policies, guidelines, and operational standards, which are intended to meet user expectations. It is the expectation of users that the system will be available throughout (Winkle, Bueddefeld, Halpenny, & MacKay, 2019). The organisation should set conditions for making the system available to users, even when it is operating under emergency. Data should be reliably stored, without the chance that someone will tamper with it (Chao, 2019). This is achieved through other security conditions such as authentication and confidentiality.

Furthermore, the Unified Theory of Acceptance and Use of Technology adopted hedonic motivation, habits and price value as variables influencing the use. Hedonic motivation is related with pleasure upon the use of technology (Teo & Noyes, 2011). The current study views hedonic motivation as the level at which someone is comfortable with the use of technology; EFDs are available in different structures and size to meet this expectation (Karsh, 2018). In addition, the price or cost associated with their use affects the intention to use them (Bostan, Popescu, Istrate, Robu, & Hurjui, 2017). This is discussed by studies such as Awasthi and Engelschalk (2018) and Lubua and Pretorius (2018), so the current

study ignores this aspect. Furthermore, the use of EFDs is contrary to the habits of business owners (Tanzania Revenue Authority, 2017). Traditionally, businesses used to issue handwritten receipts or not issuing any at all. This habit minimised their expenses and enabled them to avoid tax (Batrancea, Nichita, & Batrancea, 2012; Agbi, 2014). Since some businesses are resistant toward using EFDs, this is the reason for the revenue authority imposing punishments.

## **2.4 Empirical Studies on EFD Use and Voluntary Compliance**

Empirical studies support the gaining of knowledge from practical examples of the studied field using facts (Biedenbach & Müller, 2011; Baker, 2015). This section presents empirical information on tax compliance and the use of EFDs in business. The first part of the discussion is on voluntary compliance and Electronic Fiscal Device Use. This is followed by factors for the use of Electronic Fiscal Devices, challenges using EFDs, the contribution of tax to Tanzanian development since 2015, and critics of the Tanzanian taxation system. The last component covers the tax audit process and the relevance of Electronic Fiscal Devices.

### **2.4.1 Voluntary compliance and Electronic Fiscal Device Use**

This section presents practical information on the use of Electronic Fiscal Devices (EFDs) in taxation and voluntary compliance in tax affairs. Tax compliance receives emphasis in all government settings across the world because of its role in increasing government revenue (Benno, 2003; Dube & Casale, 2017). Tax compliance requires the incumbent to submit tax information on time, together with the rightful payment of tax (Awan, 2014; Mandari, Koloseni, & Nguridada, 2017). The attainment of full compliance would fuel the development of a given nation.

The study by Awasthi and Engelschalk (2018), sponsored by the World Bank, suggested that most tax is lost because of a shadow economy. Shadow economies represent all business activities which are undeclared because they occur below an informal economic radar (Cuccia, 2013). Overall, the increase of the shadow economy suggests the decrease of the sale invoice issued (Fierre-Seren & Panades, 2013; Awasthi & Engelschalk, 2018). Some of the factors fueling the shadow economy in any given country include complexity in the tax system, ineffective tax enforcement, the lack of incentives to carry business operations, and the level of trust businesses have in the government (Edogbanya & Sule,

2013; Kira, 2016). Studies by Saad (2014) and Tanzi (2017) commented on the complexity of tax systems as a tax framework where one item is subjected to several taxes that makes compliance difficult. The business owner fails to comply because of excessive tax dues or the inability to understand every tax element (Awasthi & Engelschalk, 2018). In acknowledging the challenge of the complex tax system, the government of Tanzania invested effort to identify and remove unnecessary taxes on the business community (Chan, 2012).

Ineffective tax enforcement is identified as a reason for the shadow economy and eventually non-compliance to the tax system (Awasthi & Engelschalk, 2018). Nevertheless, the approach used for tax enforcement in one country may not necessarily work in another. For example, the study by Mohdali, Isa and Yusoff (2014) suggests that the threat of punishment insignificantly influences the compliance of taxpayers and triggers the intention for non-compliance in Malaysia. In Tanzania, tax enforcement that was parallel with the reduction of penalties due to avoidance, increased compliance (Chege, Kiragu, Lagat, & Muthoni, 2015). In both cases, if the probability of detection is treated as a moderating factor, it may change the level of compliance (Gemmell & Ratto, 2012; Mohdali, Isa, & Yusoff, 2014).

Another reason identified as affecting the degree of shadow businesses and tax compliance is the level at which businesses trust the government. Section 2.3.1.2 discussed this aspect in detail; however, the literature strongly points out factors such as transparency and accountability to impact tax compliance (Modugu, Eragbhe, & Izedonmi, 2012; Sá, Martins, & Gomes, 2014). The lack of transparency and accountability is likely to increase corruption in revenue collection; therefore, make the taxation system unfair (Hofmann, Voracek, Bock, & Kirchler, 2017). The government that is accountable will ensure fairness in the taxation process, while putting in controls as necessary to prevent evasion (Igbeng, Beredugo, & Adu, 2015). Meanwhile, a complex tax structure is likely to offer non-compliance opportunities to taxpayers. When exploited, the opportunities increase non-compliance.

Accordingly, studies acknowledge that the traditional taxation environments are constantly changing (Lubua E. , 2014; Al-Maghrebi, Ahmad, & Palil, 2016). Technological innovations are among key agents of change; for example, the introduction of computer

systems and related EFDs. Generally, the record shows that taxation used fiscal devices (electronic devices) for the first time in 1983 in Italy; today, their use extends to most parts of the world (Casey & Castro, 2015). Extended uses of EFDs come with other technological and social risks. For example, in Tanzania, there was a movement by business owners to oppose the use of EFDs in business operations (Lema, 2013). Although the opposition is now passive, cases are reported where traders reduce total sales by sabotaging the EFD use through frequently reporting that the EFD machine does not work properly (Chege, Kiragu, Lagat, & Muthoni, 2015; Al-Maghrebi, Ahmad, & Palil, 2016).

Furthermore, the study by Chege, Kiragu, Lagat and Muthoni (2015) and Bakar (2014) examined the impact of EFDs on Value Added Tax (VAT) in Tanzania. Overall, they asserted that compliance with EFD use determines the VAT collection. The results of these studies were expected, because the use of EFDs ensures that VAT information is captured by the revenue authority through its electronic systems (Cătălina, Dobre, & Șerba, 2013; Faizal & Palil, 2015). The captured information provides the room for VAT establishment. In Tanzania, all VAT-registered businesses are required to use EFDs. The VAT contribution to revenue collection was 31% of the domestic revenue collected in the 2017/2018 financial year (Tanzania Revenue Authority, 2018). In the Tanzanian context, this is the only category of EFD users whose contribution is well established. Although EFDs are important in VAT collection, the study by Chege, Kiragu, Lagat and Muthoni (2015) recommends the analysis of the relationship between the EFD enforcement and the level of compliance. The current study considers this suggestion and applies it to small business owners because it is the latest group to adopt EFDs; moreover, small businesses employ the most citizens (Tanzania Revenue Authority, 2019).

While a number of studies opt to analyse the impact of using EFDs in tax collection, they overlook user acceptance, which is an important condition for technology use. In their study, Mandari and Koloseni (2017) confirmed that user acceptance of EFD use increased tax compliance in Tanzania. Furthermore, the technical awareness and trust are necessary in influencing user acceptance of the technology (Casey & Castro, 2015; Mativo, Muturi, & Nyang'au, 2015). Moreover, the study by Kira (2016), added that traders' knowledge about the benefits of using EFDs in their business also enhances acceptance and compliance. Another factor affecting the user acceptance of EFDs is the social pressure (Ikasu, 2014; Kapera, 2017). The current study concentrates on the actual use of EFDs, and

how it impacts the perception of the effectiveness of auditing, fairness in taxation procedures, and the level of transparency in audit processes. These factors are theoretically important in determining tax compliance; however, their relationship with EFD use is not explored despite the relevance (Murphy, 2008; Gurama, Mansor, & Pantamee, 2015).

#### **2.4.2 Factors for Electronic Fiscal Devices Adoption and Use in Taxation**

In Tanzania, different tax laws govern the use of EFDs. According to the Income Tax Cap 332 (Electronic Fiscal Devices) of 2012, businesses should use EFD without failure (Tanzania Revenue Authority, 2012). Businesses which are identified for their use include: all VAT registered traders, spare parts, hardware, mini-supermarkets, fuel stations, mobile phone shops, sub-wholesale shops, bars and restaurants, pharmaceutical stores, electronic shops and those located in prime areas (Tanzania Revenue Authority, 2019). Unfortunately, the adoption of Electronic Fiscal Devices has not been smooth, especially to small business owners. For example, in November 2013, taxpayers boycotted the use of Electronic Fiscal Devices for different reasons including the inability to buy. In addition, in 2014, there was another boycott by business owners with reasons such as unreliable power, lack of user training, network failure, and frequent device failure (Berkowsky, Sharit, & Czaja, 2017). Figure 2.6 provides a pictorial view of the negotiation meeting convened by the Prime Minister of Tanzania, Hon. Mizengo Pinda, after the boycott (Mwananchi News Paper, 2014).

Because of the challenges identified above, the government decided to introduce the use of EFD in phases. First, it was mandatory for all Value Added Tax-registered individuals to comply (Tanzania Revenue Authority, 2018). This was followed by the group of traders with the minimum of TZS 14 million (approximately US\$ 6,000), in their annual gross sales. Although public mobilisation intended to boycott their use is currently not present, there is a general feeling that taxpayers can boycott silently (Tanzania Revenue Authority, 2019; Adenyi & Adesunloro, 2017). Since the use of EFD is a crosscutting issue, the next part discusses different determinants of the use of EFDs.



The picture was taken 14 February 2014, in a negotiation between taxpayers and the government. The meeting was presided over by the Prime Minister of Tanzania, Hon. Pinda.

*Figure 2-6: Prime Minister of Tanzania holding negotiation meeting with leaders of taxpayers.*

Source: (Tanzania Revenue Authority, 2014)

#### ***2.4.2.1 Demographic factors***

Gender, age, level of education and experience in business are thought to be strong factors for determining user behaviour concerning technology use in business. These factors are important because they are human factors (Lubua & Pretorius, 2018). Therefore, the awareness of these factors enables the organisation to understand how to enhance new changes in technology, especially where the interest lies in the initiator.

##### ***i.) Age***

With regard to age, technology users are either young, middle aged or senior members of the society. Studies agree that the age category of citizens may define the ability of a person to adopt the technology (derKaay & Young, 2012). Generally, it is believed that young people quickly adopt the technology. They are quicker learners than seniors. One reason for this situation is that young people are less occupied with many things, and are adventurous (Olson, O'Brien, Rogers, & Charness, 2011). On the other hand, elderly people are preoccupied with many things such as families and other social life. Therefore, they are likely to be resistant to change. On the other hand, although young people are pro-technology, they will quickly adopt the technology linked to their social lives and make them important to the society, or among their peers. In this regard, although they quickly learn, they can change and become resistant to the technology, which may require them to pay taxes (Charness & Boot, 2009).

Furthermore, the study by DerKaay and Young (2012) suggested that physical and physiological factors challenge older people in adopting new technologies. These reasons are also supported by Charness and Boot (2009) who said that most people lose the strength of their vision with age. Good vision is important for the use of Electronic Fiscal Devices, otherwise the probability of making errors is high (Hofmann, Voracek, Bock, & Kirchler, 2017). Moreover, some older people regard the adoption of Electronic Fiscal Devices or any other related technology as a stressful process because of the requirement for them to learn how to use it (Vaportzis, Clausen, & Gow, 2017). This can be a setback to older people who are still active in business.

### *ii.) Gender*

Another demographic factor influencing the use of EFDs is gender. Although the literature on the use of Electronic Fiscal Devices by different gender groups is limited, the desire to be tax compliant could be a moderating factor. For example, in tax affairs, females are more inclined toward compliance than men (Chung & Trivedi, 2003; Hofmann, Voracek, Bock, & Kirchler, 2017). Within the category of small taxpayers, females are in the majority across the world, therefore, the adoption may equally be favoured by their peer pressure (Antwi, Inusah, Mohammed, & Hamza, 2015). The rate of using Electronic Fiscal Devices may be higher in the African context, because of the natural instinct of women to obey the law and higher authorities (Hofmann, Voracek, Bock, & Kirchler, 2017).

### *iii.) Education*

The level of education is another demographic factor thought to influence the use of Electronic Fiscal Devices. For example, Kira (2016) suggested a direct correlation between the level of education of users and the rate of use. Educated personnel adopt quicker than uneducated ones (Riddell & Song, 2012). This is possibly because educated personnel possess basic analytical knowledge, which helps them to adapt to the changes in technology. Moreover, formal education increases the willingness of taxpayers to comply once they understand the benefits (Newman & Nokhu, 2018).

While education is a good ingredient for the development of people and society, it is unfortunate that there are times when people abuse it. The knowledge possessed by a person (or taxpayers in current settings) could be used dishonestly to facilitate tax avoidance. Tax avoidance is used to minimise tax liability and sanctions resulting from the

tax assessed (Fierre-Seren & Panades, 2013; Ramharak, 2014). Overall, since a large proportion of small business owners in Tanzania have a low level of education, the challenge of avoidance through manipulation is likely to be low; instead other challenges associated with the low knowledge need to be addressed. Such challenges may include running from tax officers, and boycotting taxation without relevant bases (Lubua E. , 2014; Setyorini, 2016).

*iv.) Business experience*

Business experience is another variable thought to influence the use of EFDs in Tanzania among small business owners (Kapera, 2017). Business experience equips the business owner with skills and knowledge necessary for daily business operation. With experience, the business owner can foresee the future provided that other factors hold steady. In the case where the experience favours the adoption and use of technology, the process becomes easy (Chen, Rong, Ma, Qu, & Xiong, 2017). With the introduction of Electronic Fiscal Devices, it is unfortunate that some business owners feel that the future is no longer predictable. This is possibly due to naivety; in this regard awareness creation programmes are necessary for the effective adoption and use of Electronic Fiscal Devices (Bucciarelli, Odoardi, & Muratore, 2010; Chen, Harold, Little, Mark, & Zhao, 2012). The current study is convinced that the new experience, built through the use of Electronic Fiscal Devices, will set the foundation for the future.

**2.4.2.2 Benefits of Electronic Fiscal Devices**

When talking about EFDs, it is important to consider two perspectives: the government and taxpayers (Edogbanya & Sule, 2013; Deyganto, 2018). This has to be a win-win situation. There must be a clear and easy way of identifying the benefits of EFDs, which will influence eligible users to adopt the technology willingly. The study by Chau and Leung (2009), and that of Lubua and Pretorius (2019) suggested that where the benefits are clear, users adopt the technology with minimum effort from service providers. This cannot be different from assertions by models such as the Unified Theory of Acceptance and Use of Technology and the Technology Acceptance Model, which suggested that benefits (the usefulness) of the technology are a driving force toward their adoption.

The first benefit of the Electronic Fiscal Device is that it has an inbuilt memory, which cannot be erased by mechanic activities, chemical or even the use of electromagnetic

techniques (Tanzania Revenue Authority, 2018). This is partly a benefit for both the government and the user. The government is certain about the integrity of data after submission, while the business is also benefiting. Largely, Electronic Fiscal Devices provide a good point of reference for tax audit because of the assured integrity of submitted data (Mandari, Koloseni, & Nguridada, 2017). Because of the ability to keep records with the required level of integrity, it avoids unnecessary conflict between taxpayers and the revenue authority, tax audit or assessment (Chege, Kiragu, Lagat, & Muthoni, 2015). This is because both have the same point of reference. Should an objection be filed, the same reference is used, therefore it eliminates unnecessary debate between the two stakeholders (Mandari, Koloseni, & Nguridada, 2017; Murangwa, 2018).

On the other hand, the Electronic Fiscal Device is beneficial to traders when used to issue receipts because of the longevity in retaining power, even after it is disconnected (Murangwa, 2018). It can hold power for 48 hours without recharging. Practically, if traders were to use computers and printers, these devices would be more expensive, and would require a contingency plan should a power shortage occur (Badhel & Chole, 2014). Other technical benefits include the ability to save data to the memory for five consecutive years, and automatically store the memory without user efforts (Tanzania Revenue Authority, 2019). In one way or another, these aspects are of benefit to the user and the revenue authority in creating a common ground for tax assessment. The final benefit of the Electronic Fiscal Device is its ability to submit data automatically (Kapera, 2017; Tanzania Revenue Authority, 2018).

### ***2.2.2.3 The Accessibility and Maintainability of Electronic Fiscal Devices***

Accessibility to information is a critical factor in any information system and associated software modules (Al-Khulaifi, 2012). This is the reason why in the Information Systems auditing profession, this is one of the pillars for business continuity (Cascio & Montealegre, 2016). For business operations to continue there should be an assurance that the information will be readily available to all key stakeholders. Moreover, the relevance of the information considers things such as roles and responsibilities; access is granted based on someone's role and responsibility (Patel, 2007). Accessibility is one element that Electronic Fiscal Devices guarantees to users (Tanzania Revenue Authority, 2019). Taxpayers and the revenue authority will be able to access the information from the system independently. Unfortunately, although the traded information is guaranteed even after the

failure of the Electronic Fiscal Device, it is important to acknowledge that the high frequency of failure is affecting users (Mandari, Koloseni, & Nguridada, 2017; Eilu, 2018). This is the area which requires the attention of the revenue authority in sustaining the use of these devices.

In addition, the study by Aumeerun, Jugurnath and Soondrum (2016) suggests that the system, which is easy to maintain after a fault, will survive. In a system, some faults are inherent while others are caused by human interactions. Regardless of the cause of the fault, it is mandatory that the system should be fixed for sustainability. The study by Faizal and Palil (2015) suggested that the inability of taxpayers to fix EFD faults themselves, paralyses operations. One reason for their failure is that all instructions are in English, whereas users are conversant with the Swahili language for following instructions. Moreover, the low technical ability of users is another problem. Mukhlis, Utomo and Soesetio (2015) commented that even vendors, who are expected to service such devices, sometimes delay delivering such services to clients. Overall, the review in this section reveals that difficulties in maintaining Electronic Fiscal Devices affects their use.

### **2.4.3 Challenges of Electronic Fiscal Devices Use**

Despite the success in revenue collection due to the use of EFDs, there are still some challenges which face their implementation. Arguably, these challenges create resistance, which hinders the attainment of maximum efficiency. The sections below explain the major challenges facing EFD use.

#### ***2.4.3.1 Higher acquisition cost***

After the introduction of EFD by the government of Tanzania, the taxpayers were required to purchase the devices at their own cost (Chege, Kiragu, Lagat, & Muthoni, 2015). The price of the devices varies depending on the type of EFD. Generally, the ETR is the least expensive compared to the rest of EFDs and it costs TZS 650,000 (approximately US\$ 280) to acquire (Tanzania Revenue Authority, 2018). However, this price is still high to some of the taxpayers who are obliged to use an EFD. Recent studies (Lubua, 2014; Mandari, Koloseni, & Nguridada, 2017) conducted in the similar area indicated that most of small taxpayers are challenged to use EFDs because they cannot afford to purchase the device due to their high cost. Taxpayers need the government to provide them free of charge to gear their compliance.

#### ***2.4.3.2 Inadequate education to users of EFD***

The operation of an EFD requires knowledge of how to enter the appropriate information into the EFD system. In the absence of proper training on the usage of the device, taxpayers may find themselves making errors, which the system does not allow the taxpayer to reverse or correct (Feld & Frey, 2005). Unfortunately, most of the taxpayers do not report the errors to the revenue authority due to lack of knowledge. Therefore, during audits, the reports extracted from the EFD system are likely to differ from physical documents (Machogu & Amayi, 2013). This results in fines and penalties imposed on the taxpayer. In a way, this is a challenge to the users of EFDs (Casey & Castro, 2015).

#### ***2.4.3.3 Network and power failure***

The EFD system requires network and electric power for capturing data useful to the revenue authority. There are occasions where the internet or a power cut disrupts and cuts off the communication (Godoe & Johansen, 2012). In times like these, the taxpayer cannot issue the EFD receipt until the system recovers. In Tanzania, this is a common problem since the power infrastructure is not stable (Chatama, 2013; Eilu, 2018). Knowing that the revenue authority requires the taxpayer to continue issuing manual receipts until the problem is resolved, this position affects the nature of reports submitted electronically (Mukhlis, Utomo, & Soesetio, 2015). Moreover, the taxpayer is required to report the problem experienced by the device in writing to the revenue authority upon malfunctioning (Tanzania Revenue Authority, 2014). When the frequency of the device malfunctioning is higher, it increases the difficulty in business operations and therefore demotivates users from continuing to use it (Ndayisenga & Shukla, 2016).

#### ***2.4.3.4 Shortage of EFD suppliers and technical support***

In accomplishing the mission, the government of Tanzania authorised specific vendors who were given the mandate of selling the EFD to taxpayers (Agbi, 2014). However, the number of vendors is small compared to the number of taxpayers to be served. Therefore, in most cases they fail to provide enough training and supervision to customers because they are overworked. In case of defaults, they also fail to reach and resolve problems in time due to the shortage of staff (Adenyi & Adesunloro, 2017). This is a challenge to the taxpayers because it adds cost to the business and inconvenience to the operations.

#### ***2.4.3.5 Low motivation of customers to demand receipts***

In Tanzania, it is not the tradition to demand a receipt when people purchase items, especially from small business owners (Kapera, 2017). This position is acute for individuals who purchase items for personal use (final consumers). After the introduction of EFDs, the revenue authority emphasised the responsibility of buyers to demand a receipt for every transaction (Casey & Castro, 2015). However, some taxpayers are still uncooperative because they do not issue receipts to their clients. They convince their customers to hide the truth so that reduces the EFDs sales report (Cătălina, Dobre, & Şerba, 2013). The revenue authority, through their intelligence units, has made efforts to identify such taxpayers and apply penalties; moreover, the authority encourages customers to whistle-blow whenever receipts are not issued (Edogbanya & Sule, 2013).

#### **2.4.4 Critics of the Taxation System of Tanzania**

Government revenues are intended to support its administrative operations and development agenda (Birskyte, 2013; Muriithi, 2013). Moreover, they are expected to support social services such as health and education for the development of the people (Gitaru, 2017). Unfortunately, most governments are not able to meet their expenditure needs; for example, in Tanzania the collected tax is only able to meet 40% of the country's expenditure (Ministry of Finance, 2019). In this case, Tanzania is not in isolation, there are many other countries which are not able to meet their financial needs through tax only; as a result they resort to commercial loans (Edogbanya & Sule, 2013).

According to the study by Kassu (2011), conducted in the Ethiopian tax system, one of the challenges for revenue administration is the inability of tax officials to administer tax activities to clients of the revenue authority scattered throughout the country. The challenge is severe if you move out of the city centres (Kassu, 2011; Awan, 2014). The same challenge is affecting Tanzania; however, the revenue authority introduced a Block Administration System, whereby tax offices and officers are organised based on a small geographical unit called a block to some people in their localities (Lubua, 2014; Eilu, 2018). Furthermore, studies by Cătălina, Dobre and Şerba (2013), and Hastuti (2014) suggest a low number of competent tax auditors as a challenge for effective tax collection. User-centred reasons for non-compliance in a global context include corruption and ignorance (Devos & Zackrisson, 2015; Bostan, Popescu, Istrate, Robu, & Hurjui, 2017). This part of the study acknowledges the presence of numerous reasons challenging the

global tax system; however, it chooses to concentrate on the Tanzanian context where the study is conducted.

First, the Tanzanian tax system is affected by the high level of poverty among citizens. Many citizens are still living below the poverty line (Malima, 2013; Tanzania Revenue Authority, 2018). Poverty falls into two perspectives: the failure of a person to meet the basic needs of life, and the other one is the inability to obtain food (Siahaan, 2012). Research statistics show that Tanzania has reduced poverty based on basic needs from 34.4% to 26.4%, while food poverty was reduced from 11.9% to 8% between 2007 and 2018 (National Bureau of Statistics, 2018). Apparently, the group of people who live below the poverty line are doing microbusinesses to sustain themselves. The microbusinesses are not registered for tax, because they do not meet the TZS 4,000,000 (US\$ 1,830) threshold (Tanzania Revenue Authority, 2018). Some small businesses are equally claiming immunity from paying the rightful tax (Ikasu, 2014); it is the assumption of the current study that this ambiguity could be solved by the use of Electronic Fiscal Devices.

Another challenge affecting the taxation system is a narrow tax base (Maisiba & Atambo, 2016). There are few categories of income tax which are sure to contribute to tax. This is partly because the country depends highly on imports because of there being few factories. Moreover, very few people are working in the formal sector, therefore the income tax is broadly affected (Lema, 2013). It is difficult to collect tax in the informal sector (Ministry of Finance, 2019). The informal sector includes peasants, carpenters, masons, fishing and others (Tanzania Revenue Authority, 2011). Their income is informally integrated into the national economy, and hardly evaluated for taxation purposes (Ministry of Finance, 2019). Together with these explanations, the challenge of unplanned townships decreases the ability of residents to pay their tax dues (Dube & Casale, 2017; Ministry of Finance, 2019).

Tax evasion is another challenge obstructing the efficiency of revenue collection in Tanzania (Ministry of Finance, 2019). Many times, the government fails to meet its tax target because people are finding loopholes to evade tax (Fagariba, 2016). Studies by Chariye (2016) and Makulilo (2016) suggested that factors such as the shortage of work force, the shortage of working tools, ineffective tax laws, lack of tax education for clients and inadequate training of tax officials are key contributors for continued tax evasion.

Arguably, the introduction of information systems is expected to address some of these challenges. For example, the system is able to capture and provide preliminary information on business transactions to the revenue authority (Tanzania Revenue Authority, 2018). The ability to capture business transactions and present them through an acceptable format will decrease the amount of work to be done by the currently limited work force of the revenue authority (Engida & Baisa, 2014).

Moreover, the Tanzanian taxation system is partly unfriendly to businesses because of multiple taxes being imposed on the same business. This is possibly due to the narrow tax base demonstrated by few taxable sources. While the government is trying to meet its obligations, it finds itself introducing different taxes on the same service or product (Gwaro, Maina, & Kwasira, 2016). For example, the manufacturing industry has taxes such as stamp duty, VAT, and income tax (Tanzania Revenue Authority, 2018).

#### **2.4.5 Tax Audit Process and the relevance of Electronic Fiscal Devices**

An audit is an old area of knowledge, therefore it is enshrined with many quotes. One of the old quotes says “a good auditor does not make mistakes” (Naibei & Siringi, 2011). In a tax audit, the revenue authority has the responsibility of verifying that an organisation’s or individual’s financial information is reported correctly for tax examination (Emmanuel, Ajanya, & Audu, 2013). While it is generally believed that human beings can make mistakes, auditing provides the required assurance to key stakeholders on the relevance of tax estimates (Basseyy & Edom, 2015). If mistakes are allowed in the audit exercise, it will be difficult to uncover weaknesses associated with business operations (Haji, 2015). Therefore, the audit exercise is guided by principles, standards and models to be followed for necessary assurance (Thompson & Mockler, 2015).

In most cases, the audit process can be summarised into four phases: planning, fieldwork, reporting and taking corrective actions (Muhrtala & Ogundeji, 2013). From the perspective of the auditor who is an employee of the revenue authority, the planning phase is important because it involves all the audit work to be conducted in a given period of time, normally in one year (Cătălina, Dobre, & Șerba, 2013). During planning, the auditor tries to understand the auditee’s business. This is before planning for the resources which will be required to accomplish the exercise. The planning exercise is important because some audit

exercises require specialised knowledge to accomplish intended objectives (Park, Bjørkelo, & Blenkinsopp, 2018).

After the plan is set and resources are identified in accordance with existing regulations, the following step is the actual implementation of the plan (Yunus, Ramli, & Hassan, 2017). The field work includes the extraction of relevant data from the client site. In some special cases, a tax audit may include data extracted from a third party (Razak & Adafula, 2013). This is necessary when the auditee is unable to deliver all the necessary data needed to make the audit conclusion. In most cases, the field work becomes difficult because of the inability of the client to keep records for business transactions (Enahoro & Jayeola, 2012). This is the reason why the revenue authority of Tanzania introduced the use of EFDs to simplify the process of extracting data from their clients. The EFD makes a copy of the client's data available to the revenue authority, therefore simplifying the data extraction exercise (Naibei & Siringi, 2011). Apart from data collection, the field work also includes data analysis; this makes obtained data meaningful in decision-making (Bobek, Roberts, & Sweeney, 2007). Although there are many methods for arriving at the same conclusion, the EFD simplifies the process through making common reports available to the auditor and auditee.

Another element of the audit process is releasing the report. There are different customisable report formats that can be used; however, the audit exercise must show the objectives, the scope of audit, methods, findings and conclusions arrived at (Janeska-Iliev & Debarliev, 2015). This report is delivered in the form of documentation to the auditee for discussion and implementation. After the auditee is presented with the report, the expected action is to agree with the findings, otherwise, there is the room for appealing against it (Tanzania Revenue Authority, 2018). Should the findings be accepted, the role of the auditor will be to follow up and see whether all of the agreed components are fully implemented on time.

During the audit, the auditor is expected to be guided by an organisation's policies and standards set by the acknowledged body of professionals, like the National Board of Accountants and Auditors of Tanzania (Newman, Mwandambira N, Charity, & Ongayi, 2018). One of the critical standards is the independence of the auditor. The auditor must not conduct the auditing exercise in anticipation of receiving something in return from the

customer (Maisiba & Atambo, 2016); that would constitute corruption. Any kind of corruption will affect the legitimacy of the audit exercise (D’Attoma, Volintiru, & Steinmo, 2017). Moreover, being objective in the audit exercise is another element. Auditors are expected to arrive at their decisions in a verifiable manner, through the use of facts.

## 2.5 The Conceptual Framework

This section conceptualises the study through organising its key ideas, ready for operationalisation. It captures key issues, which the study dealt with during its operations. The organisation of the conceptual framework provides an abstract picture of the key issues discussed by the study, and hypotheses. Figure 2-7 presents the conceptual framework of the study using key variables. The variables of the conceptual framework presented in Figure 2-7 are the perceived level of punishment due to non-compliance, the fear of whistle-blowers, the rate of using Electronic Fiscal Devices, the perceived level of transparency in tax processes, the perceived audit effectiveness, the perceived fairness of tax processes, and the perceived level of tax compliance. These variables and their relationships are discussed next.

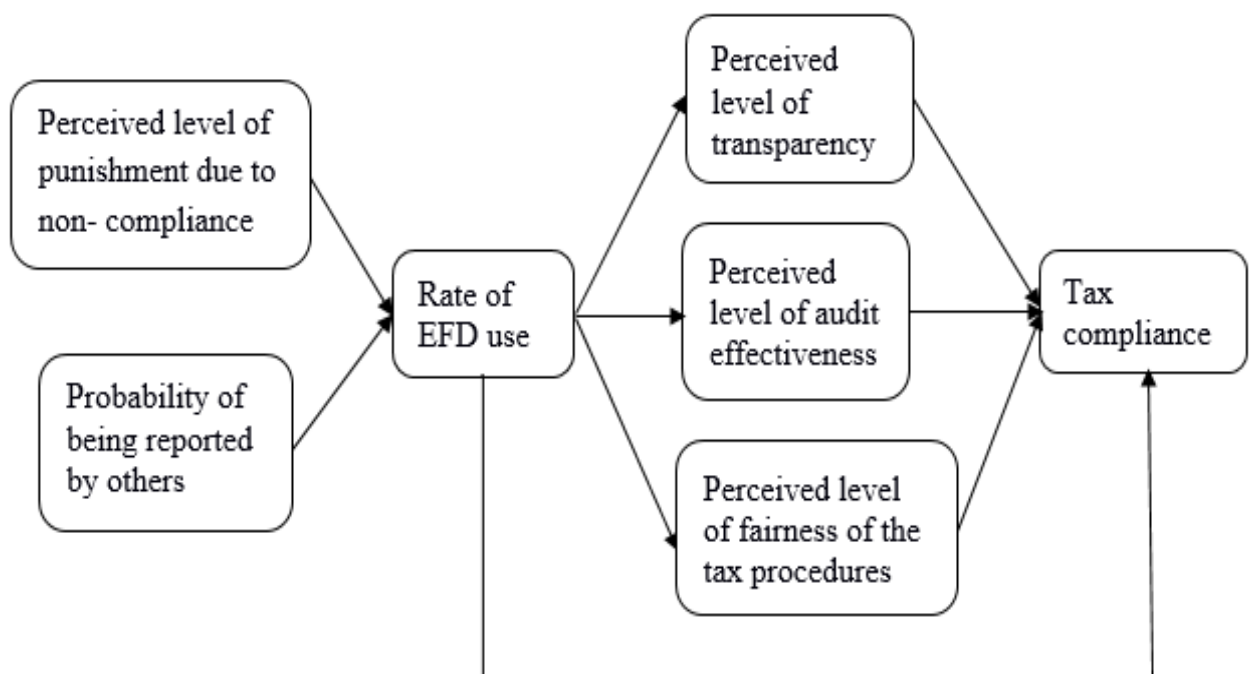


Figure 2-7: The conceptual framework

Source: (Author’s Design 2020)

i.) ***The Perceived level of punishment due to non-compliance***

The literature identifies different methods for ensuring voluntary compliance and sections 2.3 and 2.4.1 discuss these factors. In this part of the study, the interest is on the role of punishment in influencing tax compliance. Findings by Mohdali, Isa and Yusoff (2014) suggested that punishment exerts insignificant influence on those who are willing to comply with tax laws. This position is logical because this category of respondents is already willing to comply. Another study by Innocenti and Rablen (2017) observed that taxpayers seek means for avoidance when they are threatened with penalties; this is more vivid as a revenue system where loopholes for avoidance are many. Furthermore, Gemmell and Ratto (2017) in their study conducted in New Zealand provided a different direction of the impact of punishment on non-compliance. The study suggested that different levels of information known by taxpayers resulted in different levels of compliance; more information on penalties resulted in more compliance. The difference in position by studies done in different countries requires a special consideration of the Tanzanian context as well.

Accordingly, scholars suggest the need for the punishment to match the level of the crime committed for a proper influence (Wood, 2004; Murphy, 2008). In the case where the punishment is less costly to the evader, it encourages non-compliance. The study by Cătălina, Dobre, and Șerba (2013) suggested that taxpayers partly evade tax because they perceive more reward for doing so, even when convicted by the law. Apart from the weaknesses of the legal system, this situation may equally be fuelled by a corrupt environment (Muturi, 2015). Corruption makes punishments less relevant. Overall, the Tanzanian government, through the revenue authority, imposes different punishments on tax evaders depending on the nature of the crime committed. These punishments include penalties for failure to comply and even imprisonment (Agbi, 2014; Tanzania Revenue Authority, 2018). Punishments are issued as corrective measures for non-compliance (Raskolnikov, 2006); however, the impact of these punishments on the use of EFDs is not established. The current study covers this gap. Next is the hypothesis for testing.

**Hypothesis 1**

*H<sub>10</sub>: The perceived level of punishment due to non-compliance does not determine the rate of using Electronic Fiscal Devices*

*H<sub>11</sub>: The perceived level of punishment due to non-compliance determines the rate of EFD use*

**ii.) *The probability of being reported by others due to non-compliance***

In this study, the probability of being reported is a variable, which is measured as the perceived level of fear on the impact of whistle-blowers. Whistle-blowing is simply a disclosure of information about immoral, illegal, or illegitimate practices by a current or former member of an organisation to effect an action on another person or organisation (International Monetary Fund, 2015). The study on the impact of whistle-blowers is useful knowing that whistle-blowers are relevant in revealing unethical information. Asbury (2010) supports the assumption of the current study by suggesting that all citizens have an ethical obligation to aid the arrest and prosecution of criminals.

In order to increase its revenue collection, the German government engages in purchasing financial information that would lead to uncovering tax evasion (Breuer, 2012). Evidence shows that people are likely to break their loyalty and to report unethical issues if the reward is high (Ayagre & Aidoo-Buameh, 2014). In addition, a study conducted in France confirmed that the opportunity to report tax evaders significantly affects the income reported by taxpayers (Masclet, Montmarquette, & Viennot-Briot, 2018). Together with the impact of whistle-blowers to tax collection, there is no guarantee that the information provided (by whistle-blowers) is correct or even relevant (Amir, Lazar, & Levi, 2018). Regardless of the position of the information provided, the government has the responsibility of using the information to certify the truth of the reported issue.

The Tanzania Revenue Authority Act of 2019, through section 5, gives the Tanzania Revenue Authority the power to establish business tax liabilities, and collect them on behalf of the government of the United Republic of Tanzania. In order to meet the objective of its establishment, the Tanzania Revenue Authority advocates for the public to report unethical issues by businesses, especially where they fail to comply with tax laws. In this case, the whistle-blower would be awarded 3% of the total amount of tax recovered (Tanzania Revenue Authority, 2012; Mannion, Blenkinsopp, & Powell, 2018). Given this incentive and effort, the information about the effectiveness of whistle-blowing in different tax aspects is still unclear.

This part of the study addresses the current information gap by determining the probability of being reported by others for non-compliance, and whether that affects their rate of using Electronic Fiscal Devices in taxation. The study meets this objective through testing hypothesis 2.

## **Hypothesis 2**

*H<sub>20</sub> The probability of being reported by others for non-compliance does not determine the rate of EFD use*

*H<sub>21</sub> The probability of being reported by others for non-compliance determines the rate of EFD use*

### **iii.) *The rate of using Electronic Fiscal Devices***

This study was conceived with the perception that the rate of using Electronic Fiscal Devices in business by taxpayers will determine the amount of information possessed for tax evaluation. A number of studies report factors affecting the rate of using EFDs. Omweri, Obongo, Obara and Onsongo (2011), who conducted a study in Kenya, suggested that EFDs are expensive, and that they do not provide a complete solution for all kinds of business. The operational cost becomes a burden to users. Furthermore, a study conducted by Kira (2016) in Tanzania identified usability problems, lack of training to users, and the lack of a reliable power supply as affecting the rate of use. Together with these factors, it is important to acknowledge that there is evidence supporting the use of EFDs elsewhere. For example, the study conducted in Romania by Bostan, Popescu, Istrate, Robu and Hurjui (2017) suggested that collection of VAT increased due to compliance of taxpayers using the EFD machine.

Collectively, It is obvious that people will decrease the rate of using Electronic Fiscal Devices where they intend to display minimum information about their business (Nkwe, 2013; Gangl, Hofmann, & Kirchler, 2015). This is a punishable crime though taxpayers may decide to bear its consequences (Nzioki & Peter, 2014). The rate of using Electronic Fiscal Devices is at the centre of the current study. The assumption of the Tanzanian Revenue Authority is that the rate of use will affect the perception on the audit effectiveness, perceived level of transparency in the process and the perceived fairness of the process (Tanzania Revenue Authority, 2018). These variables form the key

hypothetical relations suggested in Figure 2-7 Because of its importance, the rate of using Electronic Fiscal Devices is used in formulating hypotheses 3 to 5.

### **Hypothesis 3**

*H<sub>30</sub>: The rate of EFD use does not determine the perception of taxpayers on the level of transparency in the taxation process*

*H<sub>31</sub>: The rate of EFD use determines the perception of taxpayers on the level of transparency in the taxation process*

### **Hypothesis 4**

*H<sub>40</sub>: The rate of EFD use does not determine the perceived audit effectiveness of the taxation process*

*H<sub>41</sub>: The rate of EFD use determines the perceived audit effectiveness of the taxation process*

### **Hypothesis 5**

*H<sub>50</sub>: The rate of EFD use does not determine the perceived fairness of tax procedures*

*H<sub>51</sub>: The rate of EFD use determines the perceived fairness of tax procedures*

#### **iv.) The perceived level of transparency, fairness and audit effectiveness**

Transparency and fairness are important components of good governance (Obicci, 2015). In taxation, transparency is expected to enable the taxpayer and the tax auditor to arrive at a relevant tax position, in an open manner (Mukhlis, Utomo, & Soesetio, 2015). Both the taxpayer and tax auditor must openly see how the tax is established based on provided data. When the taxpayer hides part of the data, the level of transparency is affected (Grimmelikhuijsen, Porumbescu, Hong, & Im, 2013). The intervention of Electronic Fiscal Devices is meant to eliminate that possibility, except where the business owner opts not to issue a receipt for every sale. The decision not to offer receipts after sales can be addressed through auditing other documentation pointing to the income of an individual such as bank accounts, purchases, and expenditures (Badara, 2012).

Moreover, studies conducted by Sidik, Zandi and Ruhoma (2019) and Farrar, Kaplan and Thorne (2019) suggest the lack of fairness to affect taxation. The tax auditor is likely to be unfair to the taxpayer, if they are motivated by corruption. The tax auditor may use the lack

of knowledge of the taxpayers to establish the tax, which is irrelevant by hiding the audit process from the client; whichever the case, either the government or the taxpayer is affected where there is no transparency in the tax process (Devos & Zackrisson, 2015; Mandari, Koloseni, & Nguridada, 2017). Knowing the importance of transparency, the current study determined its perceived level where Electronic Fiscal Devices are used, and how it affects compliance. The current information is used to derive hypothesis 6.

### **Hypothesis 6**

*H<sub>60</sub> The perceived level of transparency in tax processes does not impact the perceived level of tax compliance*

*H<sub>61</sub> The perceived level of transparency in tax processes, impacts the perceived level of tax compliance*

#### **v.) Perceived level of fairness**

Practically, the perceived fairness and the perceived transparency are closely related. The study conducted in India by Geetha and Sekar (2012) and that of Ikasu (2014) conducted in Tanzania, suggested that transparency leads to fairness in government activities; this is likely to be the same in the tax environment. Furthermore, studies by Palil (2015) and Wu, Ma and Yu (2017) asserted that when people feel they are being fairly treated, their chance of complying to government directives is high. The two studies were conducted in Malaysia and China, respectively. In the past different studies reported unfair treatment by employees of the revenue authority in different African countries, as acknowledged by Alabede, Ariffin and Idris (2011) of Nigeria, and Sidik, Zandi and Ruhoma (2019) of Libya. The feeling that taxpayers in the African continent are treated unfairly is not good for enhancing compliance (Sidik, Zandi, & Ruhoma, 2019). Knowing the relevance of fairness in taxation, the current study determines the extent to which taxpayers perceive fairness in the tax process. Furthermore, the study determined the impact of the perceived fairness on the level of tax compliance in Tanzania. Hypotheses 7 is developed to address this aspect of the study.

### **Hypothesis 7**

*H<sub>70</sub> The perceived fairness in tax processes doesn't impact the level of compliance*

*H<sub>71</sub> The perceived fairness in tax processes impact the level of compliance*

vi.) *The level of audit effectiveness and tax compliance*

Different studies establish the role of audit in the tax process. For example, according to the study conducted by Yildiz (2019) in Turkey, tax audits make taxpayers careful of their decisions because of the knowledge that their financial data will be scrutinised to establish the right tax dues. Accordingly, the study by Grimmelikhuijsen, Porumbescu, Hong and Im (2013) concluded that the right audit exercise provides fair grounds for establishing tax liabilities. Factors for an effective audit exercise include proper communication with the auditee. This was further asserted by Drogalas, Ioannis, Dimitra and Ioannis (2015) of Greece who suggested that the revenue authority must establish an effective communication system for enhanced extraction of information from the client. Proper communications will favour transparency, which is another requirement for effective auditing (Obicci, 2015). The audit team must openly discuss all facts for establishing the tax liability with the client (Maisiba & Atambo, 2016).

It is unarguable that the ultimate goal of an enhanced relationship between the revenue authority and taxpayers is to ensure voluntary compliance (Deyganto, 2018). Nevertheless, studies by Gemmell and Ratto (2012) of the United Kingdom, and Beer, Kasper, Kirchler and Erard (2019) of the United States, shed a light on the short-termism impact of relying on vigorous tax audits for compliance by taxpayers. They said that the short-termism is due to fact that taxpayers will perceive that they will not be audited in the near future; therefore, they will continue with tax-evasion behaviour. In addition, the short-termism may be as the result of effort by taxpayers to compensate penalties or losses due to the previous audit exercise through whatever means possible. This factor is supported by Hebous, Jia, Løyland, Thoresen, and Øvrum (2020) whose study was conducted in Norway.

Arguably, the use of EFD is thought to enhance the audit process, through constant electronic monitoring of business transactions. Therefore, it addresses the short-termism challenge through alerting taxpayers that the audit exercise is a continuing process (Emmanuel, Ajanya, & Audu, 2013; Simangunson, 2014). The availability of tax records makes the audit process quicker and simplified (Yunus, Ramli, & Hassan, 2017). With this position, this determines the perceived effectiveness of the audit exercise in ensuring compliance, in the environment supported by Electronic Fiscal Devices. Therefore, the study is designed to test hypothesis 8 below.

## **Hypothesis 8**

*H<sub>80</sub> The perceived level of audit effectiveness does not determine tax compliance by the tax payer*

*H<sub>81</sub> The perceived level of audit effectiveness determines tax compliance by the tax payer*

## **2.6 Chapter summary**

This chapter presented the literature review for the study. The first part made a simple introduction of the tax compliance concept. It further linked the tax compliance concept with the use of Electronic Fiscal Devices. Moreover, the chapter discussed theories related to tax compliance and the use of Electronic Fiscal Devices. The following factors were identified in the theoretical literature to impact tax compliance: demographic factors, the probability of being detected, the level of punishment upon evasion, accountability by officials, the level of transparency in tax auditing, fairness in tax procedures, efficiency in tax governance, presence of non-compliance opportunities, the effectiveness of the tax structure, and taxpayers' attitudes toward evasion. In addition, factors such as the ease of use, the perceived benefits, user experience and the social pressure are identified to affect the use of the new technology. However, the study did not incorporate these factors into the analysis of the impact of EFD on tax compliance.

Furthermore, given the empirical literature, voluntary compliance is broadly discussed as a topic. Nevertheless, it is equally evident that few studies related EFD use with the level of tax compliance, and other related factors. For example, no study is found in the literature discussing the impact of factors such as the perceived level of punishment and the probability of being reported by others on the rate of EFD use. On the other hand, these factors are important as they were used by the TRA in ensuring that the rate of EFD use is enhanced. Furthermore, the empirical literature supported the role of audit effectiveness, fairness and transparency in tax process for enhanced tax compliance. However, the position of EFD use in this relationship is not acknowledged. This is the reason why the study tested the impact of EFD use to the audit effectiveness, fairness and transparency in tax processes, and eventually tax compliance. Accordingly, it was important to test the impact of the audit effectiveness, fairness in audit process and transparency in auditing on the level of compliance among small business owners, because this category of taxpayers and their context are not covered in the current empirical literature.

## **CHAPTER 3 : RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter presents all research methods used in the current study which empirically investigates the effectiveness of Electronic Fiscal Devices (EFDs) in ensuring tax compliance among small businesses owners of ARUSHA-TANZANIA. It is unarguable that the achievement of research objectives depends on the appropriateness of research methods as expressed through a proper choice of the research philosophy, sample selection (section 3.3), data collection methods (section 3.4), data analysis methods (section 3.5) and the instruments' reliability and validity (section 3.6). To address this aspect, this chapter begins with the choice of the research paradigm where adopted philosophical stances, research approaches and methods are explained. The sample of the study and sampling procedures are explained in the third section. The fourth section of the chapter explains the methods adopted for data collection, including the closed survey questionnaire and interview tools. Furthermore, section five explains the different methods used in analysing data, followed by an explanation of the validity and reliability of data. Finally, the last section provides the summary of the chapter, with an emphasis on key methodological elements

### **3.2 The Research Paradigm**

This study adopted mixed research methods, with a greater emphasis on the quantitative approach. Therefore, the choice of the research paradigm adopted this position. Overall, a research paradigm is a framework used for organising how the study should be conducted (Biedenbach & Müller, 2011; Taylor & Medina, 2013; Antwi, Inusah, Mohammed, & Hamza, 2015; Baker, 2015). The paradigm highlights the challenges of the discipline under study, provides supporting theories and forms criteria for research tools (Dix, 2007; Wahyuni, 2012; Makombe, 2017). There are two imperative aspects of research paradigm: the ontology and epistemology.

#### **3.2.1 Ontology**

The ontology of the study explains how facts are interpreted (Fonseca, 2007; Scotland, 2012; Littlejohn & Foss, 2009). The two extreme ontological views are objectivism and subjectivism (Ramaprasad & Papagari, 2009). Objectivism suggests that facts about research are verifiable, while subjectivism suggests an absolute truth to the knowledge under study (Littlejohn & Foss, 2009; Wilson, 2010). The current study adopted the

objectivism perspective in the view of knowledge extracted. This is because the study used scientific methods of research with the intention of obtaining facts about the research which are verifiable (Littlejohn & Foss, 2009; Vasilachis de Gialdino, 2011). Additionally, the study advocates for the independence of the researcher in the research process. This position is strongly maintained by objectivists (Scotland, 2012; Dieronitou, 2014). The execution of the study was done in a way that the researcher and the sample were independent of each other. In opposition to this study method, subjectivism suggests that the knowledge under the study depends upon the perception of the observer (Wilson, 2010; Antwi & Hamza, 2015). Therefore, subjectivists advocate for diversity on how the studied object is viewed (Bahari, 2010; Tuli, 2010; Levers, 2013).

### **3.2.2 Epistemology**

Epistemology explains the nature of knowledge, and how it gets established (Schommer-Aikins & Easter, 2006; Littlejohn & Foss, 2009; Scotland, 2012). The current study acknowledges the presence of the following epistemological perspectives: pragmatism, positivism, realism, interpretivism and post-positivism. However, the study chose Positivism as its epistemological stance (Wilson, 2010; Edirisingha, 2012). Studies by Taylor and Medina (2013), and Aliyu, Bello, Kasim and Martin (2014) suggest that positivism puts an emphasis on empirical data and scientific procedures for conducting research. Furthermore, under positivism, the output of the research work is verifiable (Tuli, 2010). Moreover, positivists advocate for the independence of the research knowledge from the researcher (Krauss, 2005; Gray, 2014). These are the key things embraced by the current study, which make the positivist perspective relevant to it.

The current study is against Interpretivism because the perspective is subjective in nature (Kelliher, 2005; Collins, 2010; Collis & Hussey, 2014). In this regard, this school of thought affiliates the output of research with the researcher (Black, 2006; Walsham, 2006; Crowther & Lancaster, 2008). The knowledge emerges through social constructions and may change if the researcher changes (Goldkuhl, 2012; Chowdhury, 2014; Rowlands, 2005; Thanh & Thanh, 2015). Arguably, subjectivism is the main weakness of interpretivism.

Another epistemology is Pragmatism, which discovers new knowledge through multiple methods and embraces multiple realities (Goldkuhl, 2012; Saunders, Lewis, & Thornhill,

2012). This study disputes pragmatism's epistemological stance. This is because pragmatism is vague on its approach for searching a new knowledge (Goldkuhl, 2012; Saunders, Lewis, & Thornhill, 2012). Pragmatism can be qualitative or quantitative depending on the context of the study (Meyers, 2005; Onwuegbuzie & Leech, 2005; Balarabe Kura, 2012; Dalsgaard, 2014). Although the current study uses mixed methods, each approach stands independently, and the quantitative approach is the baseline.

In another epistemology known as Critical theory, the intention of the theory is to address complex subjects in social and economic structures (Myers & Klein, 2011; Fletcher, 2017). The current study does not support the critical theory epistemological stance because it carries the following assumptions: the knowledge value is determined by the influence of a person in advocacy, the knowledge is constructed through social agents, and the knowledge is developed based on the social power rather than the reality (Maroun, 2012; Scotland, 2012). The ontology of the critical theory is a socially created truth. The interpretation of the knowledge depends on social conditioning (Myers & Klein, 2011). According to Scotland (2012); critical theorists use engagement methods in research, hence, this epistemology is unfit for the current study.

The last epistemology is Post-positivism, which explores issues in the context of majority experience and acceptance (Panhwar, Ansari, & Shah, 2017). This study is equally against post-positivism's epistemological stance. The main weakness which makes this perspective unfit for the current study is its suggestion that the existing knowledge can be known imperfectly (Mkansi & Acheampong, 2012; Scotland, 2012). Accordingly, it advocates methodological pluralism with the assumption that one method is inadequate (Mkansi & Acheampong, 2012). This epistemological view is vague for problem solving because it advocates imperfect and probabilistic realism (Sobh & Perry, 2006). The current study requires a clear reality.

### **3.2.3 Selected methodology and measurement of variables**

This study adopted advanced quantitative research methods. With these methods, the study was able to abide to the chosen ontology (objectivism) and epistemology (positivism) during its operations (Williams, 2007; Dulock, 1993). Therefore, it is the understanding of this study that the relationships between studied variables can be established explicitly. Moreover, following the quantitative nature of the current study, the survey research

strategy is adopted. The strategy enabled the collection of data from a large number of respondents, in a given time schedule. In this case, the study used the structured survey questionnaire in the collection of the main data. Furthermore, the survey strategy facilitated the testing of relationships proposed through the variables of the conceptual framework presented in Figure 2-7, because all variables were presented in measurable terms. To abide by key principles of quantitative studies, it is mandatory to define measurements applicable to variables identified through section 2.5, and reintroduced in Table 3-1.

*Table 3-1: Variables and their measurement*

<b>Variable</b>	<b>Information measured</b>	<b>Scale</b>
Age	The age group of the respondent	Likert scale
Gender	The gender category	Categorical data
Experience in business	The experience of the taxpayer in business, grouped in years	Likert scale
Education	The acquired level of education	Likert scale
Probability of being reported by others	The extent to which the taxpayer perceives that s/he will be reported by others for the non-use of EFDs or the perceived impact of whistle-blowers	Likert scale
Perceived level of punishment	The perception of the taxpayer on the severity of the punishment due to non-compliance	Likert scale
EFD Use	The perceived rate of use	Likert scale
System detection ability	The extent to which the taxpayer perceives that the tax system is effective in detecting non-compliance	Likert scale
The perceived level of transparency of the tax system	The extent to which the taxpayer perceives the tax system is transparent in its operation	Likert scale
The perceived level of audit Effectiveness	The extent to which the taxpayer perceives the audit activity as effective	Likert scale
Perceived level of fairness	The extent to which the taxpayer perceives tax procedures as fair	Likert scale

Tax compliance	The extent to which the taxpayer believes they comply with the tax law	Likert scale
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*Source: (Author's Design, 2020)*

### **3.3 Population and Sampling**

This study targeted taxpayers of the Tanzania Revenue Authority who had the obligation to use EFDs in their business. Nevertheless, Tanzania is geographically too large to be confined to this study, given the limited timeframe and resources. To ensure that the study is effectively conducted, the population is redefined to include small enterprises based in Arusha Region. In Tanzania, small businesses have the annual turnover not exceeding TZS 20 million (Tanzania Revenue Authority, 2018f). According to the report by the Tanzania Revenue Authority, all major economic activities (such as mining, business, tourism and agriculture) feature in the Arusha Region. Therefore, it is a true representation of different categories of people in the Tanzanian economy. The results of this study are eligible for generalisation to other populations sharing characteristics with the context of the study (De Vaus, 2001; Creswell, 2003). In this case, the generalisability may extend to regions and countries within the same economic block.

Generally, the national statistics suggest that the Arusha Region had about 1,694,310 people aged over 25 years (National Bureau of Statistics, 2012). Unfortunately, the actual number of small business taxpayers within the population is unknown. Therefore, the current study used respondents who visited all districts' tax centres in March 2019. On average, 1 500 clients visited tax centres in all six districts of the region in one month (Tanzania Revenue Authority, 2019b); the number is used as an estimated population for the current study. These clients were extracted from the TRA register, where access is assured. The sampling frame engaged clients from small businesses, because they are more problematic in tax compliance (Tanzania Revenue Authority, 2017). This category is estimated to constitute two-thirds of the number visiting the tax centres each month; therefore, the sampling frame is estimated to be 1 000. According to Bartlett, Kotrlik and Higgins (2001), at the standard error of 0.05, at least 278 units of the sample adequately represent 1000 units of the population. This study used 279 units in its sample. The adopted model is supported by credible studies on sampling; for example, both studies by Singh and Masuku (2014), and Suresh and Chandrashekara (2015) recommended the use of the model in quantitative sampling. See Table 3-2 for additional information.

*Table 3-2: Sampling decision-making table*

<b>Population size</b>	<b>Sample size in categorical data. The margin of error is 0.05</b>
100	80
200	132
300	169
400	196
500	218
600	235
700	249
800	260
900	270
1,000	278
1,500	306
2,000	323
4,000	351
6,000	362
8,000	367
10,000	370

*Source: (Bartlett, Kotrlik, & Higgins, 2001)*

Given the defined sampling frame, the study used systematic sampling to obtain its sample from the register. Given the order in which respondents are registered in the tax register, the study picked one person after three counts of the register. Their telephone numbers were used for communication since the most recent information from the register was used. With regard to interviews, a maximum of ten (10) respondents were chosen based on their availability and readiness; refer to section 3.4.3 for additional information.

### 3.4 Data Collection

In this section, the study explains tools and procedures adopted in data collection. Recalling the research paradigm, this study followed the objective ontology and positivism epistemology. Collectively, they dictate the use of scientific procedures in the operationalisation of the research study (Aliyu, Bello, Kasim, & Martin, 2014). This includes the testing of research hypotheses. This being the case, this study used the survey questionnaire to extract its main data. However, the study incorporated other data collection methods, such as the use of interviews and documentary review. The purpose of engaging other methods was to provide explanations on observable features of the statistical analysis (Crowther & Lancaster, 2008; Fletcher, 2017). Additional methods did not form the basis for different decisions of the study.

#### 3.4.1 The Research Instrument

A questionnaire used in data collection is in appendix II of the research proposal. This questionnaire was developed based on variables of the conceptual framework (section 2.5) and their associated hypotheses. The purpose for developing the conceptual framework and hypotheses was to fulfil conditions for carrying out a quantitative study. In order to make the questions easy to understand, the study adopted a closed-end questionnaire as explained in section 3.4.2. Closed-ended questions minimise ambiguity to respondents (Bowling, 2005). The adopted questionnaire had seven (7) key components as summarised in Table 3-3. The components include respondents' characteristics, EFD uses in business transactions, the perceived level of punishment, the probability of being reported by whistle-blowers, the perceived level of transparency of the tax system, the perceived audit effectiveness and the perceived procedural fairness.

*Table 3-3: Contents of the closed end questionnaire*

<b>Variable</b>	<b>Area addressed by its questions</b>
Respondents' characteristics	<ul style="list-style-type: none"><li>- The gender of respondents</li><li>- Age of respondents</li><li>- Level of education</li><li>- Years of experience in business</li><li>- The size of business</li></ul>
EFD use in business transactions	<ul style="list-style-type: none"><li>- Experience of EFD use in business</li></ul>

	<ul style="list-style-type: none"> <li>- The competency toward using EFD</li> <li>- The competency on maintaining EFD</li> <li>- Perceived benefits of using EFD</li> <li>- The rate of using EFD</li> </ul>
The perceived level of punishment	<ul style="list-style-type: none"> <li>- Knowledge of consequences of not using EFD</li> <li>- Level of punishment due to not using EFD</li> <li>- Whether the business adopts EFDs due to fear of penalties</li> </ul>
Probability of being reported by others (whistle-blowers)	<ul style="list-style-type: none"> <li>- The contribution of whistle-blowers on giving non-compliance information</li> <li>- The vulnerability of non-compliant business from whistle-blowers</li> </ul>
The perceived level of transparency of the tax system	<ul style="list-style-type: none"> <li>- Perceived level which EFD uses enhances transparency</li> <li>- Level of confidence on transparency exercised by tax officers</li> </ul>
The perceived level of audit effectiveness	<ul style="list-style-type: none"> <li>- Impact of EFD in facilitating tax audit process</li> <li>- The role of tax liabilities on tax avoidance</li> <li>- Ability of tax audit to detect non-compliance</li> </ul>
The perceived level of procedural fairness	<ul style="list-style-type: none"> <li>- Awareness of procedures for EFD operation</li> <li>- Fairness of tax procedures</li> <li>- The current level of tax compliance</li> </ul>

Source: (Author's Design, 2020)

Additionally, the interview questions were formulated based on the need for additional explanation (refer to section 3.4.3); the questions are attached in Table 3-4.

Table 3-4: List of used interview questions

No	Questions
----	-----------

1	Do you remember any case where businesses were reported by taxpayers for the non-use of EFDs?
2	Based on your experience, what are the impacts of non-compliance should a person be reported through whistle-blowing?
3	Why the users with a lesser experience on using EFDs are fearless of whistle-blowing compared to others?
4	What makes the process of maintaining the EFD difficult?
5	Why do you think there are times where you fail to use the EFD machine in your business?

*Source: (Author's Design, 2020)*

#### **3.4.1.1 Administration of the Research Instrument**

The questionnaire is the most famous method of data collection in survey studies. Since its intention is to collect data, it is important to identify the right method(s) for its administration. The study by Dulock (1993) and Bowling (2005) suggests that the variation in the mode of administering questionnaires affects the accuracy and quality of data collected. The modes differ in the initial approach of contacting respondents for introduction, the medium of delivering the questionnaire, and in the actual method of administration (Kelliher, 2005; Rowlands, 2005). For example, the interviewer may administer a questionnaire verbally or use self-administered methods. Although the verbal administration of the questionnaire is costly, it allows the interviewer to interact with the interviewee directly (Balarabe Kura, 2012; Maroun, 2012). In the current study, the researcher handled all the activities of questionnaire administration. Through face-to-face interactions, respondents were able to seek clarifications in all areas of ambiguity before submitting their response (Bahari, 2010; Chowdhury, 2014). A space of two days was given for respondents to complete the questionnaire, and return their responses to the researcher.

In the current study, the research committee of Humanities and Social Science of the University of KwaZulu-Natal approved the questionnaire before its administration. To meet regulations by the University, all responses were anonymous because there were no

details by which to identify respondents. Furthermore, the security of electronic data was ensured through password protection.

### **3.4.2 Closed-end Survey Questionnaire**

Most studies which follow positivist epistemology adopt a survey questionnaire as the data collection tool (Benno, 2003). In social science studies, the use of the closed-end questionnaire is dominant because it is useful for providing quantifiable results within a short period of time (Creswell, 2003). Moreover, the analysis process is justifiable, and avoids the use of personal opinions in developing the research report. This study used a closed-end questionnaire for the following reasons. First, the closed-end questionnaire supports the quantitative approach (Geetha & Sekar, 2012). The study is quantitative, because it requires hypotheses testing. Second, it allows the collection of a large amount of data within a short time period. On the other hand, the analysis is simplified (Al-Mamun, Entebang, Mansor, & Yasser, 2014). In order to make sure that all themes of the study are taken into account, the sections of the questionnaire were organised based on key variables of the study.

The researcher involved different stakeholders in establishing the questionnaire. The first draft of the questionnaire was shared with two holders of PhD degrees who are experts in business studies, particularly taxation and EFDs to validate the content. Moreover, the study, and questionnaire involved in data collection were shared in a group discussion, and the feedback was incorporated. This approach has been followed by previous studies (Sobh & Perry, 2006; Walsham, 2006). The group discussion included taxpayers who are users of EFDs, and employees of the revenue authority. Further to this, the pilot study was conducted to determine the answerability of the questions. The relevance of a pilot study in the collection of primary data through questionnaires is well accepted in literature (Williams, 2007; Chau & Leung, 2009). The latest questionnaire (of this study) was clear to respondents, and it is the original creation of this study. The survey questionnaire is attached in Appendix 2.

### **3.4.3 Interview**

Traditionally, the interview is more suitable for subjective studies (De Vaus, 2001). Normally, respondents provide unstructured information about the subject matter. Therefore, it is not suitable for the collection of a large amount of data. Moreover, if the

information from the candidate is mishandled, it may lead to the distortion of the original meaning (Feld & Frey, 2007). In the current study, the interview was not the main method of data collection, as it was intended to supplement the quantitative analysis with additional information. This is more especially so in a case where the observed research pattern, from quantitative analysis, required explanations for more understanding (Gialdino, 2009). Interviewees were extracted among small business owners, who used Electronic Fiscal Devices in their activities. Interview questions were not necessarily uniform.

The study chose respondents in this category purposively; a maximum of ten (10) respondents were chosen based on their availability and readiness. Therefore, the study used the combination of purposive sampling and convenient sampling in obtaining the candidates for interview. Selected respondents are those who were available at the Arusha tax centre during the day scheduled for the interview. The principal researcher conducted the interview. Table 3-5 summarised the sample for interview and selection criteria.

*Table 3-5: Interview selection criteria*

<b>Selection criteria</b>	<b>Description or selection criteria</b>
4 respondents	Age below 40 years (1male, 1 female), Age above 40 years (1 male, 1 female)
4 respondents	2 graduate, 2 non- graduate
2 business experience	One with 3 years and below, and one with 4 years and above

*Source: (Author's Design, 2020)*

### **3.5 Data analysis methods**

The first step in data analysis was to code variables of the questionnaire into the Statistical Package for the Social Sciences (SPSS). Then, the SPSS data sheet was used for entering data collected from the questionnaires. After data was entered, the data sheet was inspected to identify all outliers and clean them. In a closed-end questionnaire, outliers are the result of a wrong entry having been made (Bahari, 2010; Berkowsky, Sharit, & Czaja, 2017); therefore, it is important to examine the relevant questionnaire to correct the wrong entry.

The literature emphasises the importance of not ignoring outliers, because, they may have a significant impact on the result of the analysis (Meyers, 2005; Goldkuhl, 2012).

In analysis, the current study used descriptive statistics to describe the main features of the sample. Generally, descriptive statistics are important because they assist the study to present data in a way which is easy to understand and to draw basic meanings (Wilson, 2010; Mannion, Blenkinsopp, & Powell, 2018). The current study used descriptive statistics to know how their frequencies are spread across the sample, more especially, among demographic variables. This is important to understand the perception of the sample to a given element of the study (Gray, 2014). The following descriptive statistics were used: frequency, per cent, and mean. The study presented the descriptive information through tables, and the pie chart.

On the other hand, the study used inferential statistics namely the One Way ANOVA to understand the categorical relationships among demographic variables and tax compliance. Studies by Kelliher (2005) and Makombe (2017) suggest the use of the One Way ANOVA where there is a need to identify whether two studied groups are significantly related. The One Way ANOVA is more useful where data are on a Likert scale (Collins, 2010); this position was observed in the current study. The use of the One Way ANOVA was supported by descriptive statistics such as the use of cross tabulation or group means. In the case where binary data (or any other clear categorical information) was involved in the analysis, the study used the chi-square model to determine the significance of two studied categories of data (Makombe, 2017).

In addition, the study used inferential statistics to test the impact of independent variables to respective dependent variables. In this case, the study used models such as ordinal regression, ANOVA and the chi-square for testing hypotheses. The Ordinal Regression Model is used practically for predicting a relationship where the dependent variable is ordinal (Kelliher, 2005; Krauss, 2005). The current study used this model because all predicted variables used an ordinal (Likert) scale. Therefore, this is the main model for decision-making in the current study. Basically, the model is symbolically represented by through equation 3.1.

*Equation 3-1: The general regression equation*

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 \dots + \beta_n X_n + \varepsilon$$

In the equation, 'y' represents any dependent variable under study, and  $\beta_0$  represents the intercept value. In addition,  $\beta_1, \beta_2$  and  $\beta_n$  represent the coefficient values for respective independent variables  $X_1, X_2$  and  $X_n$ . In this case, these symbols are simply used to describe the equation; the relationships of this study are strictly represented through symbols presented in Table 3-6. Furthermore, the ' $\varepsilon$ ' is known as the stochastic error term, and it represents all variations in 'y' which cannot be explained through the values of engaged predictor variables.

*Table 3-6: Variables of the study with their symbols*

<b>Variable</b>	<b>Symbol</b>
The perceived level of tax compliance	TC
The perceived fairness of tax procedure	PF
The perceived effectiveness of tax auditing	ETA
The rate of EFD use	RATE
The perceived level of punishment due to non-compliance	PP
The perceived level of transparency	LT
The probability of being reported by others or the fear of whistle-blowers	PR

*Source: (Author's Design, 2020)*

The next part of this section explains the analysis of objectives of the study identified in section 1.3.

The first objective (section 1.3) intended to determine whether the fear of whistle-blowers affects the rate of using EFD. Hypothetically, the rate of using EFD is a dependent variable, while the fear of whistle-blowers is an independent variable. Equation 3-2 summarises this relationship.

*Equation 3-2: Rate of EFD use and fear of whistle-blowers*

$$RATE = \beta_0 + \beta_1(PR)$$

In the second objective, the study determined whether the perceived level of punishment due to non-compliance impacts the rate of EFD use. Based on this objective, the perceived rate of EFD use was hypothetically the dependent variable, and the perceived level of punishment was the independent variable. Equation 3.3 summarises the hypothetical relationship.

*Equation 3-3: Rate of EFD use and the perceived level of punishment*

$$RATE = \beta_0 + \beta_1(PP)$$

Moreover, in order to achieve the third objective, the study analysed the relationship between EFD use (RATE) and three other variables. In this case, the EFD use acted as an independent variable. The three dependent variables are: the perceived effectiveness of tax auditing (ETA), the perceived level of transparency (LT) and the perceived procedure fairness (PF). These variables are traditional determinants of tax compliance extracted from different models (Fagariba, 2016; Innocenti & Rablen, 2017); the interest of the study was to evaluate the impact of EFD use rate to their positions, individually. Each relationship was tested independently. Equations 3-4 to 3-6 summarise the relationships.

*Equation 3-4: Impact of rate of EFD uses on perceived effectiveness of auditing*

$$ETA = \beta_0 + \beta_1(RATE)$$

*Equation 3-5: Impact of rate of EFD uses on perceived fairness of tax procedures*

$$PF = \beta_0 + \beta_1(RATE)$$

*Equation 3-6: Impact of rate of EFD uses on the perceived level of transparency*

$$LT = \beta_0 + \beta_1(RATE)$$

To analyse the fourth objective of this study, the perceived level of tax compliance (TC) is hypothetically determined through the perceived effectiveness of tax auditing (ETA), the perceived fairness of tax procedures (PF), the perceived level of transparency (LT) and the

perceived rate of EFD use. This relationship is symbolically represented through equation 3.7.

*Equation 3-7: The perceived level of tax compliance*

$$TC = \beta_0 + \beta_1(ETA) + \beta_2(PF) + \beta_3(LT) + \beta_4(RATE)$$

### 3.5.1 Multicollinearity Testing

In statistics, multicollinearity occurs in a regression model when independent variables of the study are correlated. Multicollinearity is a problem for regression analysis because independent variables are expected to be independent of each other. Therefore, the problem is significant where the correlation between independent variables is very high. The study by Wilson (2010) suggests that if independent variables are highly correlated, a change in one variable impacts the other, hence affecting the whole intention of studying the impact of independent variables differently. This is the reason why the highly correlated independent variables are not suitable for regression analysis. Knowing the impact of multicollinearity to regression analysis, the study conducted a test to justify the eligibility of current data and relations to proposed analysis. The study ignored equations 3-2 to 3-6 because each had one independent variable. As for equation 3-7, independent variables were the perceived fairness, and the perceived transparency, the perceived audit effectiveness and the perceived rate of EFD uses; Table 3-7 provides details. In this case the observed highest Variance Inflation Factor (VIF) was 1.050. The observed VIF is low, therefore the independent variables are free from being affected by the multicollinearity effect (Taylor & Medina, 2013). A VIF above 5.0 is unacceptable (Sobh & Perry, 2006).

*Table 3-7: Multicollinearity coefficients of equation 3-2*

Model	Collinearity Statistics	
	Tolerance	VIF
1	.985	1.015
	.967	1.034
	.953	1.050

a. Dependent Variable: EFD Support in Tax Audit

*Source: (Author's Design, 2020)*

### **3.6 Validity and Reliability**

The validity and credibility of any research instrument are important aspects of any research work (Doran, 2009). Users of research results want to know whether solutions provided by the study are relevant or not. Moreover, they equally want to be sure that the findings are reliable in providing solutions to similar problems. In ensuring that the validity of the study is attained, the study considered two types of validity in its operations. The two types of validity testing are face validity and content validity (Kilchler & Maciejovsky, 2001).

The study used content validity in ensuring that different aspects of the questionnaire provide the right measurement for the study (Krauss, 2005). The study obtained the assurance through engaging the available literature (Haryani, Motwani, & Matharu, 2015). Therefore, this study conducted a comprehensive literature review to ascertain the validity of the study. Moreover, the study used experienced academics from the University of KwaZulu-Natal, and those based on the Institute of Accountancy in Arusha to approve the validity of the content.

Furthermore, the face validity ensures that employed data collection tools extract the right type of data (Gialdino, 2009). In order to have a successful face validity, respondents must be able to understand the contents of the questionnaire and other questions given to them. This understanding is achieved when respondents have a correct interpretation of the contents of the questionnaire (Kiri, 2016). To ensure that the study meets the conditions for face validity, a pilot study was conducted. Twenty (20) respondents were randomly chosen at the Revenue Authority in Arusha Region. The study received feedbacks from respondents; the feedbacks were used to improve the contents of the questionnaire.

Moreover, the study tested the reliability of its data collection tool. The reliability ensures that the same test produces consistent and stable results after administering it under similar conditions (Haryani, Motwani, & Matharu, 2015). This study tested its reliability through establishing the accuracy of the tools in data collection procedures (Kosack & Fung, 2013). For the inter-item consistency to be attained, this study employed the Cronbach Alpha as its measurement tool. The study by Taber (2018) defined Cronbach Alpha as a measure of internal consistency that shows how closely related the set of items (as a group) in a

questionnaire are. The Cronbach Alpha uses the constructs of the study, extracted from the conceptual framework, to determine inter-item consistencies.

In testing the reliability of items, the Alpha value measures the scale reliability, where the high value is considered as more reliable. The current study conducted the test between independent variables and their subsequent dependent variables; it further determined how the variables consistently produced the required result. The Cronbach Alpha applies the reliability coefficient between 0 and 1. The literature suggests an alpha value of at least 0.6 for an acceptable level of reliability (Maroun, 2012; Lubua, 2014). Based on information presented in section 3.5, the only equation with multiple variables determining a common output is equation 3.7; therefore, it is the only equation which demanded testing by Cronbach Alpha (Taber, 2018). The testing yielded the Cronbach Alpha equal to 0.793. Therefore, this level of reliability is good enough for a quantitative study. Table 3-7 shows the result of the Cronbach Alpha test.

*Table 3-8: Cronbach Alpha reliability statistics*

Cronbach's Alpha	Cronbach's Alpha Based on Standardised Items	Number of Items
0.793	0.760	7

*Source: (Author's Design, 2020)*

In addition to Table 3.8, the information in Table 3-9 presents item by item information about the internal reliability of variables. Overall, no significant change that occurs when any of the item is deleted, except for the level of tax compliance, which results to a lower value of the Cronbach Alpha.

*Table 3-9: Selected Information from Item-Total Statistics*

Variables	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Rate of EFD Use	0.620	0.567	0.735
Level of Transparency	0.511	0.651	0.734

Tax Audit and Non-compliance Detection	0.654	0.896	0.754
Fairness of Tax Procedures	0.553	0.829	0.757
Level of Tax Compliance	0.387	0.574	0.821
Fear of Punishments	0.373	0.699	0.761
Vulnerability of being reported	0.613	0.768	0.760

### 3.7 Chapter Summary

This chapter presented the collection of methods used in the current study. It began by defining the embraced philosophy. Although the study adopted mixed research methods, its ontological perspective was objectivism. Moreover, the epistemological perspective selected for the study was positivism. Generally, the current study targeted small business owners who use EFDs in their business, but are located in the Arusha tax region of Tanzania. The sampling frame was based on the list of taxpayers who visited the Tanzania Revenue Authority, Arusha offices in March, 2019. The sample size was 279 respondents. The sample was obtained through systematic sampling, because it enabled the research to extract unbiased data. This was specifically for closed-end questionnaires. The interview was used to provide supplementary information to the study, and the adopted sampling method was convenience sampling.

Furthermore, the study used quantitative methods in data analysis, where key methods were ordinal regression, one-way ANOVA, and Chi Square. Descriptive statistics provided explanations on main features of the variables under study using frequencies, percent and mean. Moreover, to ensure the validity of the study, the research used face and content validity testing methods; these methods are generally accepted for this purpose. Moreover, the Cronbach Alpha was used to affirm the level at which data collected is reliable. In addition, the multicollinearity was used to show whether respective independent variables did not affect each other and the regression analysis. The software package used in the analyses was SPSS, and results from the analyses of equations for each objective are presented, interpreted, and discussed in Chapters 4, 5, 6 and 7 respectively.

## **CHAPTER 4 : IMPACT OF THE FEAR OF WHISTLE-BLOWING ON THE USE OF ELECTRONIC FISCAL DEVICES**

### **4.1 Introduction**

This chapter is guided by the first objective of the study, which is stated in section 1.4. The intention was to determine the impact of the fear of being reported by others on the rate of using Electronic Fiscal Devices (EFDs) by taxpayers. Basically, the category of taxpayers addressed includes those who are owners of small businesses, as described in section 3.3 of this study. In addressing this part of the research problem, the chapter is further divided to form three key sections. Section 4.2 provides an overview of demographic variables and their categorical relationship with the use of EFDs among taxpayers. The section begins with the conceptualisation of the concept under study, followed by the presentation of descriptive information about the studied variables. Other information explains the relationship between the use of EFDs and the demographic variable under study. The second section (section 4.3) highlights the concept of whistle-blowing as a strategy for enhancing tax collection. Furthermore, it presents basic descriptive information on whistle-blowing and how it relates to selected demographic variables of the studied population. Apart from this information, the section determines the impact of whistle-blowing on the rate of using EFDs. This is followed by section 4.4, which summarises the chapter and its findings. Generally, the chapter provides results, their analysis and discussion.

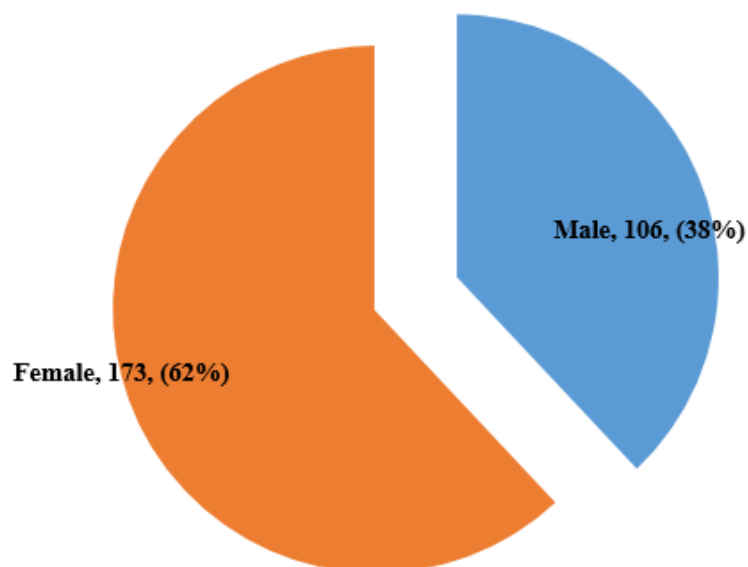
### **4.2 Demographic Variables and the Rate of EFD Uses**

Section 2.3.1.3 of this study presented different factors for tax compliance through the Fischer Model of tax compliance. In its arguments, the model presented demographic variables among factors determining the tax compliance to tax payers. Although this study did not include these variables in its hypotheses, its operationalisation agrees that demographic variables can offer additional explanations on behaviours expressed by taxpayers in the process of ensuring their compliance. In this section, the study analyses demographic variables (such as gender, age, level of education, and business experience), so as to understand how they relate with the use of Electronic Fiscal Devices. Further to this, the analysis explains the significance of categorical relationships among variables.

#### **4.2.1 Gender**

This study considered the gender of respondents in its analysis for several reasons. First, the study wanted to know the nature of the sample, given that the sample was selected scientifically. This informs the reader concerning an estimated composition of people who are engaged with small businesses, in the Tanzanian context. Secondly, the study desired to understand whether the gender of respondents is relevant in explaining the rate of using Electronic Fiscal Devices in business activities.

Based on the results presented in Figure 4-1 below, the sample is composed of 106 (38%) males and 173 (62%) females. This composition of the sample is not proportional to data from the national census, because the working population of Tanzania is composed of 51% male and 49% female (Tanzania National Bureau of Statistics, 2014). Since the selection of the sample followed scientific principles, this study adopts the position that small businesses are largely owned by females. While the studies by Aikaeli and Mkenda (2014) and Muhanga (2017), focused on microbusinesses in Tanzania, they shared the same opinion (as with the current study) that more women are engaged in small businesses compared to men. This is the reason why the government is dedicating its effort in improving the status of these businesses through subsidies to improve the welfare of women in the Tanzanian community (Gennari & Lotti, 2013). Unfortunately, the pace of growth among small businesses is equally slow; hence, an extended tax burden would potentially affect the well-being of community members engaged in such businesses (Balkan, Cilasun, & Turan, 2016).



*Figure 4-1: The gender of respondents*

Source: (Author's Design, 2020)

Furthermore, the study determined the relationship between the gender of respondents and their rate of using Electronic Fiscal Devices in business. In its first step, the study used the cross-tabulation to understand the rate of using Electronic Fiscal Devices to each gender category. Table 4-1 presents detailed results extracted from the cross tabulation.

*Table 4-1: A cross-tabulation between gender and the rate of EFD use*

Gender category	Frequency (Rate of use above 60%)	EFD use subtotal	Rate of EFD use above 60%, expressed in percent
Female	77	173	44%
Male	50	106	47%
Total	127	279	45%

Source: (Author's Design, 2020)

Results presented in Table 4-1 are the extraction of the results of the cross-tabulation between two variables: gender and the rate of using Electronic Fiscal Devices. Based on these results, 45% of all respondents stated that they used Electronic Fiscal Devices in issuing receipts to at least 60% of their business transactions. This percentage still suggests a low level of compliance among small business owners based in Tanzania, and has a

negative impact on the national economy (Mandari, Koloseni, & Nguridada, 2017). The government can barely trace the value chain of imports and other products associated with industrial production to consumers (Bostan, Popescu, Istrate, Robu, & Hurjui, 2017). Therefore, it is difficult to establish the right tax liabilities to taxpayers based on their economic activities because a tax invoice is not issued (Kira, 2016). Thus, taxpayers miss the opportunity of having a full record of their business transactions through tools provided by Electronic Fiscal Devices (Ndayisenga & Shukla, 2016). This makes the process of establishing the business position or portfolio difficult.

Accordingly, this study extended its analysis to test the significance of the relationship between gender and the rate of using Electronic Fiscal Devices in business transactions. In this case, the study used the One Way ANOVA model, and Table 4-2 presents the results. Based on the results shown in Table 4-2, the observed p-value is 0.437, and it is greater than the threshold value, which is 0.05. The result suggests no significant relationship between the input variable (that is gender) and the rate of using Electronic Fiscal Devices in business. Therefore, the gender category does not define the group of the taxpayers within parameters for using Electronic Fiscal Devices in business. This result is supported by an extraction on the cross-tabulation, presented in Table 4-1. The results suggested that 44% and 47% of female and male, respectively used Electronic Fiscal Devices for at least 60% of their business applications. The difference between the two gender categories is small, therefore the gender of taxpayers cannot be used to define their rate of using Electronic Fiscal Devices in business transactions.

*Table 4-2: Gender\*Rate of use expressed through ANOVA*

	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	.880	1	.880	.606	.437
Within Groups	402.181	277	1.452		
Total	403.061	278			

*Source: (Author's Design, 2020)*

#### 4.2.2 Age Group

The study by Hofmann, Voracek, Bock and Kirchler (2017) suggests that the age of respondents is normally associated with behaviours expressed by members of the society. Some of these behaviours are the result of peer pressure and past experience (Al-Mamun, Entebang, Mansor, & Yasser, 2014). This study was developed on the assumption that the age category of respondents could define the behaviours of respondents in different areas, including the rate of use of Electronic Fiscal Devices. Based on the results presented in Figure 4.2, the sample of this study was composed mostly of people 40 years of age and below. Therefore, 69% of the respondents in the whole sample are in this age category. The finding of this study is supported by Ministry of Trade and Industry (2012) and Isaga (2015) who acknowledged the same age category to feature extensively in the Tanzanian economic activities. Furthermore, the study by Al-Mamun, Entebang, Mansor and Yasser (2014) suggests this age category to be the active population for the active economy of any nation.

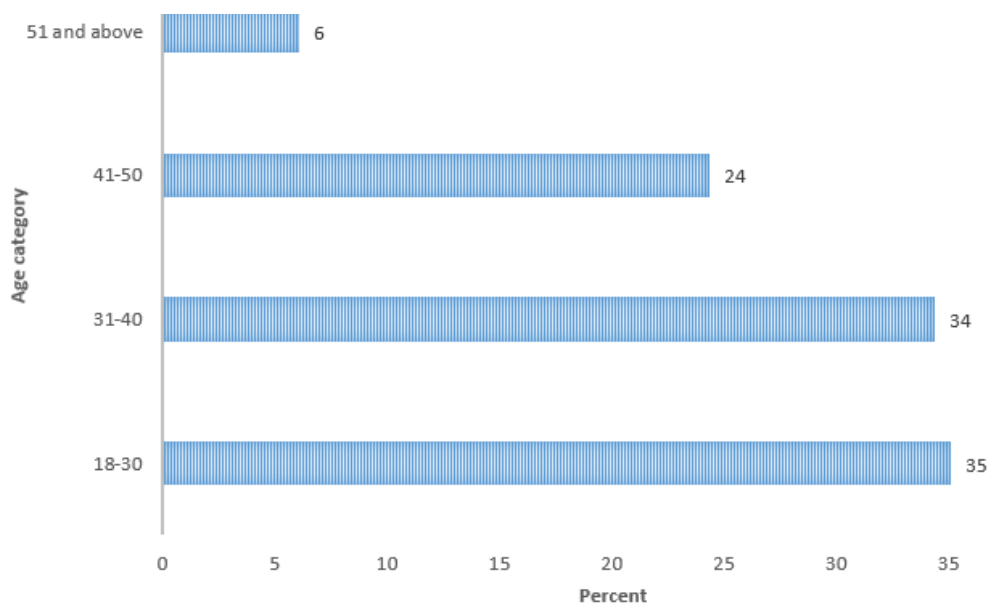


Figure 4-2: Age category composition in percent

Source: (Author's Design, 2020)

Apart from the descriptive information presented in Figure 4.2, the analysis was extended to investigate the nature of the relationship between the age category of respondents and the rate of using Electronic Fiscal Devices. While 45% of respondents are using Electronic Fiscal Devices for at least 60% of their business transactions, none of the age category

exceeded this percentage except those between the ages of 18 and 30 years. On one hand, this information is positive because the new generation in business is embracing Electronic Fiscal Devices; this fact will ensure mutual benefits between the government and business owners (Engida & Baisa, 2014). The negative side of this information is that the senior age category is still reluctant to use Electronic Fiscal Devices; hence this group contributes negative income to the government. The latter is a setback to government efforts toward ensuring that citizens participate in national development through voluntary payment of tax (Bostan, Popescu, Istrate, Robu, & Hurjui, 2017). Additional information, extracted from this data suggests that the percent of compliance toward using Electronic Fiscal Devices decreases as age increase (Kapera, 2017; Karsh, 2018). This information calls for the revenue authority to invest more effort in educating senior citizens on the value of using Electronic Fiscal Devices in their business. Table 4-3 provides additional information on the analysis.

*Table 4-3: Cross-tabulation for age category and the rate of EFD use*

<b>Age Category</b>	<b>Rate of use above 60%</b>	<b>Category subtotal</b>	<b>Rate of use above 60%, expressed in percent</b>
18-30	54	98	0.55
31-40	41	96	0.43
41-50	26	68	0.38
51 and above	6	17	0.35
Total	127	279	0.45

*Source: (Author's Design, 2020)*

Accordingly, the study engaged the One Way ANOVA model in the analysis to understand the significance of the observed differences across age categories. Based on the results presented in Table 4-4, the observed p-value was 0.002 ( $p < 0.05$ ). Based on these results, the observed difference (on the rate of using Electronic Fiscal Devices) across age categories is significant. Therefore, age can be used in understanding the participation of different citizens in using Electronic Fiscal Devices in their business. While it is the role of the revenue authority to find out the reason for this difference, the study by Isaga (2015) suggested one reason for the reluctance by senior citizens. He suggested that senior citizens

are contented with their level of understanding current business operations; therefore, they don't see the importance of adding extra knowledge. Furthermore, the complexity of the technology contributes to their reluctance (Berkowsky, Sharit, & Czaja, 2017; Lubua & Pretorius, 2018).

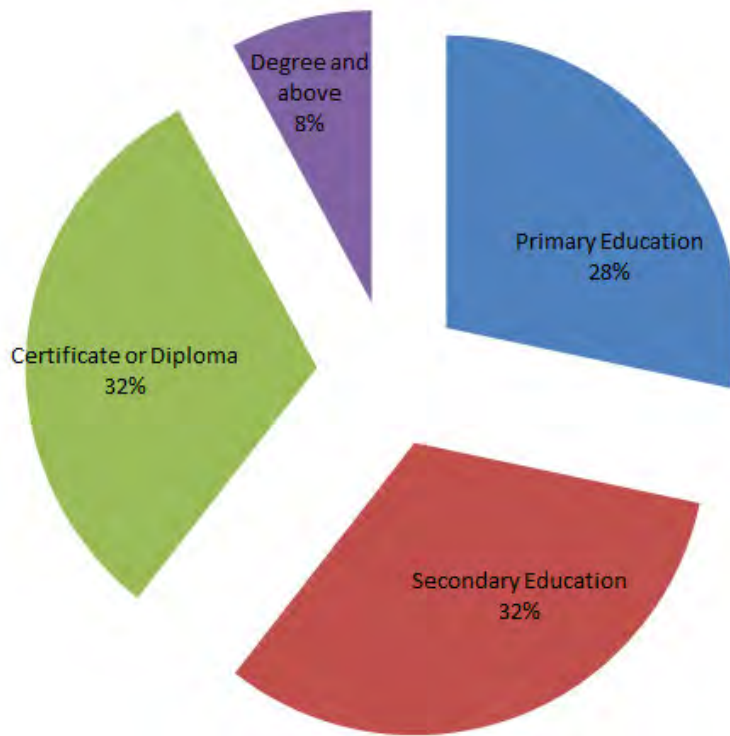
*Table 4-4: One Way ANOVA between age and EFD use*

	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	20.939	3	6.980	5.023	.002
Within Groups	382.122	275	1.390		
Total	403.061	278			

*Source: (Author's Design, 2020)*

#### **4.2.3 Level of Education**

Taxpayers have different ways of improving their understanding of tax affairs. One method is through receiving trainings from the revenue authority (Tanzania Revenue Authority, 2018f). The training could be on a given specific issue, about tax compliance or general knowledge. In the current study, the use of Electronic Fiscal Devices is a new concept to many, therefore, a proper level of awareness is necessary in ensuring that Electronic Fiscal Devices are accepted and properly used. Further to this, the use of Electronic Fiscal Devices requires some basic technical knowledge (Lubua & Semlambo, 2017). The user needs to understand how to use the device, and be able to conduct basic troubleshooting activities to use it effectively. Accordingly, the user must be able to extract and use different formats of reports available through Electronic Fiscal Devices. This increases the value of Electronic Fiscal Devices to business (Kakar, 2017). The current study included the level of education in its analysis because of the assumption that it could determine the ability of the user to comprehend the different technicalities of Electronic Fiscal Devices. In the analysis, the level of education is divided into four categories: Primary education, secondary education, certificate or diploma, and degree and above. Figure 4-3 presents descriptive information on the level of education of respondents.



*Figure 4-3: Level of education*

*Source: (Author's Design, 2020)*

Based on the results presented in Figure 4-3, 40% of respondents had a College or University education. This is unexpectedly high, possibly because people with a high level of education usually opt for employment rather than self-employment (Chen, Harold, Little, Mark, & Zhao, 2012). Additionally, the current study extended the analysis to know how the level of education descriptively relates to the rate of using Electronic Fiscal Devices. In Table 4-5, the analysis presents data extracted from a cross-tabulation, between the level of education of respondents and their perceived rate of using Electronic Fiscal Devices. In the category of those using Electronic Fiscal Devices in at least 60% of their business activities, the result of the analysis suggests that respondents without college education were using Electronic Fiscal Devices below average. They reported average use was 46%; this was a fraction of those who state that they use Electronic Fiscal Devices in at least 60% of business transactions. Overall, the cross-tabulation presents an increase in the use of Electronic Fiscal Devices from those with a low level of education to those with higher levels.

*Table 4-5: Cross-tabulation extraction between education and rate of EFD use*

<b>Level of education</b>	<b>Rate of use above 60%</b>	<b>Category subtotal</b>	<b>Rate of use above 60%, expressed in percent</b>
Primary Education	29	79	37%
Secondary Education	35	90	39%
Certificate or Diploma	48	88	55%
Degree and above	15	22	68%
Total	127	279	46%

Source: (Author's Design, 2020)

Results in Table 4-5 presented an apparent categorical relationship between the level of education and the rate of EFD use using cross-tabulation; nevertheless, further testing is required to understand the significance of the relationship. In this regard, the study used the One Way ANOVA model to test the relationship. Based on the results presented in Table 4-6, there is a significant categorical relationship among respondents between the level of education and the rate of using Electronic Fiscal Devices. The reported p-value is 0.050, which meets the threshold specification. This information supports results presented in Table 4-5, where the low level of education was associated with the low level of EFD users, and vice versa. These findings are supported by Bucciarelli, Odoardi and Muratore (2010), and Eilu (2018) on the impact of education to the adoption of technology. Those with higher education are associated with the higher ability of comprehending the benefits of the new technology; this becomes a motivation for their adoption (Karsh, 2018). The revenue authority can address this gap of knowledge through schemes for raising users' awareness through trainings (Bucciarelli, Odoardi, & Muratore, 2010). This is the reason for the Tanzania Revenue Authority having established the taxpayers' education department (Tanzania Revenue Authority, 2019).

Table 4-6: One Way ANOVA between Education and the rate of EFD use

	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	11.264	3	3.755	2.635	.050

Within Groups	391.797	275	1.425		
Total	403.061	278			

Source: (Author's Design, 2020)

#### 4.2.4 Years of Business Experience

Partly, the study is under the assumption that experience in business is related to ability of taxpayers to use Electronic Fiscal Devices. The user experience is enhanced through day-to-day business operations whereby the taxpayer discovers and learns new ways of improving business operations. Studies by Isaga (2015) and Ade, Akanbi, and Tubosun (2017) suggested that experience in business influences its expansion as well. Moreover, Hassan Darwish, Sahraei, Zakrifar, & Talebi, (2014) identified that the use of Electronic Fiscal Devices has an important role in automating business processes (Casey & Castro, 2015). The automation is important in safeguarding business income and gearing business processes.

The current study was conducted relating to small business owners who were perceived to have little limited experience and knowledge of automated business processes; therefore, the use of Electronic Fiscal Devices may be perceived by them to have low importance. Because of this position, this study determined the relationship between user experience in business and the rate of using Electronic Fiscal Devices among small business owners. According to results in Table 4-7, a total of 53% of the sample have business experience of less than two years. Therefore, a large proportion of small businesses have start-up status; therefore, they need to be nurtured to achieve the desired maturity level (Janeska-Iliev & Debarliev, 2015).

Table 4-7: Years of business experience

Parameter		Frequency	Percent
	2 years and below	148	53.0
	Between 3 and 5 years	78	28.0
	6 years and above	53	19
	Total	279	100.0

Source: (Author's Design, 2020)

Furthermore, the study used the cross-tabulation to study the descriptive categorical relationship between business experience and the rate of using Electronic Fiscal Devices in business. Based on the results presented in Table 4-8, the total of 53% of the users with at least 6 years of business experience use Electronic Fiscal Devices in over 60% of their operations. These results show an increase in the rate of using Electronic Fiscal Devices based on user experience. User experience is a teacher for compliance (Gangl, Hofmann, & Kirchler, 2015).

*Table 4-8: Cross-tabulation extracts of years of business experience and EFD uses*

<b>Business experience</b>	<b>Rate of EFD use above 60%</b>	<b>EFD use subtotal</b>	<b>Rate of EFD use above 60%, expressed in percent</b>
2 years and below	63	148	0.43
Between 3 and 5 years	36	78	0.46
6 years and above	28	53	0.53
Total	127	279	0.46

*Source: (Author's Design, 2020)*

Results presented in Table 4-8 do not indicate the significance of the categorical relationship between user experience and the rate of using Electronic Fiscal Devices. Therefore, the study adopted the One Way ANOVA to test the level of significance. In this case, the observed p-value was 0.452, which is greater than the threshold (refer Table 4-9). This shows the existence of the categorical relationship which is insignificant. This implies that the rate of using Electronic Fiscal Devices is not associated with business experience. In their study, Chen, Harold, Little, Mark and Zhao (2012) suggested that business experience is inadequate in determining the level of tax compliance. Moreover, the use of Electronic Fiscal Devices is easily adopted if it enhances business performance expectations.

*Table 4-9: One Way ANOVA years of business experience and the rate of EFD use*

	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>

Between Groups	2.315	2	1.158	.797	.452
Within Groups	400.746	276	1.452		
Total	403.061	278			

Source: (Author's Design, 2020)

#### 4.2.5 User Experience of EFD uses

In this subsection, it was the intention of the study to know the characterisation of taxpayers based on their experience of using Electronic Fiscal Devices in their business. The user experience is extracted in the form of the period of time which the taxpayer has been engaged in using Electronic Fiscal Devices. The descriptive analysis was followed by understanding how the user experience relates the rate of use. The last part concentrated on the impact of the user experience to the rate of using Electronic Fiscal Devices. According to the information presented in Figure 4-4, a large number of taxpayers are in the category of those who have used Electronic Fiscal Devices for between 1 and 4 years. Nevertheless, those who have used EFDs for less than 12 months, comprise a significant component (39%) of the entire sample. This study is conducted with the assumption that this category is likely to struggle with the use of EFDs, compared with those with more experience as suggested by Gurama, Mansor and Pantamee (2015). Therefore, the impact is expected to be observed in the rate of use by taxpayers of this category.

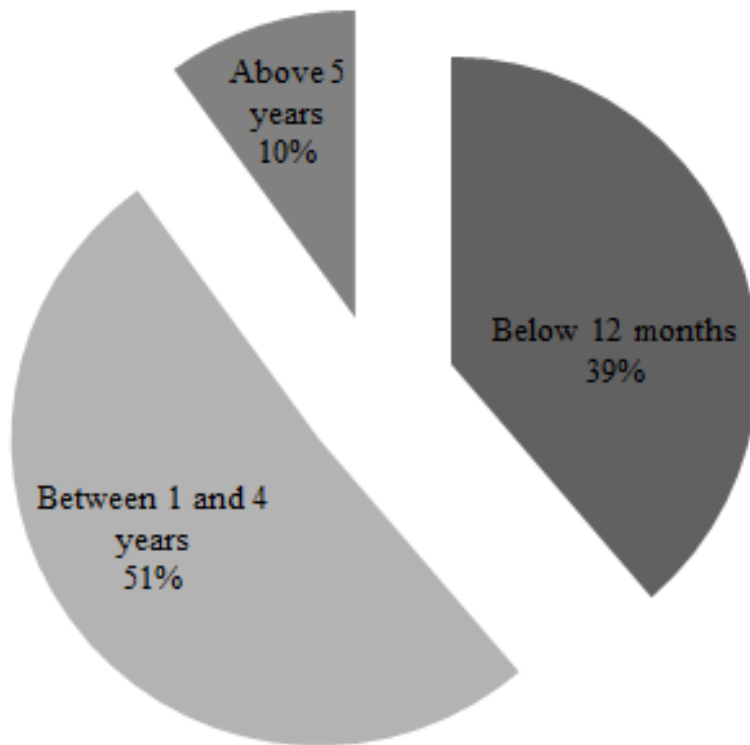


Figure 4-4: Users' experience of using EFDs

Source: (Author's Design, 2020)

To understand the relationship between users' experience and their rate of using Electronic Fiscal Devices, the study used the cross-tabulation to obtain relevant descriptive information. Results presented in Table 4-10 shows an average rate of using Electronic Fiscal Devices to be 46%. Furthermore, the analysis revealed that those who have used Electronic Fiscal Devices below four (4) years have a lesser rate of use, that is 44%. Accordingly, it is evident that those with experience above 5 years have a higher rate of using Electronic Fiscal Devices. The figure reported in the category of those who use Electronic Fiscal Devices in at least 60% of their business activities, is 57%. There is an increase in the use of Electronic Fiscal Devices based on the experience of users,

Table 4-10: User experience and the rate of EFD use

Level of education	Rate of use above 60%	Category subtotal	Rate of use above 60%, expressed in percent
Below 12 months	48	108	44%

Between 1 and 4 years	63	143	44%
Above 5 years	16	28	57%
Total	127	279	46%

*Source: (Author's Design, 2020)*

On the other hand, the study engaged the use of the One-Way ANOVA model in understanding the significance of the relationship expressed in Table 4-10, that is, the relationship between the user experience in using Electronic Fiscal Devices (expressed in years) and the rate of use. The results presented in Table 4-11 suggests no significant categorical relationship between the two variables. The reported p-value is 0.675, which is greater than the threshold (that is 0.05). Based on this information, different categories of user experience of using Electronic Fiscal Devices, do not align themselves with categories expressed in the form of the rate of use. Therefore, the predictor variable (user experience) cannot be used in understanding the rate of using Electronic Fiscal Devices among small business owners. With reference to descriptive information provided in Table 4-10, except for users of Electronic Fiscal Devices with experience above 5 years, the rest of the category had only 2% less than their rate of use compared to the average value, which was 46%. Generally, the study by Nugroho, Susilo, Fajar and Rahmawati (2014) and that of Khalifa (2016), commented that the number of years can enhance the knowledge of users of Electronic Fiscal Devices; however, it can also relate to the ability and the desire of the user to avoid using Electronic Fiscal Devices. This scenario is expressed more noticeably where the desire of the user is to minimise tax liabilities (Deyganto, 2018). The observation would be different where advantages that are more tangible were to be acquired upon the use of Electronic Fiscal Devices (Patel, 2007).

*Table 4-11: User experience of EFD is years versus rate of EFD use -ANOVA*

	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	1.145	2	.572	.393	.675
Within Groups	401.916	276	1.456		
Total	403.061	278			

*Source: (Author's Design, 2020)*

### **4.3 Whistle-blowing and the rate of using Electronic Fiscal Devices (EFDs)**

This section addresses objective 1.4 (i) of the study, which intended to determine whether the probability of being reported by others impacts the rate of using Electronic Fiscal Devices by taxpayers. The next three key subsections determine this part of the research problem. Section 4.3.1 provides a brief overview of the concept of whistle-blowing as a means for enhancing tax collection. Further, it presents basic descriptive information on whistle-blowing and how it relates to selected demographic variables of the studied population. The second subsection (section 4.3.2) discusses the impact of business variables on EFD use. The third subsection presents the analysis of the impact of whistleblowing on the rate of EFD use.

#### **4.3.1 Whistle-blowing in Revenue Collection**

Whistle-blowing as a concept is used by organisations to allow their broad share of stakeholders to report illegal activities by those who are responsible with business administration. Generally, the Tanzania Revenue Authority (TRA) has many stakeholders, and taxpayers make up the most important component (Ministry of Finance, 2019). In most cases, taxpayers act as an intermediary between the revenue authority and the general public. Unfortunately, there are many cases where taxpayers are reported as untrustworthy (Mohd, Mohd, Palilb, Maelahb, & Ramlib, 2017). This is because they provide false information to the revenue authority by hiding part of their business transactions (Aumeerun, Jugurnath, & Soondrum, 2016). This is equally applicable to those who own small businesses, the population relevant to this study. Because of this, the study intended to determine the power of whistle-blowing by the public, in unveiling unethical conducts by business owners.

In the context of this study, there are several methods that are used for whistle-blowing by the general public. The first method that could be used by the public to disclose unethical conduct to the revenue authority is through physical reporting (Amir, Lazar, & Levi, 2018). This can be facilitated through encouraging whistle-blowers to visit premises owned by the revenue authority and present relevant evidences. Unfortunately, this method takes time, and is not friendly to whistle-blowers located away from tax centres (Chatama, 2013). Further to this, the fact that revenue centres receive many clients per day, may discourage whistle-blowers because it may take more time to be attended to (Mativo, Muturi, & Nyang'au, 2015). Figure 4-5 provides a pictorial view of the service venue.

This photo was taken at one of the revenue authority's centres, with the customers waiting for their turn to receive tax services at the building. The number of taxpayers is higher on due dates.



*Figure 4-5: Customers waiting for services at one of the TRA's offices*

*Source:* (Tanzania Revenue Authority, 2019)

Alternatively, the Tanzania Revenue Authority provides electronic methods that could assist whistle-blowers with minimum effort. One electronic tool available is the use of telephones. For example, the revenue authority provides two toll free numbers to potential whistle-blowers: 0800 750 075 and 0800 780 078. Further to this, the revenue authority provides an alternative number for direct calls (+255 22-2119343) and WhatsApp (+255 744-233333) communication. Moreover, different social media links are used for communications: Facebook, Twitter, and Instagram handles (or links) are spelled as “*tratanzania*”. Together with the email address available to the public ([services@tra.go.tz](mailto:services@tra.go.tz)), these media can be used by whistle-blowers. Nevertheless, the challenge remains on the awareness of whistle-blowers.

In the operationalisation of this study, a question was asked to know the extent which small business owners perceive that EFD use make business owners vulnerable to being reported by their customers about their lack of compliance. This inquiry was based on the assumption that the perceived level of vulnerability toward being reported would push taxpayers to comply. Based on descriptive results presented in Figure 4-6, a total of 30%

agree or strongly agree that business owners are vulnerable to being reported by clients, whenever they fail to comply. This statistical information is 5% higher when compared with the total of those who disagree or strongly disagree.

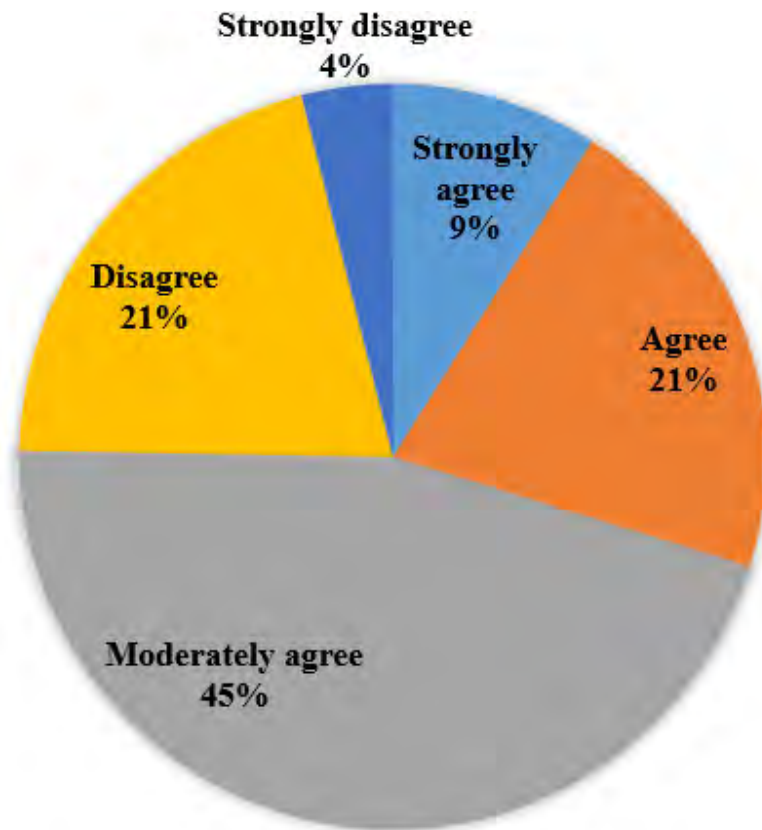


Figure 4-6: Vulnerability to being reported

Source: (Author's Design, 2020)

Although the difference between those who agree and disagree is small, it is interesting to learn that the percentage of those who disagree is outweighed. This is likely due to the effort invested by the government in sensitising the role of citizens in ensuring that the government receives its share through revenue collection (Tanzania Revenue Authority, 2019b). In addition, through the interview, the study realised that the government is aggressive in seizing purchased goods, where the buyer is unable to deliver the receipt, as the evidence of ownership. Since whistle-blowing can be used as a tool for enhancing tax compliance, the government and the revenue authority have the responsibility of addressing the category of taxpayers who are not concerned with whistle-blowing; this is 25% of the whole population. One method is to raise the awareness of the general public on their role in ensuring that business owners comply with tax regulations (Tanzania

Revenue Authority, 2018a). Accordingly, providing incentives to whistle-blowers based on the amount of recovered tax would encourage the release of such information. Studies by Davis, (2012) and Ayagre & Aidoo-Buameh (2014) suggested that incentives (rewards), form a good motivation for most people in the society, and are invaluable in triggering actions.

In connection with results and discussions presented above, it was the interest of the study to know whether the perception of taxpayers on their vulnerability to whistle-blowing relates to their demographic category. In subsections to follow, the reason for engaging each demographic variable is presented. The study has chosen to use the following demographic variables in the analysis: gender, age, level of education, and years of business experience.

**4.3.2.1 Gender and the perceived vulnerability to whistle-blowing**

Several studies show the difference in taxpayers’ perception based on their gender. For example, studies by Jabbar (2006) and Kastlunger, Kirchler, Mittone, and Dressler (2010), and Kasipillai suggested that in the African context, women are more compliant with tax regulation than men. Moreover, studies by Chung and Trivedi (2003) and D’Attoma, Volintiru and Steinmo (2017), suggested that men are less responsive to punishment when compared to women, in efforts to make them compliant with tax regulations. With this background, the study operated under the proposition that gender could result in a significant categorical relationship with the perception of taxpayers on their susceptibility to whistle-blowing. Since gender is nominal in nature, the study engages the chi-square test in the analysis. Table 4-12 presents the results.

*Table 4-12: Gender and taxpayers’ vulnerability to whistle-blowing – chi square*

	<b>Gender</b>	<b>Non-compliance Reporting</b>
Chi-Square	16.090 <sup>a</sup>	143.993 <sup>b</sup>
df	1	4
Asymp. Sig.	.000	.000

*Source: (Author’s Design, 2020)*

According to results presented in Table 4-12, there is a significant categorical relationship between the gender of the respondent and their perceived vulnerability to whistle-blowing. Presented results suggest that the p-value is 0.000; the observed p-value is less than the threshold. Moreover, the study extended the analysis to know the nature of the descriptive information about this relationship. Based on the analysis, which engaged the cross-tabulation, the results in Table 4-13 were extracted.

*Table 4-13: Gender and the perceived vulnerability to whistle-blowing cross-tabulation*

	<b>Gender</b>			
	<b>Male</b>		<b>Female</b>	
	<b>Frequency</b>	<b>Percent</b>	<b>Frequency</b>	<b>Percent</b>
Agree/Highly Agree	28	26%	55	32%
Disagree/Highly disagree	24	23%	45	26%
Moderately Agree	54	51%	73	42%
Total	106	100%	173	100%

*Source: (Author's Design, 2020)*

According to data presented in Table 4-13, female respondents represent higher percentage of those who perceive their vulnerability to whistle-blowing. The value presented for females is 32%, compared to 26% for males. Furthermore, in the comparison within the gender group, the study observed a difference of 3% between male respondents who agree on the vulnerability and those who do not agree. Among female candidates, the observed difference was 6%. Apparently, these observations confirm results presented in Table 4-12, where the chi-square analysis presented a significant categorical relationship. Generally, results in this subsection suggest that the group of females has more members who perceive their vulnerability to whistle-blowing, compared to males. In the study by D'Attoma, Volintiru and Steinmo (2017) it was suggested that women tend to be more sympathetic, agreeable and supportive in intervening in the welfare of the public, while the study by Weisberg, DeYoung and Hirsh (2011) put forward the natural fear embodied in being female makes them more sensitive to the idea of being reported.

#### 4.3.2.2 Age and the perceived vulnerability to whistle-blowing

Studies show that the variation in the age of respondents causes variations in different aspects of technology use and tax compliance. In studies by Czaja (2007), and Lubua and Pretorius (2018), the age of respondents relates to the behaviour relating to technology use. The study by Hofmann, Voracek, Bock and Kirchler (2017) suggests that variation in the age of respondents causes variations in the level of tax compliance. Furthermore, studies such as Czaja (2007), Niehaves and Plattfaut (2014), and Berner, et al., (2019), identify age as a strong factor in understanding perception and human behaviour. Based on this background, it was the assumption of this study that different age categories offer different perceived vulnerability to whistle-blowing. The knowledge would be useful in addressing issues related to whistle-blowing based on age groups. The characterisation of the sample based on age is presented in section 4.2.2, while this subsection emphasises relational information (Czaja, 2007).

Knowing that the age of respondents and their perceived vulnerability to whistle-blowing are both in ordinal scale, the study chose to use the One Way ANOVA and the cross-tabulation to test the significance of the categorical relationship. Based on Table 4-14, the study observed a non-significant categorical relationship between age category and the perceived vulnerability to whistle-blowing. The observed p-value was 0.101, which is greater 0.05 (threshold). A simple explanation for this observation is that age categories did not result in a significant relationship with the perceived vulnerability to whistle-blowing. The trend is the same throughout. Therefore, age cannot be used in understanding the characteristics of respondents on their perceived vulnerability to whistle-blowing (Gupta & Chaudhary, 2017).

Table 4-14: Age category and the perceived vulnerability to whistle-blowing – One Way ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.504	4	1.626	1.959	.101
Within Groups	227.439	274	.830		
Total	233.943	278			

Source: (Author's Design, 2020)

#### 4.3.2.3 Years of business experience and whistle-blowing

Based on the information provided in section 4.2.4, a person with more business experience is expected to have more knowledge on issues related to business operations. Also, the current study perceives that the level of business knowledge attained from business experience may affect the perception of the business owner on the impact of whistle-blowing by customers (or clients). This is in agreement with the study by Park, Bjørkelo, & Blenkinsopp, (2018) who suggested experience was a good teacher in tax-related issues. In addressing the question of whether business experience related to the perception that businesses are vulnerable to whistle-blowing, the study presented the descriptive information in Table 4-15.

*Table 4-15: Business experience and vulnerability to whistle-blowing – cross-tabulation information*

		<b>Vulnerability to Whistle-blowing</b>	
		<b>Vulnerable/highly vulnerable</b>	
		<b>Freq.</b>	
<i>Business experience</i>	2 years and below	61	53%
	3 years – 5 years	41	36%
	6 years and above	13	11%
	Total	115	100

*Source: (Author's Design, 2020)*

Based on the information provided in Table 4-15, it is evident that taxpayers with 2 years or less business experience make up the largest portion of those who feel vulnerable from whistle-blowers; that is, 53% of all members of the category. Furthermore, the percent of vulnerability decreases as business experience increases, where those with experience above 6 years perceive the lowest level of vulnerability (11%). With this information in mind, it is clear that the experience of the taxpayer, relates to business owners' fear of whistle-blowers. This is possibly the reason why studies by Kamleitner, Korunka, & Kirchler (2012) and Akinboade (2015) characterised business experience with non-compliance, because of the low impact of the fear of whistle-blowers. In addition, the study extended the analysis to ascertain whether the observed nature of the relationship between business experience and the perceived vulnerability was significant. In the

analysis, the study adopted the One Way ANOVA model, and results are presented in Table 4-16.

*Table 4-16: Business experience and the perceived vulnerability*

	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	15.503	2	7.751	7.682	.001
Within Groups	278.497	276	1.009		
Total	294.000	278			

*Source: (Author's Design, 2020)*

According to the results presented in Table 4-16, there is a significant categorical relationship between the business experience and the perception of taxpayers on their vulnerability to whistle-blowing. The results of the One Way ANOVA Analysis suggest the p-value is 0.001; the presented p-value is less than the threshold (0.05). Overall, the current study suggests that taxpayers with less experience have more fear of whistle-blowing, when compared with those with more experience in business. Therefore, whistle-blowing can be a motivator for compliance for those with less experience in business. This category has the largest composition of the sample.

#### ***4.3.2.4 Experience of EFD use and whistle-blowing***

In this study, there are two aspects defining the experience of taxpayers: business experience and the experience of EFD use. The experience of users with the use of Electronic Fiscal Devices (EFDs) is important because of different findings from the literature. There are numerous studies discussing the role of users' experience in technology adoption. A good example of these studies includes those of Lubua and Pretorius (2018), Muriithi, Horner and Pemberton (2016) and that of Riddell and Song (2012) who collectively suggested that user experience determined the intention to adopt the technology, through positively enhancing the perception of users. Together with the role of users' experience in technology adoption, the question remains whether the same relates to the fear of users of the probability of being reported by others due to non-compliance.

The current study conducted the cross-tabulation analysis to obtain descriptive information describing this relationship; results are presented in Table 4-17.

*Table 4-17: EFD experience and perceived vulnerability to whistle-blowing – Cross-tabulation*

	5 years and above		1 to 4 years		Less than 1 year	
	Freq.	(%)	Freq.	(%)	Freq.	(%)
Vulnerable	45	42%	60	45.5%	10	26%
Moderate	41	38%	61	46.2%	22	56%
Not vulnerable	22	20%	11	8.3%	7	18%
Total	108	100%	132	100%	39	100%

*Source: (Author's Design, 2020)*

According to information presented in Table 4-17, those with EFD use experience of 5 years and above were shown to be less vulnerable compared to the rest of the groups. A total of 20% of group members confirmed that they were not vulnerable to whistle-blowers. This position may be credited to their experience in dealing with EFD grievances during this period of use. In addition, the category with less than 1 year of experience was the next to feel less vulnerability. Those who confirmed less vulnerability were represented by 18%. As stated by Ikasu (2014), their small experience in EFD use suggested that they encountered minimum challenges in business relating to EFD use; this may include the impact of whistle-blowers. This may be the reason their confidence was higher than those with experience of between 1 year and 4 years, who reported that they were less vulnerable by 8.3%, which was the lowest of all. This group is in transition to EFD use maturity, and their recent experience on the impact of whistle-blowers may have increased their fear. Together with these observations, it is important to highlight that in all cases, there were more people who felt vulnerable than those who did not. Since it is difficult to use this descriptive information to draw a clear position of the study on the significance of the relationship between EFD use experience and the perceived level of vulnerability, the study extended the analysis to include the One Way ANOVA model, and the results are shown in Table 4-18.

*Table 4-18: EFD experience and perceived vulnerability to whistle-blowing – ANOVA*

	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	.802	2	.401	.377	.686
Within Groups	293.198	276	1.062		
Total	294.000	278			

Source: (Author's Design, 2020)

Results presented in Table 4-18 provide the required explanation of results presented in Table 4-17. The results suggest that the p-value is greater than 0.05, which is the threshold. The observed p-value is 0.686. The observed p-value confirms the unsteady relationship observed through the cross tabulation (Table 4-17). In this regard, the user's experience with EFD use cannot be used to understand the perception of taxpayers on the perceived vulnerability to whistle-blowing (Chatama, 2013).

#### 4.3.2 EFD uses in business

The use of Electronic Fiscal Devices (EFDs) was introduced by the Tanzanian Revenue Authority for overcoming the challenge of non-disclosure of sales information by taxpayers. In fact, the EFDs' major role is to keep sales records, which the tax authority uses as the base for tax computation (Eilu, 2018). The introduction of EFDs does not eliminate other ways of keeping sales records; rather it justifies their genuineness. Since EFDs contain inbuilt fiscal memory, which cannot be easily manipulated, reports generated by them can be trusted (Hastuti, 2014; Mandari, Koloseni, & Nguridada, 2017). The current section of the study focuses on uses of EFDs among small business owners. Apart from providing descriptive information on uses of EFDs (Table 4-19), it provides explanations on how their use relates to other variables.

Table 4-19: The rate of using EFDs

<b>Scale</b>	<b>Frequency</b>	<b>Percent</b>
Above 80% of use	56	20.1
Between 60% and 80% of use	71	25.4
Between 40% and 60% of use	63	22.6
Between 20% and 40% of use	75	26.9
Below 20% of use	14	5.0

Total	279	100.0
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Source: (Author's Design, 2020)

In the current study, the analysis considers the use rate above 60% as a good sign for the adoption of EFDs among taxpayers. According to results presented in Table 4-19, a total of 45% of all respondents use EFDs in their business transaction, for at least 60% of their daily activities. Since the study targeted taxpayers with EFDs, this rate of use is not satisfactory. In section 4.2, the study determined the categorical relationship between the rate of EFD use and demographic variables; the following variables yielded a significant relationship: age group and the level of education. In addition, the study tested the categorical relationship between three other variables with the rate of EFD uses. Those variables are the EFD maintenance ability, competency with EFD uses, and the perceived benefits of EFDs. This analysis was followed by the testing of the casual impact of these variables on the rate of EFD use.

#### **4.3.2.1 EFD maintenance ability**

Electronic Fiscal Devices (EFDs) are items of technological equipment, therefore, they may break down or misbehave (Tehulu & Dinberu, 2014). Technically, there are two methods for recovering this equipment. First, the user may conduct self-troubleshooting (Venkatesh & Bala, 2008). Equipment which is easy to fix is assumed to be easy to adopt as well (Chen, Harold, Little, Mark, & Zhao, 2012; Khalifa, 2016). The second option arises where the user fails to fix the malfunctioning equipment; in this case, they are obliged to hire the services of a competent technician or vendor of the equipment. In most cases, it is a recommendation for the business to offer after sales service to clients through attending to queries from its clients. In the case of the revenue authority of Tanzania, the third-party attends to clients; this relationship raises the question of whether the appointed third-party attends diligently to clients on behalf of the revenue authority. It is unarguable that poor services by the third-party affect the maintainability of the equipment (Khalifa, 2016). Table 4-20 presents results of the perceived maintainability of EFDs.

Table 4-20: EFD maintainability

<b>Variable</b>	<b>Frequency</b>	<b>Percent (%)</b>
Very high	23	8.2

High	27	9.7
Moderate	126	45.2
Low	99	35.5
Very low	4	1.4
Total	279	100.0

Source: (Author's Design, 2020)

Results presented in Table 4-20 show the perceived maintainability of EFDs to be 17.9%. Overall, the demonstrated percentage is low. During interview, the study observed few reasons for the cause of this situation: the low knowledge of users on self-service, the use of third-parties in getting services, and the process of requesting the permission from the revenue authority to get such services from the third-party. These observations are supported by Lubua (2014), Casey and Castro (2015), and Mativo, Muturi and Nyang'au (2015). An additional analysis was conducted to determine the categorical relationship between the two variables, and results of the One Way ANOVA are presented in Table 4-21.

Table 4-21: EFD maintainability and the rate of use

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	29.794	4	7.449	5.468	.000
Within Groups	373.267	274	1.362		
Total	403.061	278			

Source: (Author's Design, 2020)

According to results presented in Table 4-21, there is a significant categorical relationship between the EFD maintainability and the rate of use. The observed p-value is 0.000, which is less than the threshold ( $p < 0.05$ ). On the other hand, the test is acceptable because the homogeneity value is above 0.05 (Kiri, 2016). Accordingly, the study used the descriptive information to understand the nature of categorical relationships expressed in Table 4-21. In this case, the study adopted the cross-tabulation as a tool for analysis, where an extract of the results is presented in Table 4-22.

Table 4-22: Rate of use – maintenance ability cross-tabulation extracts

Rate of Use	Maintenance ability (percent within a group)			
	Very high	High	Moderate	Low
Rate of use above 60%	83%	59%	43%	36%

Source: (Author’s Design, 2020)

Based on the results of the cross-tabulation presented in Table 4-22, it is evident that the percentage of those who profess to rate EFD use above 60% are the highest (that is 83%) in the category of respondents who perceive their ability to maintain EFDs as very high. This percentage decreased across the Likert scale, where the lowest value is reported when the maintenance ability is low (that is 36%). In this case, the respondents whose maintenance ability is reported as very low were ignored because the frequency was too low for analysis.

Furthermore, the study conducted the regression analysis, using the ordinal regression model. The intention of the ordinal regression was to determine the causal relationship between the maintenance ability and the rate of EFD use. Does the ability of the respondent to technically maintain (troubleshoot) the EFD determine the rate of use? The basic information of this analysis suggests that *the model fitting information* presents the p-value as 0.000, which is less than the threshold ( $p < 0.05$ ). Therefore, the Ordinal Regression model is suitable for available data. Further to this, the study adopted the *Nagelkerke Model*, in obtaining the equivalent value for *r-square*, which is known as the *pseudo r-square*. The results of the analysis observed the pseudo r-square value to be 0.087. Arguably, the pseudo r-square value is low, but the level of significance is confirmed through parameter estimates; none of the values within the maintenance ability expressed a significant impact to the rate of EFD uses. All the p-values were greater than 0.05, which is the threshold. Therefore, the study confirms the lack of causal impact between the ability to conduct simple maintenance and the rate of EFD use. Table 4-23 provides additional information.

Table 4-23: Maintenance ability – EFD use rate ordinal regression extracts

<b>Model fitting information (p-value)</b>	<b>Nagelkerke Model (pseudo r-square)</b>	<b>Parameter estimates (p-value)</b>
0.000	0.087	p-value (s)>0.05

*Source: (Author's Design, 2020)*

#### ***4.3.2.2 Competency with EFD use***

The competency of users of the technology is one of the key variables discussed extensively in the adoption of technologies in human activities. For example, studies by Lubua and Pretorius (2018), and Venkatesh and Bala (2008), all emphasise the competency of individuals who need to adopt the new technology. In the study by Venkatesh and Bala (2008) this competency is indicatively identified as self-efficacy. With this knowledge, the current study acknowledged the value that comes with self-efficacy. However, the information as to whether the same relates to the rate of EFD use is not available. Further to this the study determined the categorical relationship between the competency of respondents and the rate of EFD use.

Based on descriptive information provided by this study, 28% of respondents are comfortable with their technical efficacy. This percentage (Figure 4-7 ) is low, given that it is extracted from respondents who are currently using EFDs.

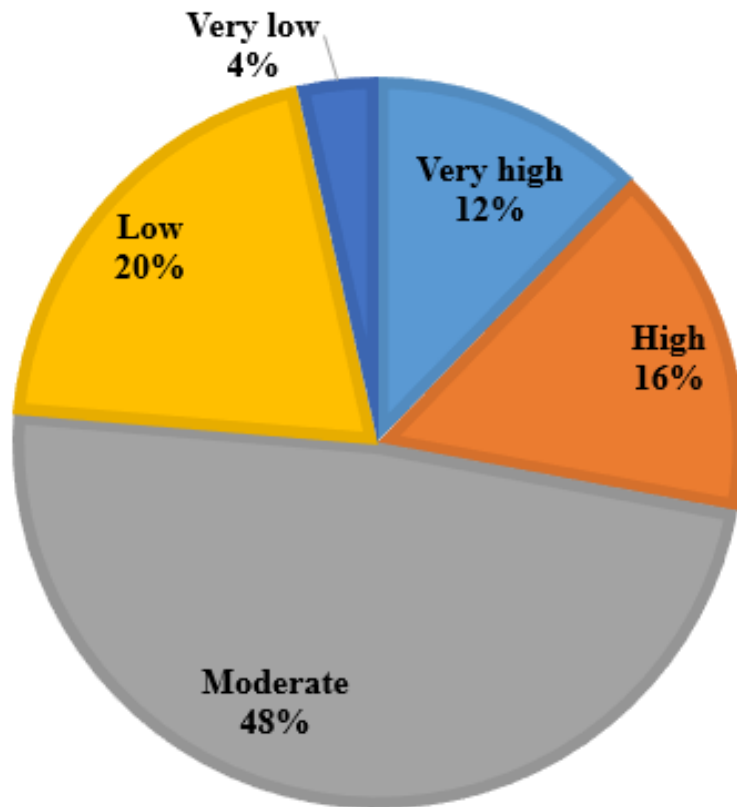


Figure 4-7: Competence with EFD use

Source: (Author's Design, 2020)

In addition, the study conducted an analysis to determine the significance of the categorical relationship between the competence of users of EFDs and their rate of use. Based on the results of the One Way ANOVA presented in Table 4-24, there is a significant categorical relationship between the two variables. The observed p-value is 0.019, which is less than the threshold.

Table 4-24: Competency with EFD use and the perceived rate of EFD use – ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	16.988	4	4.247	3.014	.019
Within Groups	386.073	274	1.409		
Total	403.061	278			

extr  
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Source: (Author's Design, 2020)

A closer analysis of this observation shows that among those who profess to use EFDs in above 60% of their activities, 59% of them are competent with their use. On the other hand, the category of those who are less competent reports 48% (refer Table 4-25). Based on this information, those who are competent are more associated with a high rate of use. These observations are equally supported by studies of Bucciarelli, Odoardi, & Muratore, (2010) and Lubua & Semlambo, (2017), who shared similar results, but from a different type of technology.

*Table 4-25: Competency with the Use\*Rate of EFD uses cross-tabulation extracts*

	<b>Competent</b>	<b>Moderate</b>	<b>Less competent</b>
Rate of Use above 60%	59%	38%	48%

*Source: (Author's Design, 2020)*

Apart from the results presented above, it was the intention of this study to determine the impact of individual competency on the rate of EFD use. According to results presented in Table 4-26, the *model fitting information* is reported as 0.019; hence the model is suitable for provided data. On the other hand, the Nagelkerke pseudo r-square is reported as 0.044, this value is low. Based on the values of parameter estimates provided, only respondents with high competency offer a significant difference when compared with the reference value. The observed p-value is 0.042. In this case, the reference value was the category of those who perceive a very low competency. Based on the information provided in Table 4-26, the category with a significant impact showed an increase in the rate of EFD use.

*Table 4-26: User competency\*rate of use ordinal regression extracts*

	<b>Model fitting information</b>	<b>Nagelkerke Pseudo r-square</b>	<b>Parameter estimate for competency with the use</b>
Rate of EFD use above 60%	P=0.019	0.044	Only those with high competency had a p-value less than the threshold (p=0.042)

*Source: (Author's Design, 2020)*

#### 4.3.2.3 Perceived benefits of EFDs

This subsection deals with the perception of respondents on benefits associated with the use of EFDs. The revenue authority advocates that the use of EFDs is of benefit to both the business and the authority. While this is the position of the revenue authority, it is not clear whether the same sentiment is shared by taxpayers. Studies by Lubua & Semlambo (2017) and Taherdoost (2018) identify factors influencing the perceived benefits of the new technology; these include the ease of use of the technology, and the presence of tangible benefits. Further, studies by Godoe and Johansen (2012) and Wang, Zhang, Su and Deng (2019) suggested the following factors to be influenced by the perception of users on the benefits of the new technology: First, it influences the intention to use the new technology. In addition, perceived benefits have the general impact on the rate of technology adoption. Knowing the role of perceived benefits of the technology, the study determined the extent, which respondents perceive that they are benefiting from the use of EFDs. Table 4-27 reveals the results.

Table 4-27: The perceived level of EFD benefits

	Frequency	Percent
Very high	39	14.0
High	69	24.7
Moderate	122	43.7
Low	32	11.5
Very low	17	6.1
Total	279	100.0

Source: (Author's Design, 2020)

According to results presented in Table 4-27, a total of 38.7% of respondents perceive benefits from using EFDs in their business. Understandably, this is a low percentage of EFD users; however, it is encouraging to learn that there are people who perceive benefits from using EFDs. The revenue authority can capitalise on areas perceived to yield benefits to business owners, in advocating for the adoption. Accordingly, the study determined whether a categorical relationship between the perceived level of benefits and the rate of EFD use existed. In this case, the study engaged the One Way ANOVA model, and results

are presented in Table 4-28. Results in Table 4-28 suggest a significant categorical relationship between the perceived level of benefits and the rate of EFD use. The observed p-value is 0.015, which is less than the threshold, which is 0.05.

	<b>Sum of Squares</b>	<b>Df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	17.715	4	4.429	3.149	.015
Within Groups	385.346	274	1.406		
Total	403.061	278			

*Table 4-28: Perceived benefits of EFD\*Rate of use – ANOVA*

*Source: (Author’s Design, 2020)*

Although results in Table 4-28 reveal a significant categorical relationship between the perceived benefits of EFD and the rate of use, the results of the analysis do not adequately explain the nature of this relationship. Therefore, the study used descriptive information presented in Table 4-29, to provide descriptions of the relationship between benefits of EFDs and the rate of using EFDs. The “Mean” information in Table 4-29 was captured from a Likert scale of between 1 and 5, where 1 represented a very high rate of using EFDs (that is above 80%) and 5 a very low rate (that is below 20%). According to the results in Table 4-29, the rate of using EFDs categorically increases as users perceive more benefits of using the device. With this information, it is evident that the perception of individuals of benefits attached to EFDs relates to the rate of use. Arguably, these results could be used in understanding different categories of users within the revenue authority and their association to the rate of use; however, the model used is not conclusive in understanding the predictive power of perceived benefits toward the rate of EFD use.

*Table 4-29: Benefits of EFDs and Rate of EFD use Mean Table*

	<b>Frequency</b>	<b>Mean</b>
Very high	39	2.46
High	69	2.55
Moderate	122	2.70
Low	32	2.97

Very low	17	3.53
Total	279	2.71

Source: (Author's Design, 2020)

In order to understand the impact of the perceived benefits of EFDs on the rate of use, the study used the ordinal regression model, and results are presented in Table 4-30. According to results in Table 4-30, the p-value for the *model fitting information* is 0.008. The observed p-value is less than the threshold; therefore, the model is suitable for presented data. On the other hand, the study reported the *Nagelkerke Pseudo R-Square* value as 0.051. While this value is low, the nature of parameter estimates should determine whether it carries relevance. In a scale of respondents' perception of benefits of EFD (very high to very low), only those with a low perception showed an insignificant difference, with the "very low" perception. The rest of the parameters differed significantly. This observation obeys the natural arrangement of these parameters because those who perceive low benefits and those who perceive very low benefits, are simply suggesting no benefits. Therefore, they naturally differ from the rest of the categories. Because of this observation, the current study takes this relationship seriously.

Table 4-30: Perceived benefits\*EFD use rate – Ordinal extracts

Model fitting	Pseudo R <sup>2</sup>	Parameter estimates (perceived benefits)				
		Very high	High	moderate	low	Very low
0.008	0.051	0.001	0.001	0.004	0.066	Ref. value

\*Ref. means reference

Source: (Author's Design, 2020)

Based on the results presented in Table 4-30, it is evident that the current study supports findings from other studies in the area of technology adoption. For example, the study by Lubua and Kyobe (2019), though conducted in an agricultural setting of Tanzania, confirmed that users are motivated to use new ICT tools in agriculture whenever they perceive the benefits. Moreover, the study by Surendran (2012) shared the same observation. Apparently, the current observation is of great importance to the revenue authority, because an increase in EFD adoption by 5.1%, will have great significance to the

national economy. Users' knowledge of associated benefits of EFDs may be enhanced through enhanced awareness building programmes (Geetha & Sekar, 2012). The revenue authority has the responsibility for raising the awareness of its clients through different programmes.

### 4.3.3 The Impact of Whistle-blowing on the rate of EFD Use

Sections 4.3.1 and 4.3.2 provide detailed information on the perceived possibility of whistle-blowing and the rate of using Electronic Fiscal Devices (EFDs), respectively. Moreover, variables hypothesised to moderate the position of the two variables are equally discussed. Nonetheless, the primary objective of section 4.3 was to determine the causal impact between whistle-blowing and the rate of EFD use. The pending question is whether the whistle-blowing (or vulnerability of being reported by others due to non-compliance) determines the rate of EFD use among taxpayers. In practise, whistle-blowing is useful in uncovering illicit operations, therefore, the same could be useful in taxation (Mannion, Blenkinsopp, & Powell, 2018).

Since basic descriptive information for the two variables has already been discussed in earlier sections (refer sections 4.3.1 and 4.3.2), so the current analysis begins with determining the significance of categorical relationships between the two variables. This analysis provides explanations of any relational attribute for the two variables, and the same can be used in future decision-making by the revenue authority or academic studies. According to Table 4-31, there is a significant categorical relationship between whistle-blowing and the rate of EFD use. The suggested p-value is 0.025, which is less than 0.05 (the threshold).

*Table 4-31: Whistle-blowing and the rate of EFD use One Way ANOVA*

	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	16.006	4	4.001	2.833	.025
Within Groups	387.055	274	1.413		
Total	403.061	278			

*Source: (Author's Design, 2020)*

To expound results presented in Table 4-31, the study extended an analysis to know the details of the observed relationship. In this case, the cross-tabulation was engaged. Considering results presented in Table 4-32, the percent of those who use EFD in more than 60% of their activities, is the highest (54%) among those who fear the impact of whistle-blowing. Further to this, the percentage use is the least among those who least consider whistle-blowing as a threat; that is 37% of users. Since the fear of whistle-blowers is associated with high rate of use, it is suggested that educating citizens about their responsibility to uncover evaders would equally sensitise citizens for compliance. One method to encourage whistle-blowing is to provide incentives for whistle-blowers (Ayagre & Aidoo-Buameh, 2014) Other tax schemes provide a percentage of the recovered tax to the whistle-blower as an incentive (Ayagre & Aidoo-Buameh, 2014). Citizens should be aware that whistle-blowing is a patriotic act, rather than traitorous (Mannion, Blenkinsopp, & Powell, 2018).

*Table 4-32: Cross tabulation – whistle-blowing and the rate of EFD use*

	<b>Use below 60%</b>	<b>Use above 60%</b>
Vulnerable	46%	54%
Moderate	59%	41%
Not vulnerable	62%	37%

*Source: (Author’s Design, 2020)*

Apart from the preceding analysis, the core part of section 4.3 is to address the hypothesis suggesting that the probability of being reported by others (or whistle-blowing) for non-compliance does not determine the rate of EFD use. In addressing this aspect, the study used the ordinal regression model for analysis. Based on the results of analysis, the current model fits the analysis of the data. The *model fitting* p-value is 0.017. On the other hand, the study observed the Nagelkerke pseudo r-square value as 0.044. Apparently, this value is low, however, it cannot be ignored because the study is within social science parameters. An impact of 4.4% to taxpayers, carries significance. In confirming the relevance of the observed causal relationship, the study used parameter estimates provided by the analysis. Taken as a whole, all parameters of the perceived whistle-blowing presented a significant difference when the lowest perceived probability is set as a reference value. In this regard,

different parameters of the perceived probability of whistle-blowing defined the rate of EFD use by taxpayers. Table 4-33 provided more details.

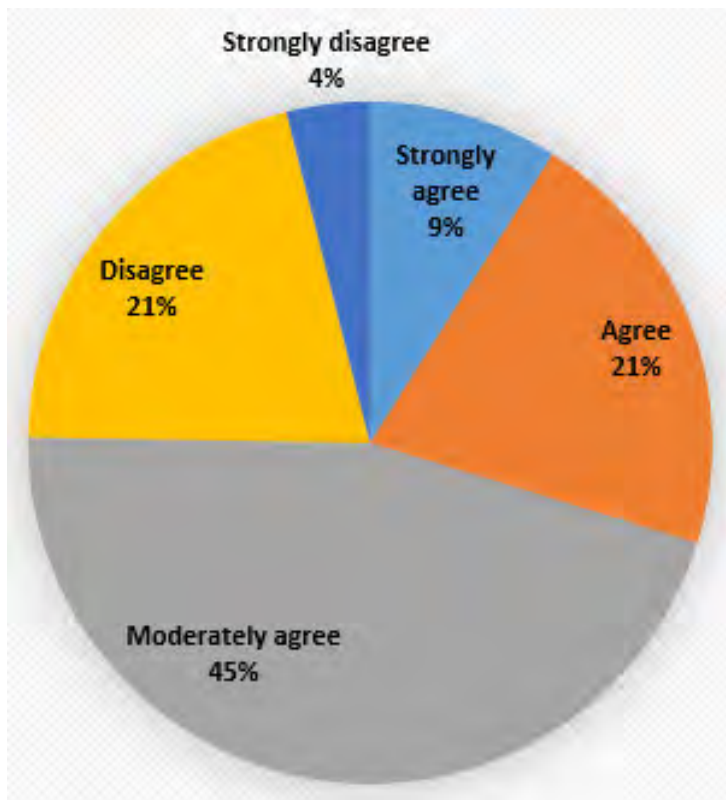
*Table 4-33: Perceived whistleblowing\*Rate of EFD uses – ordinal regression extracts*

Model fitting	Pseudo R <sup>2</sup>	Parameter estimates (perceived probability of whistle-blowing)				
		Very high	High	Moderate	Low	Very low
0.017	0.044	0.021	0.001	0.007	0.017	Ref. Value

\*Ref. means Reference

*Source: (Author's Design, 2020)*

While results in Table 4-33 suggest a significant impact of the perceived probability of whistle-blowing to the rate of EFD uses, it is surprising to learn that most respondents admit that citizens are not adequately taking on the whistle-blowing role (Figure 4-8). Only, 29.7% of all consider that citizens are actively taking on the whistle-blowing role. This is possibly because of the low awareness of the social impact of revenue collection to all citizens (Bruce-Twum, 2014).



*Figure 4-8: The contribution of citizens to whistle-blowing*

*Source: (Author's Design, 2020)*

#### **4.4 The Discussion of Key Results**

This section discusses the position of the main results of the current chapter. This chapter was guided by the null hypothesis suggesting that the fear of whistle-blowers does not impact the rate of using EFDs among small business owners. Whistle-blowers became part of the current study because of the assumption that they would scare taxpayers who avoid using EFDs, and thus raise the rate of usage. This position is supported by the Tanzania Revenue Authority, where whistle-blowers are encouraged and rewarded for providing the information on potential evaders (Tanzania Revenue Authority, 2018a). According to results presented in section 4.4.3, the fear of whistle-blowers determined the rate of EFD use. According to the study by Obafemi (2014) and Innocenti and Rablen (2017), the taxpayer is not likely to avoid their tax obligations, if they know that there is a high chance of being reported to the responsible government authority. This fear of the unknown is what increases compliance (Kappes, Greve, & Hellmers, 2013).

The current position of the study is supported by the practice in the German government where the government authority responsible with revenue collection purchases financial information that would lead to uncovering tax evasion (Breuer, 2012). Further to this, the study by Ayagre and Aidoo-Buameh (2014) presents evidence that people are likely to break their loyalty and report unethical issues if the reward is sufficiently high. The possibility that people close to the business owner will report tax avoidance, compels the taxpayer to comply (Davis , 2012; Breuer, 2012).

Further evidence on the impact of whistle-blowers is reported in a study conducted in France, where the opportunity to report tax evaders is confirmed to have a significant impact on the income reported by taxpayers (Masclet, Montmarquette, & Viennot-Briot, 2018). The income reported will not be high if the taxpayer avoids using the EFD machine (Eilu, 2018). With regard to the current discussion, it is evident that whistle-blowers impact compliance; however, the challenge is that the information they provide may not be correct or even relevant (Amir, Lazar, & Levi, 2018). The study by Olowookere and Fasina (2013) encourages the provision of education to taxpayers to ensure that whistle-blowers are motivated to provide the information with proper evidence so the information becomes useful in enforcing compliance.

#### **4.5 Chapter Summary**

This chapter was designed with two intentions. First, the chapter presented demographic variables, and how they relate to the rate of using EFDs. The rate of EFD use was chosen because it is the main output variable. In addressing this aspect of the study, the following were observed: First, the gender group, years of business experience, and the user experience with EFDs do not offer a significant categorical relationship with the rate of use. On the other hand, the age group and level of education were observed to offer a significant categorical relationship with the rate of EFD use. Since whistle-blowing was another key variable of this chapter, its categorical relationships against different gender groups were equally tested. The general observation was that the age group and level of education are the only categorical variables which revealed a significant categorical relationship. Other demographic variables failed the test.

The second aspect included a test between the maintenance ability, competency with EFD uses, the perceived benefits of EFDs and whistle-blowing, all against the rate of EFD use.

In the analysis a categorical relationship was confirmed between the following variables and the rate of EFD use: EFDs' maintenance ability, competency with EFD use, the perceived benefits of EFDs, and whistle-blowing. On the other hand, a significant predictive ability was detected between the following variables and EFD use: Competence with EFD use, the perceived benefits, and whistle-blowing. Recalling from the hypothesis of this study, it is confirmed that the perceived vulnerability from being reported by others (whistle-blowing) determines the rate of EFD use.

## **CHAPTER 5 : THE IMPACT OF PUNISHMENT ON THE RATE OF EFD USE**

### **5.1 Introduction**

This chapter addresses the analysis of the second objective of this study. The purpose was to determine whether taxpayers' perceptions of the punishment arising from non-compliance affect their rate of using Electronic Fiscal Devices (EFDs). The analysis, interpretation and discussion of the findings are all presented in this chapter. The chapter begins by providing the general idea of punishment and its application in taxation (section 5.2). In subsection 5.2.1, the study discusses the relationship between demographic variables and punishment. Section 5.3 presents the information on the perceived fear of punishment and the rate of using EFDs among small business owners. The subsections included are the awareness of small business owners on non-compliance punishment (5.3.1), the perceived level of punishment (5.3.2) and the impact of the fear of punishment on the rate of EFD use (5.3.3). The last part of this chapter presents the summary of the chapter.

### **5.2 Punishment in Taxation**

Generally, punishment is among the tools used by tax administrators in moulding the compliance behaviour of taxpayers (Raskolnikov, 2006). There has been a long debate on how punishment can be carried out in order to bring about the desired results. Some tax administrators have perceived harsh fines and penalties to be the preferable strategy for enforcing taxpayers to comply (Mohdali, Isa, & Yusoff, 2014). Other studies have argued that voluntary compliance is more valuable than the use of punishment, as the latter increases resentment against the government and its taxation authority (Mohdali, Isa, & Yusoff, 2014; Ng'eni, 2016). To find a neutral ground, the enforcement strategy, which brings long-term voluntary compliance results, is more preferred. This is partly the reason for testing the impact of punishment on the rate of EFD use.

The general practice of the Tanzanian tax administration applies both fines and penalties as methods of enforcement (Tanzania Revenue Authority, 2018a). The types of enforcement are defined in the tax laws. Moreover, the monetary formulas (calculations) of punishments are differentiated depending on the type of tax defaulted. Arguably, electronic systems

provide the justification for the punishment (fines and penalties) especially those requiring complex calculations (e.g. income tax) (Oyen & Gedi, 2012). Others penalties are fixed and can therefore can easily be calculated manually, for instance a fine for misuse of EFDs is TZS 4,500,000 (Tanzania Revenue Authority, 2019). In other cases, the extent of fines and penalties increases depending on the magnitude of tax evaded, for instance, in a defaulted VAT, the amount of interest charged is compounded monthly. Therefore, the interest increases as the number of defaulted months increases (Tanzania Revenue Authority, 2017).

Parallel with penalties and fines, the tax administration has been offering tax education to its clients as part of the long-term strategy of deterring the evasion behaviour (Tanzania Revenue Authority, 2019b). The aim of tax education is to increase awareness of tax issues to the taxpayer and induce the compliance behaviour (Lubua, 2014). Moreover, it gives the clients awareness of the consequences of evading tax.

In the context of this study, the fear of punishment is a state where the taxpayer is obliged to comply with tax requirements to avoid punishment (Murphy, 2008). The Tanzanian law introduces different types of measures to be taken by the government where the taxpayer is proven to have defaulted. The first type is the addition of interest to the primary amount payable. Currently, the interest rate of any delayed (or understated) amount is 16%, and the estimation of the tax is based on the formula provided through equation 1 (Tanzania Revenue Authority, 2018a). In this case, the revenue authority applies principles for compounded interest, which comes with added impact on the defaulter (Raskolnikov, 2006).

*Equation 5-1: Interest rate formula*

$$\text{Compounded interest} = P * \left( \left( 1 + \frac{r}{n} \right)^{nt} \right) - P$$

Where; P= Principal Amount

r = Annual interest rate

n = number of months in a year

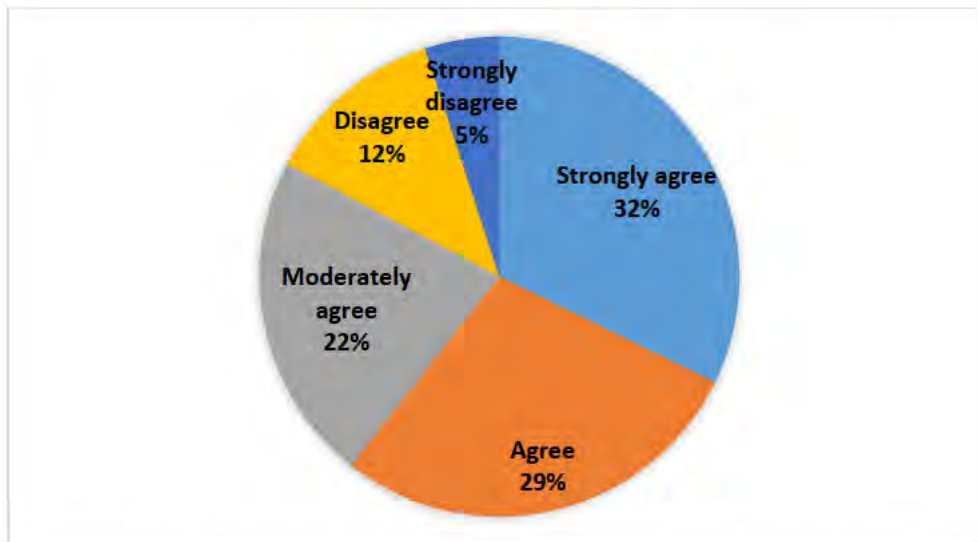
t = number of years delayed

Furthermore, the revenue authority applies penalties to two categories of non-compliance. The first occurs when the taxpayer fails to maintain required documentation for the taxable period. The interest is payable for each month (part of the month) of documentation failure. In this case, the penalty is one (1) currency point for individuals and ten (10) currency points for companies, and one currency point is equivalent to TZS 15,000 (Tanzania Revenue Authority, 2018a). Other penalties are associated with failure to file tax return(s) on due date. The penalty for this contravention is either 2.5% of the amount of tax assessed but not returned, or 5 currency points for individuals, and 15 currency points for corporations (Tanzania Revenue Authority, 2019b). In addition to this, contravening tax laws may result in offences. An offence is proved through a conviction arrived at following court proceedings; this is the most intimidating procedure for most taxpayers. This is because it takes up their time, money, and/or at times, the procedure may result in them ending up behind bars.

It is unarguable that the punishment, in the form of interest, penalties, and offences, creates an uncomfortable environment for taxpayers. Therefore, many will try to avoid them as much as possible (Nkwe, 2013). It was the interest of the current study to know whether the fear of all forms of punishment determines the compliance.

### **5.2.1 Demographic variables and fear of punishment**

This subsection provides information on how demographic variables relate to the perceived fear of punishment. This understanding will assist the revenue authority in determining approaches for dealing with the fear of punishment based on the demography of respondents. The results of this descriptive analysis are provided in Figure 5-1.



*Figure 5-1: The perceived fear of punishment due to non-compliance*

*Source: (Author's Design, 2020)*

According to results presented in Figure 5-1, a total of 61% of all respondents, are at least at some level of agreement to being afraid of punishment due to non-compliance. This percentage represents a large part of taxpayers among small businesses. The percentage of those who are not worried about punishment due to non-compliance is 17%. While this represents a lower amount, a closer study is needed to know why they would not be fearful of these punishments. The study by Ajaz and Ahmad (2010) identifies some of the factors, including the room for corruption, lack of seriousness by the revenue authority in implementing these laws, and the chance of being detected being very low.

On the other hand, the current study determined the relationship between the following demographic variables with the perceived fear of punishment: gender, age, level of education, years of business experience and the users' experience of EFD use. Since basic descriptive information about these variables was provided in Chapter 4, this section concentrates on the significance of existing relationships.

#### ***5.2.1.1 Gender and the perceived fear of punishment***

This section determines whether the gender of respondents relates to their fear of punishment due to non-compliance. In Table 5-1, male respondents' fear of penalties due to non-compliance are compared to those of female respondents. In an interview, the study learnt that male respondents have a better understanding of ensuing punishments compared to women, so it is possible that the lower level of knowledge of the consequences of non-

compliance resulted in women’s fearless behaviour. In this view, other factors apart from the physical phenomenon of gender can influence the fear of punishment due to non-compliance (Armborst, 2017). The current findings differ from other studies where male respondents are less fearful when subjected to punishment compared to female (Lane, 2012; Curiel & Bishop, 2018). These researchers suggested the natural aggressiveness and physical stability of most men among the factors that influence their fearlessness (Lane, 2012).

*Table 5-1: Gender and perceived fear of punishment*

		Fear of punishment	
		Strongly agree	Agree
Gender	Female	22%	31%
	Male	25%	37%
	Average	23%	33%

*Source: (Author’s Design, 2020)*

Further to this, a chi-square test was applied to ascertain whether there is a significant categorical relationship between gender and the fear of punishment. Based on the results presented in Table 5-2, the analysis suggested that the p-value is greater than the threshold, which is 0.05. The observed p-value is 0.462. With this p-value, it is clear that the gender of the business owner cannot be used to determine the level of fear of punishment. The difference observed in Table 5-1 is proven to be insignificant. The current position of the study is similar to that of Marino and Zizza (2012), who found no difference between genders in the perception toward the fear of punishment. On the other hand, the observed research position is against a common opinion in the African setting where women are more inclined to be fearful of punishment compared to men (Lane, 2012; Armborst, 2017). The perception that women are more fearful than men is linked to history, where men were more favoured by the culture than women; there were times where obedience by women was due to fear (Hofmann, Voracek, Bock, & Kirchler, 2017).

*Table 5-2: Gender and the perceived fear of punishment Chi-square test*

	Value	df	Asymp. Sig. (2-sided)

Pearson Chi-Square	3.609 <sup>a</sup>	4	.462
Likelihood Ratio	3.704	4	.448
Linear-by-Linear Association	1.537	1	.215
N of Valid Cases	279		

Source: (Author's Design, 2020)

### 5.2.1.2 Age and the perceived fear of punishment

This part of the study analysed the relationship between the age of respondents and the perceived level of punishment. The aim was to understand whether age parameters are related with a given level of fear toward punishment. To determine the position of this study the One Way ANOVA was used to test the relationship, and results were presented in Table 5-3.

Table 5-3: ANOVA results on age category and the fear of punishment

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.954	3	.985	1.064	.365
Within Groups	254.537	275	.926		
Total	257.491	278			

Source: (Author's Design, 2020)

Based on the results presented in Table 5-3, the observed p-value was 0.365, which is greater than the threshold. In this regard, the observed categorical relationship is not significant; therefore, the age of taxpayers cannot be used to determine the level of fear toward punishment due to avoidance. This observation is against general observations by studies by Hofmann, Voracek, Bock, and Kirchler (2017) and Deyganto (2018), who found senior people to be more concerned with the violation of tax laws. In addition, Studies by Wood (2004), and Kappes, Greve and Hellmers (2013) suggested that older people are more inclined to fear than the younger generation; this position is possibly due to exposure to past experience. Moreover, older people tend to be concerned about the impact of the punishment on their reputation, and how this can impact their relationship with customers compared to young citizens.

Furthermore, the study determined whether the level of awareness of tax issues across age groups affected their fear of punishment. The results in Table 5-4 showed an insignificant relationship between the age of respondents and their awareness on EFD punishments. The observed p-value was 0.079. Therefore, the level of awareness on EFD issues and consequences of non-use is the same across all age groups. This similarity in the level of awareness across age groups is a primary reason for the difference between this study and others, such as Kappes, Greve and Hellmers (2013), Hofmann, Voracek, Bock, Kirchler (2017) and Deyganto (2018), where age showed a significant difference to the perceived fear of punishment.

*Table 5-4: Age of respondents and the EFD awareness ANOVA test*

	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	8.577	3	2.859	2.283	.079
Within Groups	344.333	275	1.252		
Total	352.910	278			

*Source: (Author's Design, 2020)*

It is important to highlight that although the relationship between the age of respondents and fear of punishment is observed to be insignificant, there is a slight difference in the level of fear between elderly people and the young generation. According to results in Table 5-5, the percentage of respondents who agree to some extent that they fear punishment increases slightly as age increases. This conforms to the observations of Wood (2004), and Kappes, Greve and Hellmers (2013).

*Table 5-5: Age and fear of punishment*

		<b>Fear punishment</b>		
		<b>Strongly agree</b>	<b>Agree</b>	<b>Total</b>
Age	18-30	23%	31%	54%
	31-40	19%	33%	52%
	41-50	29%	34%	63%
	51 and above	24%	41%	65%

*Source: (Author's Design, 2020)*

**5.2.1.3 Level of education and the perceived fear of punishment**

In this section, the study determined whether the level of education influenced the perception of respondents of the fear of punishment due to non-compliance. The analysis on the position of the current study on this aspect is indicated in Table 5-6.

*Table 5-6: Level of education and fear of punishment*

		Fear punishment		
		Strongly agree	Agree	Total
Level of Education	Primary Education	7%	9%	16%
	Secondary Education	6%	13%	19%
	Certificate or Diploma	8%	8%	16%
	Degree and above	2%	4%	6%

*Source: (Author’s Design, 2020)*

According to results presented in Table 5-6, taxpayers with secondary education are more fearful of punishment than the rest of the categories. This position is followed by other levels such as the primary education, certificate or diploma. Generally, the trend of these results across the levels of education is not clear. The inconsistent relationship was equally observed by the study by Chan (2012) and Schuetze (2012). Regardless of the observed result, the study used the One Way ANOVA to determine whether a significant categorical relationship between the level of education and the perceived fear of punishment existed. The results of the analysis are summarised in Table 5-7.

*Table 5-7: Education level of respondents and the fear of punishment ANOVA test*

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.781	3	.260	.279	.841
Within Groups	256.710	275	.933		
Total	257.491	278			

*Source: (Author’s Design, 2020)*

According to results in Table 5-7, the observed p-value is 0.841; this p-value indicates an insignificant relationship between the level of education and fear of punishment. In this regard, the level of education does not relate to the fear of punishment. This analysis was based on some of the empirical studies which show that educated personnel are more knowledgeable of tax laws and the consequences of defaulting (Chan, 2012; Cuccia, 2013; Deyganto, 2018). Based on this position indicated by the literature, it was assumed that educated people are more likely to fear the consequences of non-compliance. Given the lack of difference found in the current study on the categorical relationship between the level of education and the fear of punishment, agrees with Nyamwananza (2014) and Hofmann, Voracek, Bock, and Kirchler (2017), who suggested that a common knowledge of individuals on a given subject affects the differences brought about by their level of education. The common knowledge may be acquired due to training programmes issued by the revenue authority to all taxpayers on the consequences of tax evasion and punishment (Tanzania Revenue Authority, 2018a).

#### **5.2.1.4 Years of business experience and the perceived fear of punishment**

Section 4.2.4 presented preliminary information on the experience of respondents in business. Given the information, it is apparent that most respondents (53%) have been engaged in business for less than two years. Other categories of experience include 3 to 5 years, and at least 6 years. Given this composition, this study determines whether the users' experience relates to their fear of punishment due to tax evasion. This element is important because it appeared that having experience in business would be a tool for determining the fear of punishment due to evasion. The knowledge could be engaged in curbing tax evasion. Overall, both variables used a Likert scale; therefore, mixed methods of analysis were used. In the first step, the study used cross-tabulation to calculate the descriptive relations of the two variables as presented in Table 5-8.

*Table 5-8 : Cross-tabulation extracts on years of business experience and fear of punishment*

	<b>Fear punishment</b>				
	<b>Agree/Strongly agree</b>		<b>Disagree/strongly disagree</b>		<b>Frequency Subtotal</b>
	<b>Frequency</b>	<b>Percent</b>	<b>Frequency</b>	<b>Percent</b>	

2 years and below	76	51%	8	5%	148
3-5 years	50	64%	10	13%	78
6 and above	31	58%	6	11%	53
Subtotal	157	56%	24	9%	279

Source: (Author's Design, 2020)

In Table 5-8, the study did not include the neutral response, because they were deemed irrelevant for this kind of decision. In the analysis, the study found that respondents with between 3 and 5 years' experience are more fearful than the rest; this is by 64%. Those above 6 years of experience are the next highest category. Overall, the increase in user experience relates to a decrease in the fear of punishment. This observation may be unrealistic because very few respondents represent this aspect of the study. In order to test the significance of observed information, the study utilised the One Way ANOVA model. Table 5-9 presents the results.

Table 5-9: One Way ANOVA results on years of business experience and fear of punishment

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.011	2	.005	.006	.994
Within Groups	257.480	276	.933		
Total	257.491	278			

Source: (Author's Design, 2020)

Based on results in Table 5-9, there is an insignificant categorical relationship between years of business experience and the fear of punishment. The observed p-value is greater than the threshold. The p-value is 0.994. A detailed analysis suggests the presence of many respondents who (at least) agree that they fear punishment or penalties imposed due to non-compliance; this is the only key exception of this analysis. On average, this is 56% of the whole. On the other hand, those who disagree or highly disagree have an average of 9%. A simple explanation for this observation is that the enforcement of punishments acknowledged by the revenue legal system is likely to propel the pace of compliance by taxpayers (Tanzania Revenue Authority, 2019b). In addition, the scheme for educating all taxpayers on the consequences of tax evasion by the revenue authority, may have caused

the lack of difference in position on the fear of punishment, regardless of the number of years of experience. This assertion is supported by the study by Bucciarelli, Odoardi and Muratore (2010).

### 5.3 Fear of punishment and rate of EFD use

This section addresses the hypothesis which suggested that the fear of punishment due to non-compliance influences the rate of EFD use among taxpayers. The assumption behind this hypothesis is that the fear will be the driving force toward the adoption and actual use (Mohdali, Isa, & Yusoff, 2014). As indicated by Lubua and Semlambo (2018), the fear gives the user the advantage of avoiding punitive measures, which could have a significant impact on the business, and individual or both. In this part of the analysis, the fear of punishment was subjected to two variables: the knowledge of the punishment and the perceived level of punishment. The relationships between the two variables and the fear of punishment are discussed in next subsections; this is followed by the testing of the main hypothesis of the study.

#### 5.3.1 Awareness of non-compliance punishments

It is unarguable that the fear of punishment is subject to the knowledge of the consequences of not using Electronic Fiscal Devices (Hastuti, 2014). Knowing the importance of this knowledge, the study analysed the feedback from respondents to know their awareness of punitive measures due to non-compliance. Table 5-10 presents the results.

*Table 5-10: Awareness of punishment due to non-compliance*

	<b>Frequency</b>	<b>Percent</b>	<b>Valid Percent</b>	<b>Cumulative Percent</b>
Highly aware	43	15.4	15.4	15.4
Aware	68	24.4	24.4	39.8
Moderately Aware	102	36.6	36.6	76.3
Unware	45	16.1	16.1	92.5
Highly unaware	21	7.5	7.5	100.0
Total	279	100.0	100.0	

*Source: (Author's Design, 2020)*

Based on Table 5-10, only 39.8% of respondents are aware of the consequences of non-compliance, in terms of punishment. In this case, if the fear of punishment were to determine the level of compliance, only this percentage of respondents is likely to have a positive response to compliance. With this general information, it is apparent that more knowledge is required to raise the awareness of users on the consequence of non-compliance. Different methods may be adopted in training taxpayers; such methods include traditional trainings, use of posters, use of radio and television sessions, and the use of electronic media (Olowookere & Fasina, 2013). Further to this, the study determined whether the knowledge of the consequences relates to the fear of punishment. In the first part of relationship testing, the study adopted the One Way ANOVA model for determining the significance of the categorical relationship. Table 5-11 presents the results.

*Table 5-11: Awareness of punishment and the fear of punishment – ANOVA test*

	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	12.071	4	3.018	2.183	.071
Within Groups	377.329	273	1.382		
Total	389.399	277			

*Source: (Author's Design, 2020)*

According to Table 5-11, there is no significant categorical relationship between the level of awareness of punishments and the fear of punishment. This suggests that the fear of respondents cannot be categorised based on their awareness of punitive measures. Additionally, the study determined the impact of the awareness of punitive measures towards the level of fear generated among respondents by analysing Ordinal Regression model. The results in Table 5-12 suggest an insignificant impact of the awareness of punishment due to evasion on the fear of punishment. This relationship acknowledges 2.6% of the impact between the two variables. In addition, the lowest p-value in parameters of the independent variable (that is the awareness of punitive measures) was 0.216, which is greater than the threshold. Based on this information, the awareness of punitive measures does not significantly influence the level of fear; therefore, it cannot be used for prediction.

Studies by Ajaz and Ahmad (2010) and Chariye (2016) suggested that one reason which caused the awareness of punishment not to have a significant relationship with the fear of punishment is the room for corruption. Where loopholes for corruption are evident, taxpayers are likely not to fear the punishment because they can easily navigate through the administrative system and avoid the punishment (Ng'eni, 2016). Another reason is the lenience of the government towards the full enforcement of the law. In a society where the government does not take full responsibility for enforcing the law, the level of fear will be show no difference among all members of the society, regardless of the level of knowledge (Modugu, Eragbhe, & Izedonmi, 2012; Deyganto, 2018).

*Table 5-12: Awareness of punishment and fear of punishment – ordinal regression extracts*

<b>Model output</b>	<b>Observed value</b>
Model fitting information p-value	0.147
Nagelkerke r-square value	0.026
Parameter estimates	The lowest p-value is 0.216

*Source: (Author's Design, 2020)*

Knowing the nature of the relationship expressed in Table 5-12, the study determined whether the level of awareness of punishment could offer a better influence on the rate of EFD use. The study transformed parameters of the independent variable (that is, the awareness of punishment) to a three-level Likert scale (High, Moderate and Low). In this case, the study combined inputs which were closely related: High and very high formed a new parameter known as high, while low and very low formed a new parameter called low. Table 5-13 presents the results of the analysis upon using the ordinal regression model.

*Table 5-13: The awareness of punishment and the rate of EFD use – Ordinal regression extracts*

<b>Element of measurement</b>	<b>Value</b>	
Model fitting information	0.000	
Nagelkerke Pseudo r-square	0.080	
Parameter estimates for the input variable (awareness of punishment)	High	0.002
	Moderate	0.000

	Low	Reference value
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Source: (Author's Design, 2020)

Based on the information presented in Table 5-13, the analysis suggests a significant impact of the perceived level of awareness of punishment on the rate of EFD use. First, the relationship between the awareness of punishment due to non-compliance and the rate of EFD use fits the ordinal equation, because the model fitting p-value is 0.000. Furthermore, a significant difference is identified across parameters of the input variable, when the referenced parameter is set as "low"; all p-values are less than 0.05. In this case, the awareness of respondents on the perceived level of punishment (exercised by the revenue authority) determines the rate of using EFD. When the perception is low, the use is equally low, and vice versa. This element of findings is supported by authors such as Armbrorst (2017) and Nkwe (2013), where both suggested the size of the punishment to determine compliance with tax laws.

### 5.3.2 Perceived level of punishment

This section responds to the question whether the perceived level of punishment relates to the fear of punishment expressed toward non-compliance. The study addressed this aspect knowing that the legal taxation system of Tanzania defines different punishments and their possible magnitude. For example, the non-use of EFDs by an eligible business is subjected to the following possible punishments: imprisonment and/or paying the fine of up to TZS 4,500,000 (Tanzania Revenue Authority, 2019). Knowing it is the nature of human beings to dislike punishment (Mohdali, Isa, & Yusoff, 2014), it was the assumption of the study that the magnitude of the punishment defines the fear of an individual towards non-compliance. In the first step of the analysis, the current study used the cross-tabulation table to get explanations on descriptive relationships. Table 5-14 presents results.

Table 5-14: The perceived level of punishment and the fear of punishment cross-tabulation

		Fear of punishment				
		Agree/Highly agree		Disagree/Highly disagree		Total
		Frequency	Percent	Frequency	Percent	Frequency
Perceived	Very high	84	64%	3	2%	132

	High	45	52%	6	7%	87
	Moderate	19	56%	10	29%	34
	Low	5	28%	4	22%	18
	Very low	4	50%	1	13%	8
	Total	157	56%	24	9%	279

*Source: (Author's Design, 2020)*

According to Table 5-14, those who fear punishment perceive the current setting of punishment as high or severe (58%), compared to those who do not fear (5%), on average. This indicates that if penalties and other associated punishments are properly enforced on those who are non-compliant, the magnitude of the problem will decrease because fear leads to compliance. The observation of the impact of punishment on taxpayers who are not compliant is equally supported by researchers such as Devos (2013), and Mohdali, Isa, and Yusoff (2014), and Yunus, Ramli, and Hassan (2017), who collectively suggested that when there is no fear, the chance for compliance is low. Further, the study used the One Way ANOVA to test the significance of the categorical relationship between the perceived level of punishment and the fear of punishment expressed by taxpayers. Table 5-15 presents the results.

*Table 5-15: Perceived level of punishment and fear of punishment – ANOVA test*

	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	16.431	4	4.108	4.669	.001
Within Groups	241.060	274	.880		
Total	257.491	278			

*Source: (Author's Design, 2020)*

Based on Table 5-15, the results suggest a significant categorical relationship between the perceived level of punishment and the fear of punishment due to non-compliance. The observed p-value is 0.001. This value is significant because it is less than the threshold, which is 0.05. Apart from the descriptive information provided in Table 5-13, additional descriptive information in Table 5-16 shows a steady increase in the mean value across the measurements of the “perceived level of punishment” – that is, very high, high, moderate,

and low. The “very low” response showed the decrease in the mean to 2.31. A general explanation for this observation is that respondents who perceive a high/very high level of punishment are more inclined to show a high fear of punishment when compared to the rest of the categories. The current study ignores respondents with a very low level of punishment because their frequency is too low to show statistical relevance (Levers, 2013).

*Table 5-16: The mean perception on the fear of punishment based on the level of punishment*

<b>Level of punishment</b>	<b>N</b>	<b>Mean</b>
Very high	132	2.13
High	87	2.32
Moderate	34	2.68
Low	18	2.94
Very low	8	2.13
Total	279	2.31

*Source: (Author’s Design, 2020)*

A further analysis was conducted to determine the impact of the perceived level of punishment to the fear of punishment. In this part of analysis, the study engaged the Ordinal Regression analysis for testing the relationship. Based on the results presented in Table 5-17, the model fits the analysis because the *model fitting information* is represented by the p-value equal to 0.011 ( $p < 0.05$ ). Accordingly, the study relied on Nagelkerke Pseudo R-Square because it provides a close equivalency to traditional r-square value, compared to other pseudo values (Maroun, 2012). Based on the current study, the Nagelkerke r-square value is 0.042, which is 4.2% of impact. Although, the impact is viewed as low, it should still be considered given the fact that the study is based on respondents’ perceptions. Furthermore, a simple observation of parameter estimates shows that only respondents with a very high perception of the level of punishment showed a significant response towards the fear of punishment, when the low level perception of punishment is set as a reference value. The observed p-value is 0.012, which is less than the threshold value. Therefore, it suggests that respondents who perceive a very high level of punishment are more inclined to fear punishment associated with non-compliance. This

observation is supported by Devos (2013) and Fellner, Sausgruber, and Traxler (2013) who suggested that punishment increased the desire to comply due to fear.

*Table 5-17: Level of punishment and fear of punishment ordinal regression extracts*

Element of measurement		Value
Model fitting information		P-value = 0.011
Nagelkerke Pseudo r-square		r-square = 0.042 or 4.2%
Parameter estimates for the input variable (level of punishment)	Very high	p-value = 0.012
	High	p-value = 0.108
	Moderate	p-value = 0.945
	Low	Reference value

*Source: (Author's Design, 2020)*

Further to this, the study tested whether the perceived level of punishment determined the rate of EFD use. In this analysis, data from the perceived level of punishment were transformed to a three-level Likert scale, to have closer-related inputs grouped together. In addition, this eliminated input elements with fewer responses to fit to Ordinal Regression (Al-Khulaifi, 2012). The results of the Ordinal regression model are presented in Table 5-18.

*Table 5-18: perceived level of punishment and the rate of EFD use – ordinal regression extracts*

Element of measurement		Value
Model fitting information		p-value = 0.449
Nagelkerke Pseudo r-square		R-square = 0.006
Parameter estimates for the input variable (level of punishment)	High	0.193
	Moderate	0.471
	Low	Reference value

*Source: (Author's Design, 2020)*

According to the results in Table 5-18, the information used in the analysis do not fit the Ordinal Regression model. This is because the model-fitting information value (p=0.449) is greater than the threshold (p=0.05). Furthermore, in all cases the impact of the perceived

level of punishment on the rate of EFD use is insignificant because all elements of the perceived level of punishment have a p-value greater than the threshold. Therefore, there is no significant difference on the impact, across all values of the independent variable.

### 5.3.4 Can the fear of punishment impact the rate of EFD use?

Recalling the opening paragraph of section 5.3, the primary objective of this section was to determine whether the fear of punishment influences the rate of EFD use. The reason for this objective was the fact that the revenue authority of Tanzania uses penalties to trigger compliance to its customers; therefore, understanding the impact of the fear of punishment would enable the revenue authority to enforce punishment for the sake of enhancing the rate of use. The idea finds its support from scholars such as Mohdali, Isa, and Yusoff (2014), Oladipupo and Obazee (2016), and Yunus, Ramli, and Hassan (2017), who collectively suggested that the reinforcement of punishments has a role towards compliance. Since the basic information for the fear of punishment and the rate of EFD use is already provided in sections 4.3.2 and 5.2.1, respectively, in this section, attention is given to the categorical relationship and the causal relationship between the two variables. Table 5-19 presents the results of the categorical relationship, obtained through the One Way ANOVA testing.

*Table 5-19: The fear of punishment and the rate of EFD Use – One Way ANOVA test*

	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Between Groups	9.135	4	2.284	1.588	.178
Within Groups	393.926	274	1.438		
Total	403.061	278			

*Source: (Author's Design, 2020)*

Based on results presented in Table 5-19, there is no significant categorical relationship between the fear of punishment and the rate of EFD use. The information in the table suggests the p-value to be 0.178, which is greater than the threshold (0.05). Therefore, research responses on the fear of punishment and the rate of EFD use cannot be categorised based on their parameters of response. Since the initial intention of the study

was to test the impact of the fear of punishment on the rate of EFD use, the study adopted the Ordinal Regression model for testing as presented in Table 5-20.

*Table 5-20: Fear of punishment and the rate of EFD use – Ordinal regression test*

Element of measurement		Value
Model-fitting information		P-value = 0.037
Nagelkerke Pseudo r-square		r-square = 0.025 or 2.5%
Parameter estimates for the input variable (level of punishment)	High	p-value = 0.701
	Moderate	p-value = 0.296
	Low	Reference value

*Source: (Author's Design, 2020)*

Overall, the information tested in Table 5-20 suggests the absence of a significant impact of the fear of punishment towards the rate of EFD use. Although the provided data fits the ordinal regression equation (*model fitting p-value=0.037*), none of the parameter estimates of the independent variable showed a significant difference from the reference value as their *p-values* are above 0.05. Generally, the observed *Nagelkerke Pseudo r-square* is 0.025, which is equally low. In this case, the fear of punishment is not a drive toward understanding the rate of EFD use expressed by an individual.

#### **5.4 The discussion of key results of the chapter**

The core part of this chapter intended to determine whether the fear of punishment determined the rate of using EFDs. While inflicting fear on citizens is not a good thing, it is equally true that punishment is known to raise fear and an eventual compliance to civil obligations. Studies by Wood (2004) and Raskolnikov (2006) suggested that, even in taxation, there are people who would not comply if it were not for punishment. If people comply to avoid punishment, the compliance is hypothetically due to the fear of punishment. However, upon testing the significance of this hypothesis among small business owners of Arusha Region, the study confirmed that the fear of punishment does not have a significant impact on the rate of using EFDs in their business.

Since the tested hypothesis focused on the impact of fear of punishment toward the use of EFDs, the study compared its findings with other studies in technology adoption.

According to studies by Venkatesh and Bala (2008) and Dix (2007) on technology adoption, the rate of use is under the influence of the ease of use and the perceived usefulness of the technology. In this perspective, fear has no room. This position is supported by Lubua and Semlambo (2017) and Wang, Zhang, Su and Deng (2019), who also found that the perceived benefits of the technology and its ease of use played a role in its rate of use. In addition, the study by Taherdoost (2018) suggested that social influences had a role in the adoption, and not the fear. If the technology were to amplify the social status of a person, its use would increase. One element of the social aspect to be considered includes recognition upon the use (Feld & Frey, 2007; Emmanuel, Ajanya, & Audu, 2013). In this case, the technology use, even within taxation, should consider proven factors which influence the rate of use and not punishment as advocated by the revenue authority of Tanzania. This position of the study does not affect the impact of fear on the general compliance of taxpayers to their outstanding tax obligations as acknowledged by Murphy (2008) and Mohdali, Isa and Yusoff (2014).

In addition, results of the study highlighted something important, which is the role of awareness in impacting the rate of EFD use. Since it was confirmed that the level of awareness determined the rate of EFD use, it is necessary to acknowledge that the current study is reaffirming the position of previous studies on technology adoption. For example, studies by Feld and Frey (2005) and Kagoro (2011) suggested that the awareness by users of the value of technology significantly impacted their rate of use. This is equally supported by the study by Venkatesh and Bala (2008) who advocated experience and awareness in increasing the rate of EFD use. In this case, the increase of taxpayers' education programmes is expected to impact the rate of use.

## **5.5 Chapter summary**

This chapter was interested in knowing the impact of the fear of punishment on the rate of using Electronic Fiscal Devices by taxpayers. The first part introduced the chapter (section 5.1). The second part of the chapter introduced the concept of punishment in taxation, and its categorical relationship with demographic variables. In determining the categorical relationship between variables, the study used the One Way ANOVA model. The analysis, which included the gender of respondents, used the Chi-Square model. In all cases, the causal relationship was determined by using the ordinal regression analysis.

The study found that the gender of respondents, the age, the level of education and years of business experience do not significantly relate to the fear of punishment. Moreover, the other part of the study capitalised on the impact of the fear of punishment on the rate of EFD uses. In the process of addressing this part of the study, the analysis included other variables thought to relate to the fear of punishment, and eventually, the rate of using Electronic Fiscal Devices. One of the variables was user awareness; the study found that user awareness does not relate to the fear of punishment, but it is related to the rate of EFD use. In addition, the study found that the perceived level of punishment had both a categorical and causal impact to the fear of punishment; however, the perceived level of punishment did not impact the rate of EFD use.

Furthermore, section 5.3.4 determined the relationship between the fear of punishment and the rate of EFD use. In general, the study found no significant categorical relationship between the fear of punishment and the rate of EFD use. In addition, the study confirmed that the fear of punishment does not significantly impact the rate of EFD use. Section 5.4 was used to discuss these results in relation to the literature.

## **CHAPTER 6 : THE IMPACT OF EFD USE ON AUDIT EFFECTIVENESS, TRANSPARENCY AND FAIRNESS**

### **6.1 Introduction**

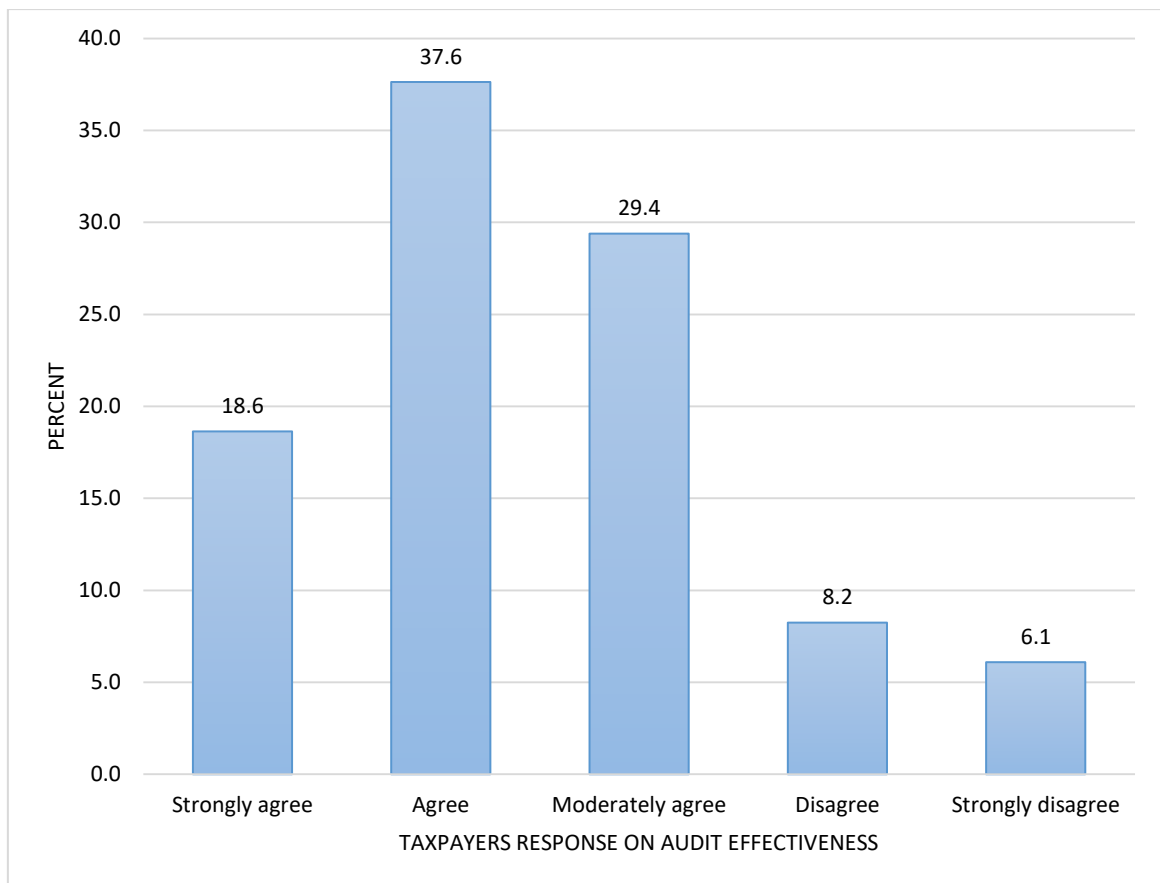
This chapter is based on the third objective, which is intended to determine the impact of using Electronic Fiscal Devices (EFDs) on the perceived effectiveness of the audit process, the perceived level of transparency and the perceived fairness in tax procedures. The analysis, interpretation and discussion of findings about the impact of EFDs on each variable is presented in its own sub-section. In the first part (section 6.2), the discussion is on how the use of EFDs determines the perceived effectiveness of tax audit. The following subsections are discussed within this part of the chapter: the significant of the categorical relationship between demographic variables and audit effectiveness (subsection 6.2.1), and the impact of the EFD uses on audit effectiveness (subsection 6.2.2).

In addition, section 6.3 presents the information about the impact of using EFDs on the perceived level of transparency of the taxation process. This section begins with the presentation of information on the categorical relationships between demographic variables and the perceived level of transparency (subsection 6.3.1), followed by the analysis of the impact of the rate of EFD use on the perceived level of transparency (subsection 6.3.2). Furthermore, the study uses section 6.4 to present the discussion on the impact of using EFDs on the perceived fairness in tax processes. The first subsection (6.4.1) presents a discussion of the relationship between demographic variables and the perceived fairness in tax processes. This is followed by subsection 6.4.2 which presents a discussion on the impact of the rate of EFD use on the perceived fairness in tax processes. The key findings are discussed in section 6.5 followed by the chapter summary in section 6.6.

### **6.2 Audit effectiveness**

Section 2.5 set the conceptual framework of this study. One of the proposed areas of the study focused on determining whether the rate of using Electronic Fiscal Devices determines the perceived effectiveness of the audit process. The study takes into consideration the fact that it is the desire of taxpayers and the revenue authority to have a quick and reliable audit process. The need for a quick and reliable audit process is partly the reason for introducing the use of technologies to professional activities, including in the tax field (Casco & Montealegre, 2016). Adequate information and analyses on the rate of

using EFDs are presented in Chapter 4; however, additional information and analyses on the use of EFDS in relation to Audit effectiveness, transparency and fairness are further elucidated in this chapter. Firstly, the analysis determined the perception of users on the ability of the current audit practice to detect non-compliance. Results are summarised in Figure 6-1.



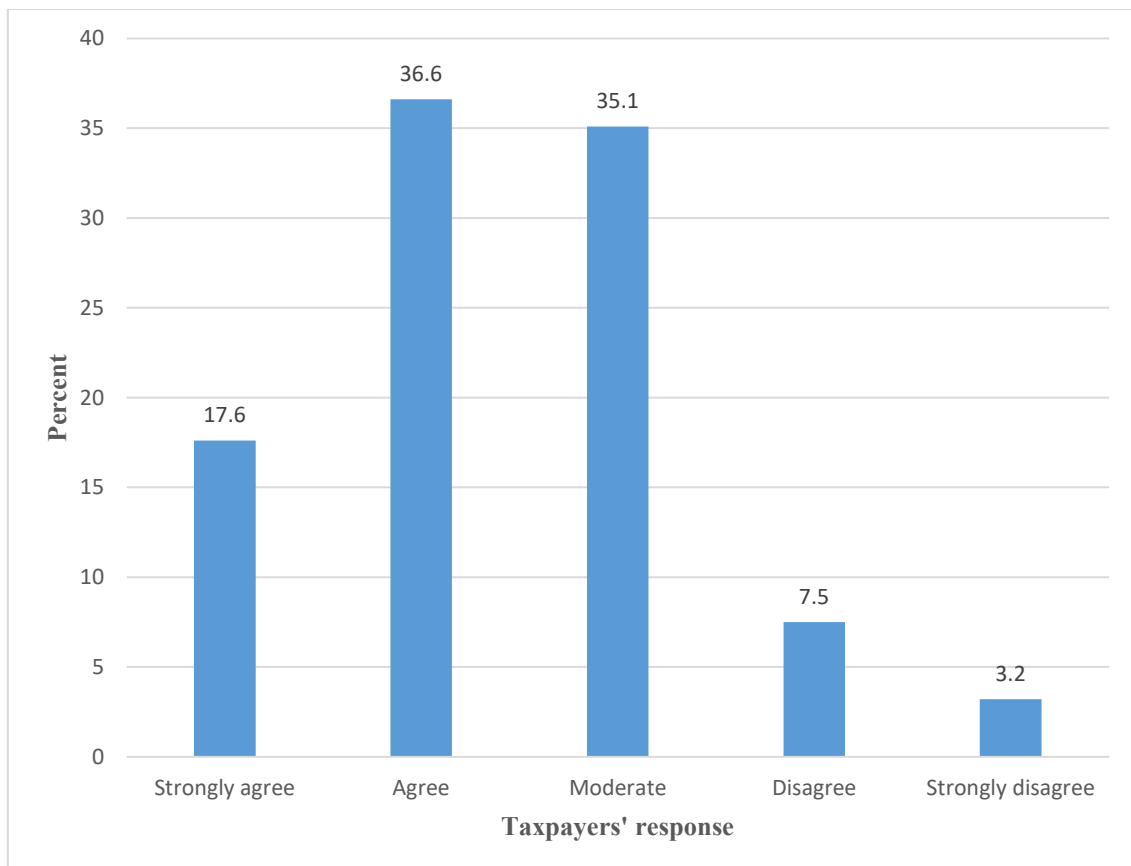
*Figure 6-1: Ability of the current audit practice to detect non-compliance*

*Source: (Author's Design, 2020)*

According to the results in Figure 6-1, 56.3% of respondents agree that the current audit practice detects non-compliance. It must be remembered that the current sample is based on clients of the revenue authority who use EFD in their business transactions. The remaining percent (43.7%) of respondents are not fully comfortable with the audit process amid the use of the EFD technology. Several reasons are likely to affect the perceived level of comfortability, even with the use of EFDs. According to Bucciarelli, Odoardi and Muratore (2010), one of the reasons making users fail to realise the benefits of EFDs is their low level of knowledge towards the use of EFDs. Further to this, Rosid, Evans and

Tran-Nam (2018) and Schlenker (2017) suggested that factors such as corruption and the lack of objectivism by tax auditors are still hampering the audit process. This might be the reason why a perfect figure for comfortability with the audit process is not currently achieved.

Furthermore, this study conducted an analysis to obtain descriptive information on the extent to which the use of EFDs adequately supports the audit process. Figure 6-2 presents the results of the analysis.



*Figure 6-2: EFD adequately supports the tax audit process*

*Source: (Author's Design, 2020)*

Based on results presented in Figure 6-2, it is evident that the majority of respondents are convinced that the use of EFDs adequately supports the tax audit process. The observation is represented by 54.2%. Regardless of this percentage, it is equally important to note that a significant percentage of respondents are not fully comfortable with the support of EFDs in the audit process; that is 45.8% of the whole sample. This percentage calls for the revenue authority to step up efforts toward enabling all taxpayers to enjoy the benefits of using

EFDs in the audit process. Apart from these results, the study in subsection 6.2.1 determines the significance of the relationship between demographic variables and the audit effectiveness. Furthermore, the study used in subsection 6.2.2 in testing the null hypothesis suggested that no significant impact is exerted on audit effectiveness by the use of EFDs.

### **6.2.1 Demographic variables and audit effectiveness**

This subsection seeks to know the categorical relationship between demographic variables and the audit effectiveness in an EFD-enabled environment. Demographic information presented in Chapter 4 set an important background; therefore, the same level of analysis is not repeated in the current chapter. This chapter is interested in the significance of categorical relationships between demographic variables (age, gender, education, and business experience) and audit effectiveness. According to Figure 6-2, in a Likert scale of five variables, those who reported that they disagree or strongly disagree showed very low counts. Therefore, the study combined the two elements of the scale into one. To have a uniform scale, the study combined the input for those who strongly agree and those who agree to form one scale. The new scale has the following elements: Agree, moderately agree, and disagree. This scale is the one used in the next analysis.

In the analysis, One Way ANOVA was used to examine the categorical relationship between all demographic variables and the audit effectiveness, and the summarised results are given in Table 6-1. In addition, the ordinal regression was used to evaluate the impact of demographic variables on the audit effectiveness, and the results are presented in Table 6-2.

The first demographic variable used in the analysis was the age of respondents. The objective was to determine the significance of the relationship between the age group and the perceived effectiveness of audit in a business environment supported by the use of EFDs. According to results in Table 6-1, the observed One Way ANOVA p-value was 0.400. In this case, there no categorical relationship is confirmed. From the mean values provided, it is evident that all mean values are inclined toward 2. The lowest mean value is 1.88 while the highest is 2.18. Regardless of the observed insignificance of the relationship, it is important to highlight that the youngest (age 18–30) population had the lowest mean, suggesting that the group had a larger percent of respondents who agreed that

the audit exercise is effective, compared to the rest. Further to this, the oldest group had the largest mean, suggesting them to be more inclined to disagree. According to Berkowsky, Sharit and Czaja (2017), it is possible that the group of senior respondents finds audit to be less effective because they are not adequately attached to technology use; therefore, their pace of adoption is low.

Apart from a poor categorical relationship shown in Table 6-1, the ordinal regression results in Table 6-2 indicate the lack of a significant impact caused by the age group to the perceived audit effectiveness. The observed p-value for the model-fitting information was 0.396, and the Nagelkerke r-square was 0.0013. Therefore, the age group is not suitable for predicting the perceived effectiveness of the audit process supported by EFD operations.

*Table 6-1: Demographic variables and audit effectiveness – ANOVA extracts*

Input variable	Descriptive information			One Way ANOVA P-Value
	Scale	Mean	Freq.	
Age	18-30	1.88	98	0.400
	31-40	2.15	96	
	41-50	2.03	68	
	51 and above	2.18	17	
	Overall	2.03	279	
Gender	Female	2.03	173	0.859
	Male	2.01	106	
	Overall	2.03	279	
Education	Primary Education	1.96	79	0.023
	Secondary Education	1.78	90	
	Certificate or Diploma	2.27	88	
	Degree and above	2.27	22	
	Overall	2.03	279	
Business experience	2 years and below	2.10	148	0.444
	Between 3 and 5	1.90	78	

	years			
	6 years and above	2.00	53	
	Overall	2.03	279	

*Source: (Author's Design, 2020)*

Accordingly, the study determined whether the gender of respondents offered a significant categorical relationship with the perceived audit effectiveness. Findings in Table 6-1 indicated the One Way ANOVA p-value as 0.854. This value is greater than the threshold, therefore, the gender of respondents does not have a significant categorical relationship with the perceived audit effectiveness. Therefore, the perceived audit effectiveness was almost uniform across all genders. According to Gurama, Mansor and Pantamee (2015), this might be an indicator of a fair business ground to all participants, regardless of their gender. In addition, the study used the ordinal regression analysis to determine the impact of gender on the perceived audit effectiveness. According to results presented in Table 6-2, the study did not detect a significant impact of gender on the perceived audit effectiveness. The observed p-value for the model-fitting information was 0.854, while the Nagelkerke r-square was 0.000.

Furthermore, the study tested the relationship between the level of education and the perceived audit effectiveness. It was the assumption of the study that the level of education could define the perception of respondents on audit effectiveness in an EFD-enabled environment. In this case, the level of education showed a significant categorical relationship with the perceived audit effectiveness in an EFD-enabled environment. The P-value for the One Way ANOVA was 0.023, which is less than the threshold (0.05). A closer look at the observed mean value suggests that those with primary and secondary education were more associated with suggesting that the audit process is effective, compared with those with a college-level education.

Accordingly, the study tested the impact of education on the perceived audit effectiveness, using Ordinal Regression. Based on results presented in Table 6-2, the level of education is the only variable which reflects a significant impact on audit effectiveness. The model-fitting information suggests the p-value =0.025, and the Nagelkerke r-square=0.091. In addition, parameter estimates suggested that all parameters of the level of education differed significantly with the parameter set as a reference value. The reference value was

the parameter representing taxpayers with at least a Bachelor’s degree. It is possible that those with low education perceived more benefits because the system supported them with basic computations and record-keeping, which would be more difficult for them in a traditional environment (Chen, Harold, Little, Mark, & Zhao, 2012). In addition, it is possible that those with superior education have different expectations of the benefit compared to the rest of the parameters. The difference in expectations resulted in differences in the perceived value of EFDs in the audit process (Naibei & Siringi, 2011).

*Table 6-2: Demographic variables and audit effectiveness – ordinal regression extracts*

<b>Input variable</b>	<b>Model Information</b>		<b>Value</b>
Gender	Model-fitting information		p-value = 0.854
	Nagelkerke Pseudo r-square		R-square = 0.000
	Parameter estimates	Female	p-value = 0.680
		Male	Ref. Value
Education	Model-fitting information		P-value = 0.025
	Nagelkerke Pseudo r-square		R-square = 0.091
	Parameter estimate	Primary	0.005
		Secondary	0.002
		Certificate/Diploma	0.050
		Degree or above	Ref. Value
Business experience	Model-fitting information		P-value = 0.038
	Nagelkerke Pseudo r-square		R-square = 0.007 (0.7%)
	Parameter estimate	2 years or below	0.572
		3-5 years	0.882
		6 years or above	Ref. value
Age	Model-fitting information		P = 0.396
	Nagelkerke Pseudo r-square		R-square = 0.013 (1.3%)
	Parameter estimate	18-30 years	0.288
		31-40 years	0.713
		41-50 years	0.732
		51 and above years	Ref. value

*Source: (Author’s Design, 2020)*

The last demographic variable that was studied was the experience of the user in the business. The first part of the analysis tested whether user experience in business offered a significant categorical relationship with the perceived audit effectiveness. Results of the One Way ANOVA presented in Table 6-1 suggested no significant categorical relationship observed between the business experience and the perceived audit effectiveness. The observed One Way ANOVA p-value was 0.444, which is greater than the threshold. In addition, the study conducted another analysis to determine the significance of the impact of user experience on the perceived label of audit effectiveness. The results of the ordinal regression suggested that the model is not suitable for this analysis, because the model-fitting information p-value was 0.396. Moreover, the study reported a very small Nagelkerke value, where the r-square was 0.007. All parameters estimated had the p-value above 0.05; therefore, no significant impact is detected.

### **6.2.2 EFD use and audit effectiveness**

This subsection tested the hypothesis which stated that the rate of EFD use does not have a significant impact on the perceived audit effectiveness in the Tanzanian context. The result of this study is valuable because the audit effectiveness would lead the government toward obtaining its rightful share of the tax (Edogbanya & Sule, 2013). Further to this, results will enable taxpayers to receive justifiable tax estimation from tax officers (Thomas, 2012). This part of the study concentrates on the relationship between the two variables (the rate of EFD use and the perceived audit effectiveness) because other descriptive information is already provided in subsections 4.3.2 and 6.2.1.

In the analysis, the study used the One Way ANOVA to test the categorical relationship between the rate of EFD use and the perceived audit effectiveness. Based on the results presented in Table 6-3, the study confirmed that there is no significant categorical relationship between the rate of EFD use and the perceived audit effectiveness. The observed p-value is greater than the threshold; the p-value is 0.200. At any particular rate of EFD use, the average associated perceived audit effectiveness is high or very high. In the scaling of this study, very high was represented by 1 and high was represented by 2; all the perceived means were below 2. It is obvious that other factors (other than the rate of EFD use) are likely to have a significant relationship with the perceived audit effectiveness.

Table 6-3: Rate of EFD use and audit effectiveness – One Way ANOVA extracts

Input variable	Descriptive information			One Way ANOVA
	Scale	Mean	Freq.	
Rate of EFD use	Above 80% of use	1.45	56	p-value=0.200
	Between 60% and 80% of use	1.61	71	
	Between 40% and 60% of use	1.48	63	
	Between 20% and 40% of use	1.67	75	
	Below 20% of use	1.79	14	
	Overall	1.57	279	

Source: (Author's Design, 2020)

Accordingly, the study used the ordinal regression to determine whether the rate of EFD use determines the perceived audit effectiveness. Based on results of the ordinal Regression presented in Table 6-4, the current set of data does not fit the ordinal regression model. The p-value for the model-fitting information is 0.186, which is higher than the threshold (0.05). Further to this, the Nagelkerke r-square value is 0.026 (2.6%), which is very low. Since all parameter estimates suggest the p-value is above 0.05, this analysis confirms that the rate of EFD use is not a determinant for the perceived audit effectiveness. Studies by Sá, Martins and Gomes (2014) and Tanzi (2017) suggested factors such as poor record-keeping and the audit knowledge to determine the audit effectiveness.

Table 6-4: The impact of rate of EFD use on audit effectiveness – ordinal regression extracts

Input variable	Element of measurement	Value		
The rate of EFD use	Model-fitting information	0.186		
	Nagelkerke r-square	0.026		
	Parameter p-value(s)	Above 80% of use	0.143	
		Between 60% and 80% of use	0.268	

		Between 40% and 60% of use	0.079
		Between 20% and 40% of use	0.692
		Below 20% of use	Ref. value

Source: (Author's Design, 2020)

### 6.3. Transparency in the audit process

According to studies by Kilchler and Maciejovsky (2001) and Maisiba and Atambo (2016) transparency is an important factor for compliance in the audit process. Because of this, the study conducted an analysis to determine the perceived level of transparency, and the descriptive information of the variable. The results are reported in Figure 6-3.

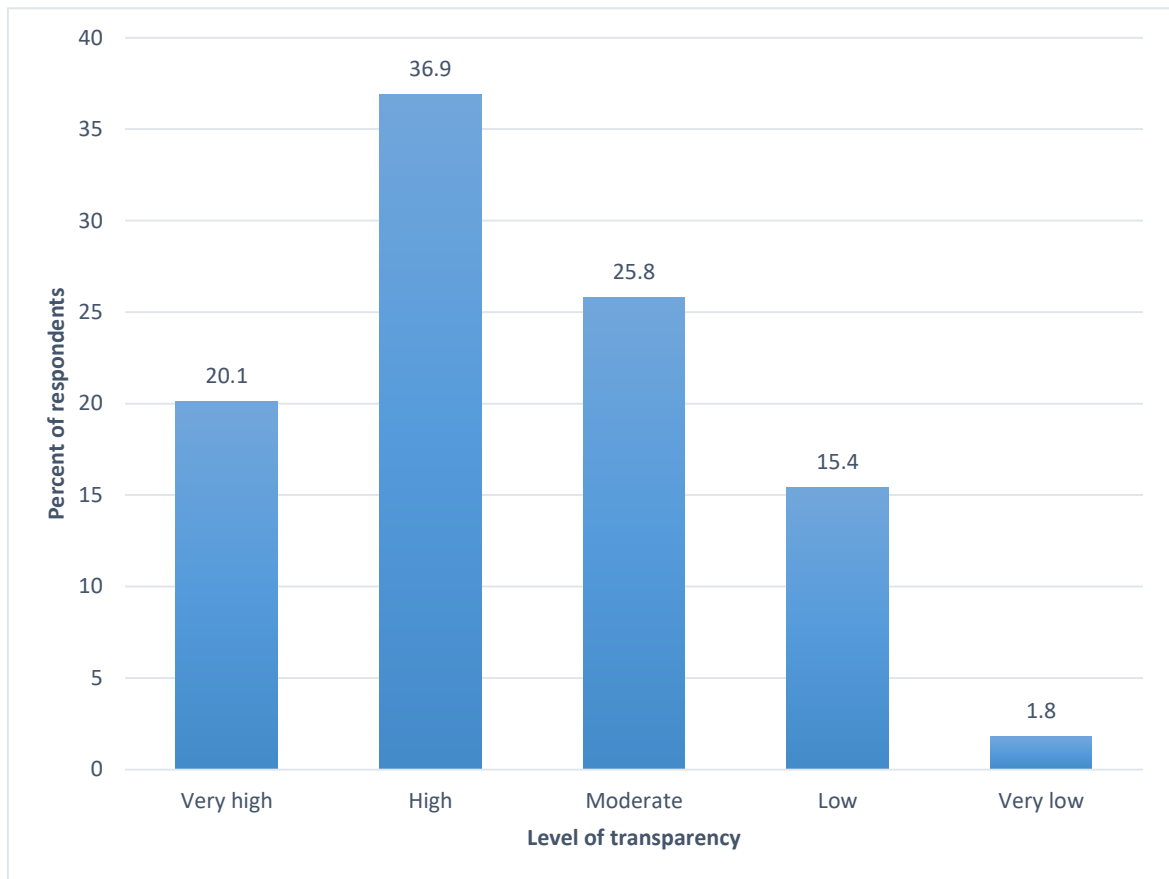


Figure 6-3: Level of comfortability with transparency exercised by tax officers

Source: (Author's Design, 2020)

According to results presented in Figure 6-3, 57% of respondents perceive that a high level of transparency in the audit process was enabled by EFD use. On the other hand, 17.2% of respondents perceive low transparency. This result suggests that many respondents are confident with the relevance of EFD use in ensuring a good level of transparency during tax audit. This information is supported by Tehulu and Dinberu (2014), and Oladipupo and Obazee (2016) who concluded that the use of EFDs openly provides the right information to be used by key stakeholders during tax audit. Furthermore, it enables both parties to keep relevant records for tax auditing.

### 6.3.1 Demographic variables and audit transparency

This subsection determines the relationship between demographic variables and the perceived transparency in tax auditing. Based on the results presented in Figure 6-3, the “perceived audit transparency” had very few counts in one of its categories: those who strongly disagree that there is audit transparency had few counts (5 out of 279 counts). Therefore, the study remodelled the scale to combine those who strongly agree with those who agree, and the scale for those who disagree and strongly disagree, before applying advanced analytical methods. Further to this, the study used the remodelled scale to test the significance of the categorical relationship between demographic variables and the perceived audit transparency, and Table 6-5 presents the result of the analysis.

*Table 6-5: Demographic variable and audit transparency*

Input variable	Descriptive information			One Way ANOVA
	Scale	Mean	Freq.	P-Value
Age	18-30	2.58	98	0.014
	31-40	2.30	96	
	41-50	2.22	68	
	51 and above	2.94	17	
	Overall	2.42	279	
Gender	Female	2.38	173	0.368
	Male	2.49	106	
	Overall	2.42	279	
Education	Primary Education	2.67	79	0.001

	Secondary Education	2.37	90	
	Certificate or Diploma	2.14	88	
	Degree and above	2.86	22	
	Overall	2.42	279	
Business experience	2 years and below	2.29	148	0.081
	Between 3 and 5 years	2.59	78	
	6 years and above	2.53	53	
	Overall	2.42	279	

*Source: (Author's Design, 2020)*

It will be recalled that the intention of the analysis presented in Table 6-5 was to determine the categorical relationship between demographic variables and the perceived transparency in an audit exercise. In the first part of analysis, the study determined the significance of the relationship between the age of respondents and the perceived audit transparency. According to results presented in Table 6-5, the observed p-value is 0.014, which is less than the threshold (0.05). Based on this observation, the study confirms a significant categorical relationship between the age of respondents and their perception of the level of audit transparency in EFD enabled environment. An additional description of the analysis suggests that respondents in the age category of 31–40 and 41–50 are more inclined to perceiving transparency than those less than 30 years in age, and those older than 50 years. According to observations by Charness and Boot (2009), this scenerio is likely to show that those with the lowest age category have low experience with business and EFD use. On the other hand, the studies by Vaportzis, Clausen and Gow (2017) reported that the senior respondents are reluctant to learn new things, especially those involving the use of modern technologies; this is likely to be the reason for their poor perception of the level of transparency.

Furthermore, the analysis was extended to determine the impact of the age of respondents on the perceived level of transparency in auditing. According to the results of the ordinal regression analysis presented in Table 6-6, the model-fitting information p-value was 0.011. It was further observed that respondents within the age categories 31–40 and 41–50 showed a significant difference in their perceived audit transparency. In this case, the perception of respondents on the audit transparency is scaled as very high, high, moderate,

and low. The difference is observed when “low” is set as a reference value. The p-values for the 31–40 and 41–50 age categories were less than 0.05. Collectively, those aged below 30 years and those ages above 50 years displayed no difference in their responses. Based on these results, the age of respondents has a significant impact on the perceived audit transparency, whereas those aged between 30 and 50 years perceived more transparency than the other age categories.

*Table 6-6: Demographic variables and the perceived audit transparency ordinal regression table*

Input variable	Element of measurement	Value	Parameter estimates for respective input variables	
			Input variable scale	P-value
Gender	Model-fitting information	p-value = 0.431	Female	0.433
	Nagelkerke Pseudo r-square	r <sup>2</sup> = 0.002	Male	Ref. value
Education	Model-fitting information	p-value = 0.001	Primary education	.374
			Secondary education	.033
	Nagelkerke Pseudo r-square	r <sup>2</sup> = 0.059	Certificate and Diploma	.002
			University Degree and above	Ref. value
Business experience	Model fitting information	0.032	Two years or below	0.084
			Between 3 and 5 years	0.738
	Nagelkerke Pseudo r-square	0.026	6 years or above	Ref. value
Age	Model-fitting information	0.011	18-30 years	.208
			31-40 years	.020
	Nagelkerke Pseudo r-square	0.042	41-50 years	.010
			Above 51 years	Ref. value

*Source: (Author’s Design, 2020)*

Accordingly, the study used the One Way ANOVA to test the categorical relationship between the gender of respondents and the perceived audit transparency. According to the results in Table 6-5, the observed p-value was 0.368, which is greater than the threshold. Responses for both gender categories were close to each other. In addition, the study tested the significance of the impact of gender to the perceived level audit transparency through ordinal regression. Based on Table 6-6, it was evident that in the study the relationship was not fitting the Ordinal regression model because its p-value was 0.431. Furthermore, the Nagelkerke r-square value was 0.002 (2%), and all p-values for parameter estimates were above the 0.05. Based on this information, there was no significant difference in the perception of respondents about the audit transparency, across the two-gender group.

Furthermore, the study tested the categorical relationship between business experience and the perceived level of audit transparency using the One Way ANOVA. Table 6-5 indicated that the observed p-value was 0.081. Since the p-value is greater than the threshold, it is confirmed that the business experience does not have a significant categorical relationship with the perceived level of transparency. In addition, the study used the ordinal regression to test the impact of the business experience on the level of audit transparency, and results are noted in Table 6-6. Although the relationship fits the ordinal regression model (model-fitting information has the p-value = 0.032), all the parameter estimates had the p-value greater than the threshold (0.05), and the Nagelkerke r-square value is very low (0.026 or 2.6%). Based on these observations, the current study confirms that the business experience did not yield a significant impact on the perceived level of transparency in tax processes.

Furthermore, the study used the One Way ANOVA to test the significance of the categorical relationship between the level of education possessed by the respondent and the perceived level of transparency in tax process. According to results in Table 6-5, the observed One Way ANOVA p-value was 0.001. This p-value suggests a significant categorical relationship between the level of education and the perceived audit transparency. The results reveal that those respondents with primary education and those with college degrees, showed some similarities. Their response was more inclined to a moderate position compared to others who were more inclined to accepting that EFD enhanced transparency in tax processes. Accordingly, upon engaging the ordinal regression model for analysis, the study observed that data was fitted to the ordinal model since the model-

fitting information p-value was less than the threshold; the p-value was 0.001 as shown in Table 6-6. Moreover, the analysis observed that Nagelkerke r-square value was 0.059 (5.9%); this is the highest value in all the analysis including demographic variables in this section. Based on parameter estimates provided, those with secondary and college education are more inclined to perceive transparency compared to those with primary education and university degrees. This observation confirmed that the level of education significantly impacts the perceived transparency.

### 6.3.2 Transparency and EFD use

The question at the core of section 6.3 was to determine whether the rate of EFD use influenced the perceived level of transparency in tax processes. In this case, section 6.3.1 provided additional information to the equation, knowing that demographic variables are frequently reported to be of great influence in social studies. In the first part of this subsection, the study adopted the One Way ANOVA model to determine the presence of the categorical relationship between the rate of using EFD and the perceived level of transparency, and results are presented in Table 6-7.

*Table 6-7: Rate of EFD use and the perceived level of transparency in tax processes – ANOVA extracts*

Input variable	Descriptive information			One Way ANOVA
	Scale	Mean	Freq.	
Rate of EFD use	Above 80% of use	2.21	56	p-value = 0.041
	Between 60% and 80% of use	2.32	71	
	Between 40% and 60% of use	2.59	63	
	Between 20% and 40% of use	2.35	75	
	Below 20% of use	3.00	14	
	Overall	2.40	279	

*Source: (Author's Design, 2020)*

According to the information presented in Table 6-7, the study observed a significant categorical relationship between the rate of EFD use and the perceived level of transparency in tax processes. The study reported the p-value as 0.041, which is less than the threshold. Furthermore, on a scale of 1 to 5, the observed average mean was 2.40.

Respondents with the use rate between 40% and 60%, and those below 20% expressed a moderate position towards the perceived level of transparency. Accordingly, it is evident that respondents with the two highest use rates expressed the best perspective of the level of transparency of all respondents. A simple explanation for this observation is that those with the highest rate of EFD use experience more transparency in tax processes than their counterparts. This observation is supported by claims by the revenue authority that the use of EFDs results in a more transparent audit environment (Tanzania Revenue Authority, 2018f).

In addition, the study used the ordinal regression model to determine the significance of the impact of the rate of EFD use to the perceived level of transparency. The analysis used Table 6-8 to present results.

*Table 6-8: Ordinal regression extracts for the Rate of EFD use and the perceived level of transparency in tax processes*

<b>Input variable</b>	<b>Model information</b>		<b>Value (s)</b>
Rate of EFD use	Model-fitting information		p-value = 0.001
	Nagelkerke Pseudo r-square		r <sup>2</sup> = 0.059
	Parameter estimates	Above 80% of use	0.005
		Between 60% and 80% of use	0.013
		Between 40% and 60% of use	0.105
		Between 20% and 40% of use	0.014
Below 20% of use		Ref. value	

*Source: (Author's Design, 2020)*

According to Table 6-8, when the EFD use rate is an independent variable and the perceived level of transparency is a dependent variable, their relationship fits the ordinal regression model since the p-value for the model-fitting information is 0.001. Furthermore, the additional information from the analysis suggests that the Nagelkerke r-square value is 0.059 (Approx. 6%). With this position, the study confirms that the rate of EFD use determines the audit transparency. Except for those with the use rate between 40% and

60%, the rest of the parameters showed a significant difference from the reference value, which was set at the use rate below 20%.

#### 6.4 Fairness in tax processes

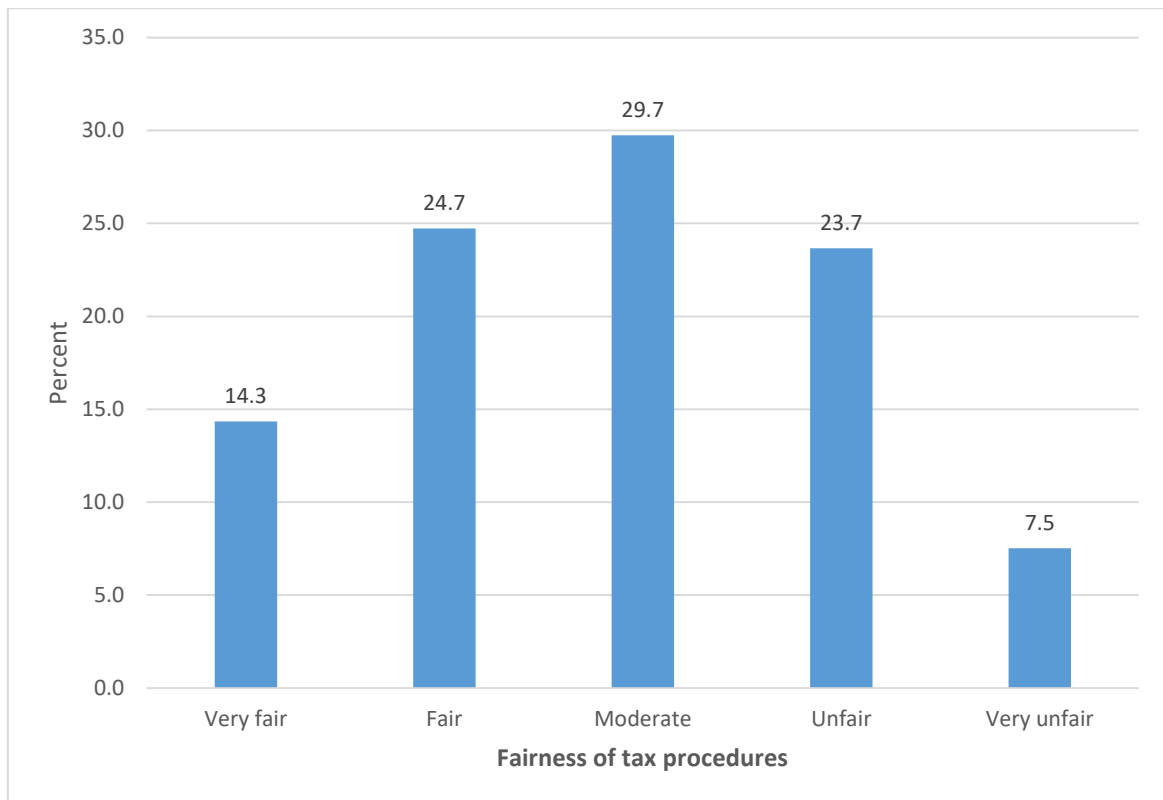
Figure 2-7 of this study summarised key relationships to be tested. One of the relationships sought to know whether the rate of EFD use affected the perception of taxpayers of the fairness of the tax process; this section is established for that purpose. Preliminarily, the study analysed data to know the awareness of respondents on procedures for operating the EFD. According to Table 6-9, only 40.5% of all respondents are confident of their awareness of operating the EFD in their business. The operation depicted here is the simple application, and troubleshooting of the EFD. This percentage is low, and is likely to affect the efficiency of EFDs in business operations. Techniques for enhancing the awareness of taxpayers are needed (Chen, Rong, Ma, Qu, & Xiong, 2017).

*Table 6-9: Awareness of respondents on procedures for EFD operations*

<b>Variable scale</b>	<b>Frequency</b>	<b>Percent</b>
Strongly agree	34	12.2
Agree	79	28.3
Moderately agree	120	43.0
Disagree	32	11.5
Strongly disagree	14	5.0
Total	279	100.0

*Source: (Author's Design, 2020)*

On the other hand, the study determined the perceived fairness of tax procedures by taxpayers. According to Figure 6-4, the percentage of those who regard the tax procedure to be fair is 39%, while those who suggest the opposite is 31.2%. While those who perceive fairness are superior in number, their percentage is not satisfactory. Some of the factors for unfair tax processes include bureaucracy and corruption (Edogbanya & Sule, 2013). In this regard, it is the responsibility of the revenue authority to ensure that causes for unfair tax processes are addressed in the organisation.



*Figure 6-4: Fairness in tax procedures*

Source: (Author's Design, 2020)

In addition, the study used the One Way ANOVA to test the significance of the categorical relationships between demographic variables and the perceived fairness of tax procedures. The next subsection uses variables such as the age of respondents, gender, business experience and education, to understanding their relationship with the perceived fairness of tax procedures. Furthermore, the ordinal regression analysis is used to determine the causal relationships between the variables.

#### **6.4.1 Demographic variables and tax process fairness**

This subsection analysed the relationship between demographic variables and the perceived fairness in the tax process. Table 6-10 summarised all results of the categorical relationship between demographic variables and the perceived fairness of the tax process. The first demographic variable studied is the gender of respondents. First, the analysis used the One Way ANOVA to determine if there is significant categorical relationship between gender and the perceived procedure fairness. According to Table 6-10, the One Way ANOVA p-value is 0.638, which is greater than the threshold. The analysis suggests the

lack of a significant categorical relationship between gender and the perceived fairness in the tax process.

Furthermore, the study used the ordinal regression model to determine the significance of the impact of gender category on the perceived fairness. Results presented in Table 6-11 suggested the model-fitting information p-value as 0.574. Accordingly, the Nagelkerke r-square value is 0.001 (0.1%), which is very low. Because of this, the parameter estimate did not suggest any impact exerted by gender on the perceived fairness of tax procedures. In other words, the two gender groups had an equivalent perception of the fairness in tax procedures. The historical affiliation of economic resources with males, as reported by Newman and Nokhu (2018), has not impacted the position of gender on how it impacts the perceived fairness of tax procedures.

*Table 6-10: Demographic variables and tax process fairness - One Way ANOVA extracts*

Input variable	Descriptive information			One Way ANOVA P-Value
	Scale	Mean	Freq.	
Age	18-30	2.70	98	0.013
	31-40	3.15	96	
	41-50	2.76	68	
	51 and above	2.41	17	
	Overall	2.85	279	
Gender	Female	2.88	173	0.638
	Male	2.81	106	
	Overall	2.85	279	
Education	Primary Education	2.76	79	0.440
	Secondary Education	2.77	90	
	Certificate or Diploma	3.01	88	
	Degree and above	2.91	22	
	Overall	2.85	279	

Business experience	2 years and below	2.88	148	0.058
	Between 3 and 5 years	2.63	78	
	6 years and above	3.11	53	
	Overall	2.85	279	

Source: (Author's Design, 2020)

Secondly, the study analysed the relationship between the age of respondents and the perceived fairness in tax procedures. The result of the One Way ANOVA presented in Table 6-10 suggested the p-value as 0.013. Based on these results a significant categorical relationship between the age of respondents and the perceived fairness of tax procedures is approved. On the other hand, the study determined whether the age category offered a significant influence on the level of the perceived fairness of tax procedures. Results presented in Table 6-11 suggested that the model fits to the proposed relationship, because the model-fitting information p-value was 0.006. Moreover, the reported Nagelkerke r-square value was 0.045 or 4.5% of influence. On the other hand, after setting the age above 51 years as the reference value, only those aged between 31 and 40 years showed a significant difference. Their observed p-value was 0.004. Based on the One Way ANOVA presented in Table 6-10, their observed mean is above 3 (moderate). This observation is against the rest of the observed mean, which are observed to be less than three (3). The later mean(s) are more inclined to a fair tax process. The position of these results suggests that the age of respondents of respondents can be used to predict the perceived fairness of tax procedures.

Table 6-11: Demographic variables and tax process fairness – Ordinal regression extracts

Input variable	Element of measurement	Value	Parameter estimates for respective input variables	
			Input variable scale	P-value
Gender	Model-fitting information p-value	0.574	Female	0.571
	Nagelkerke Pseudo r-square	0.001	Male	Ref. value
Education	Model-fitting information p-	0.455	Primary	0.511

	value		Secondary	0.524
	Nagelkerke Pseudo r-square	0.010	Certificate/ Diploma	0.826
			Degree or above	Ref. value
Business experience	Model-fitting information p-value	0.053	2 years and below	0.163
			Between 3 and 5 years	0.016
	Nagelkerke Pseudo r-square	0.022	6 years and above	Ref. value
Age	Model-fitting information p-value	0.006	18-30 years	0.159
			31-40 years	0.004
	Nagelkerke Pseudo r-square	0.045	41-50 years	0.108
			Above 51 years	Ref. value

*Source: (Author's Design, 2020)*

The third demographic variable studied by this study is the level of education. The study analysed the relationship between the level of education of respondents and the perceived fairness in tax processes, to determine whether the significant categorical relationship existed. Based on Table 6-10, the result of the One Way ANOVA analysis suggested the p-value which is greater than 0.05, the p-value was 0.440. The observed result suggested no significant categorical relationship between the level of education and the perceived level of fairness in tax processes.

Accordingly, the study used the ordinal regression to determine the significance of the impact of the level of education on the perceived fairness in tax procedures. Results of the ordinal regression analysis in Table 6-11 suggested the model-fitting information exceeding the threshold; the p-value was 0.445. Other values include the Nagelkerke r-square value of 0.010, and parameter estimates across the scale, which are above 0.05. Given this information, the study confirmed that the level of education is not a good determinant of the perceived fairness. This is because there is a great similarity in the response of taxpayers toward the perceived fairness of procedures, regardless of their level of education.

The last demographic element discussed was business experience. In testing the presence of the categorical relationship between business experience and the perceived fairness in procedures, the result of the One Way ANOVA suggested that the p-value is greater than

0.05; the observed value is 0.058. Therefore, there is no significant categorical relationship between business experience and the perceived fairness in tax processes. On the other hand, the study used ordinal regression to determine whether business experience could be used to predict the perceived fairness of procedures. The observed model-fitting information was slightly greater than 0.05; its value was 0.053. Further to this, the study observed the Nagelkerke r-square value to be 0.022; the value was small. After setting business experience above 6 years as a reference value, the group of respondents with business experience of between 3 and 5 years is the only one which showed a significant difference from the reference value. The observed p-value was 0.004. The results of the One Way ANOVA showed the p-value for this category to have a slightly lesser value than the rest. However, the study ignores this position because the mean is still inclined to a moderate position. Therefore, the level of education is not a good predictive variable for the perceived fairness of tax procedures.

#### 6.4.2 The rate of EFD use and fairness in tax processes

The opening paragraph of section 6.4 showed that it was the intention of the study to determine whether the rate of EFD use determined the perceived level of fairness in tax procedures. This subsection is meant to achieve that purpose. First, the study used the One Way ANOVA model to know whether there is a significant categorical relationship between EFD use and the perceived fairness of tax procedures. According to results presented in Table 6-12, there is a significant categorical relationship between the rate of EFD use and the perceived level of fairness in tax procedures. The observed p-value is 0.02, which is less than the threshold (0.05). The value of the overall mean is 2.85, and except for the use rate between 60% and 80%, the rest of the parameters for the rate of EFD use had a mean value below 3.00.

*Table 6-12: Rate of EFD use and the perceived level of fairness – ANOVA extracts*

Input variable	Descriptive information			One Way ANOVA
	Scale	Freq.	Mean	
Rate of EFD use	Above 80% of use	56	2.61	p-value = 0.02
	Between 60% and 80% of use	71	3.20	
	Between 40% and 60% of use	63	2.67	
	Between 20% and 40% of use	75	2.92	

	Below 20% of use	14	2.57	
	Overall	279	2.85	

Source: (Author's Design, 2020)

Furthermore, the study used the Ordinal regression to determine whether the rate of EFD use determined the perceived level of fairness in tax procedures. The result of analysis suggested the model-fitting information (p-value) as 0.015; therefore, the p-value is within the margin. On the other hand, the study found the Nagelkerke r-square value to be 0.046, suggesting a change of 4.6% to the perceived fairness of tax procedures. According to the information presented in Table 6-13, all parameter values of the rate of EFD use had a mean value greater than the threshold, except for the use rate between 60% and 80% where 0.045 p-value was observed. According to the One Way ANOVA results in Table 6-12, the use rate between 60% and 80% is the only parameter more inclined to hold a poor perception of the fairness in tax procedures. Regardless of this position, the analysis confirms that the rate of use determines the perceived fairness in tax procedures.

Table 6-13: The rate of EFD use and the perceived fairness in tax procedures – Ordinal regression extracts

Input variable	Model information		Value (s)
Rate of EFD use	Model fitting information		p-value = 0.015
	Nagelkerke Pseudo r-square		r <sup>2</sup> = 0.046
	Parameter estimates	Above 80% of use	0.792
		Between 60% and 80% of use	0.045
		Between 40% and 60% of use	0.736
		Between 20% and 40% of use	0.221
		Below 20% of use	Ref. value

Source: (Author's Design, 2020)

## 6.5 Discussion of the key results of the chapter

Section 6.2 presented the analysis of data, which focused on understanding the impact of the rate of using EFD to the audit effectiveness. This part of the objective needed to confirm the position of the theories behind starting the use of EFDs by the Tanzanian

Revenue Authority, one of which was to simplify the audit exercise. The reason why the use of EFDs was partly intended to simplify the audit process was that data is openly available to the revenue authority and the taxpayer. According to findings presented in subsection 6.2.2, it was confirmed that the rate of using EFDs among small business owners did not impact the perceived level of audit effectiveness. This result is contrary to that of Ikasu (2014) and Eilu (2018), both of which studies were conducted in East Africa, who found EFD use to enhance the effectiveness; however, these studies were conducted among employees of the revenue authority. According to the interview, some of the factors which may have contributed to the position of the current study, include the low understanding of the taxpayers of audit procedures and elements of corruption. According to Chege, Kiragu, Lagat and Muthoni (2015), a corrupt system will embrace bureaucracy to create the avenue for receiving bribes, hence making the audit process difficult in the eyes of taxpayers.

In section 6.3, the study determined the impact of using EFDs on the perceived level of transparency. This objective was motivated by the fact that the use of information systems in business environment provides tools for openness. This is achieved by allowing both the business owner and the tax officer to have a copy of information transacted. According to Grimmelikhuijsen, Porumbescu, Hong and Im, (2013) transparency in taxation is important because it enhances tax compliance among taxpayers in general. Based on the information presented in section 6.3.2, the current study confirmed the use of EFDs to enhance the perceived level of transparency among small business owners. Arguably, this should form an important aspect toward attaining the audit effectiveness through encouraging openness in audit procedures. Studies by Kosack and Fung (2013) and Al-Maghrebi, Ahmad and Palil (2016) support the position of the current study on the ability of the rate of EFD use to determine the level of transparency in business processes and auditing. Both of these studies recommended the use of information systems to enhance data availability and the ability to track business activities by relevant people.

Section 6.4 discussed the last core element of this chapter. The intention was to determine the impact of EFD use on the perceived fairness of tax procedures. The study by Verboon and Goslinga (2009), and Gberegbe and Umoren (2017), conducted in the context of developing countries, found the perceived fairness of tax procedures to be important in ensuring tax compliance. When tax procedures are fair, business owners are confident that

there is no corruption involved, and the efficiency of the process is equally observed (Haryani, Motwani, & Matharu, 2015). According to results presented in subsection 6.4.2, the study confirmed that the rate of using EFDs determines the perceived fairness of tax procedures. The assumption behind this position is that EFDs, together with their integration with information systems, provides data to the revenue authority as well as to the taxpayer. This data enables both parties to justify the taxation process (Verboon & Goslinga, 2009). This is in agreement with the study by (Haryani, Motwani and Matharu (2015) who asserted that the lack of relevant data creates the room for corruption and unfair taxation procedures. On the other hand, the availability of data enhances fairness in tax procedures (Sidik, Zandi, & Ruhoma, 2019).

## **6.6 Chapter Summary**

This chapter determined the impact of the rate of EFD use in determining the perceived audit effectiveness, the perceived transparency in audit procedures and the perceived fairness in tax procedures. In the process, the study used statistics to provide explanations on features of discussed variables and used the One Way ANOVA to show the significance of the categorical relationships between variables under study. In addition, the ordinal regression was used to determine the impact of one variable to another. The ordinal regression was more critical in determining the impact of the rate of using Electronic Fiscal Devices on the perceived audit effectiveness, the perceived level of transparency in audit procedures and the perceived fairness of tax procedures. The study observed that there are more people who perceive that the audit is effective under an EFD-enabled environment, than those who think the opposite. Moreover, the study observed a significant categorical relationship between the level of education and the perceived audit effectiveness. Based on the ordinal regression analysis which was meant to achieve one of the objectives of this study, EFD use has no significant impact on the perceived audit effectiveness.

On the other hand, more people were comfortable with the level of transparency in tax processes than those who were not. The level of transparency is credited to the use of EFDs. In addition, the study observed that the age group and the level of education had a significant relationship with the perceived level of transparency. Furthermore, the study observed that the rate of EFD use had a significant impact on the perceived level of transparency. Lastly, the study observed a lesser percentage of respondents who perceive a fair tax process in an EFD-enabled environment. The percentage is less when compared to

the perceived transparency and audit effectiveness. Moreover, the age of respondents is the only demographic variable which showed a significant categorical relationship with the perceived level of fairness. Furthermore, a categorical and causal relationship was observed between the rate of EFD use and the perceived fairness.

## **CHAPTER 7 : TAX COMPLIANCE IN EFD ENABLED ENVIRONMENT**

### **7.1 Introduction**

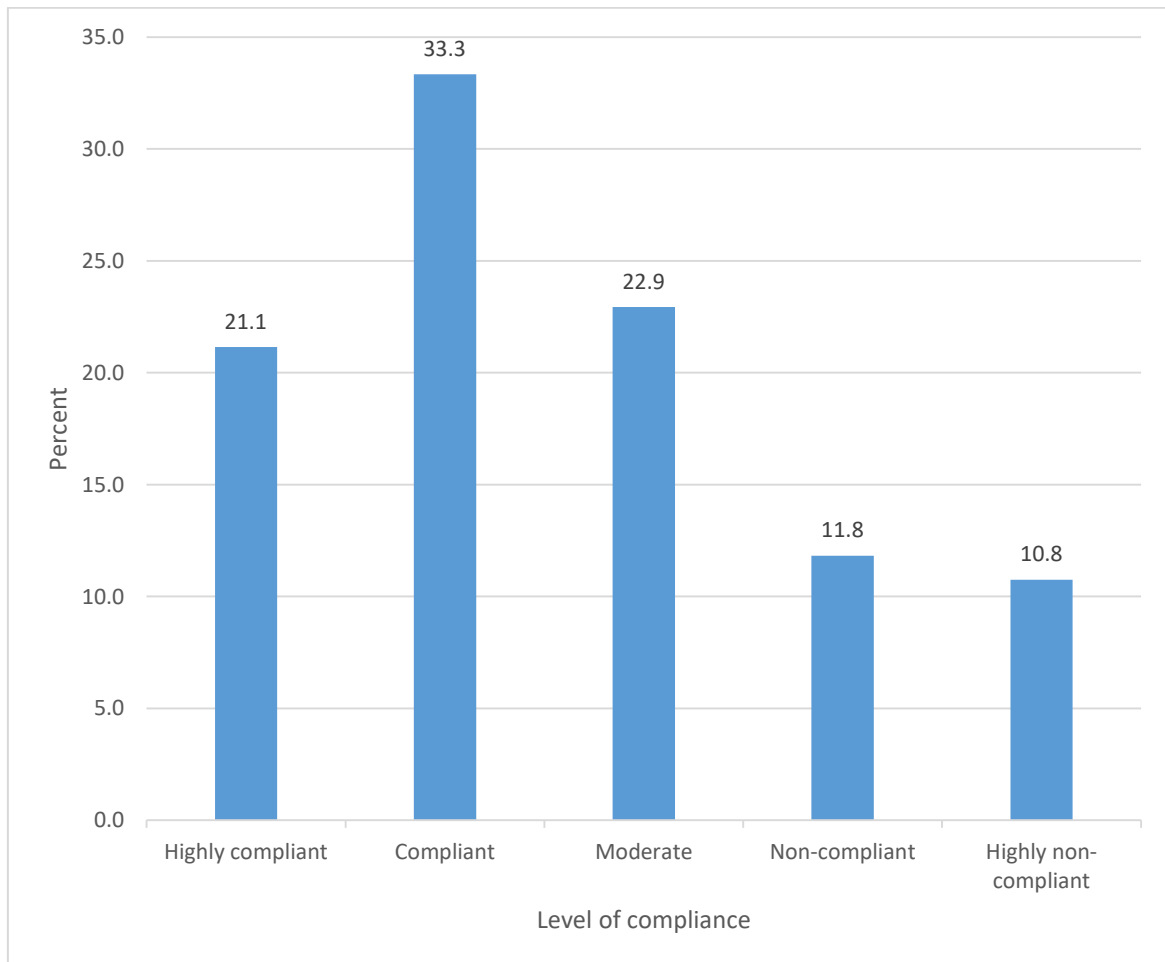
The fundamental objective of this study was to determine the impact of Electronic Fiscal Devices (EFDs) in ensuring tax compliance. In order to achieve this central objective, this study examined the impact of EFDs on factors determined by the literature to influence tax compliance, namely the perceived audit effectiveness, the perceived fairness in tax procedures, and the perceived level of transparency in taxation. The information on the influence of EFDs on these factors is presented in Chapters 4, 5 and 6. In this chapter, the concentration is on determining the individual impact of the rate of using EFDs, the perceived level of transparency, audit effectiveness, and the fairness of tax procedures on the compliance of taxpayers. The main sections of this chapter include: demographic variables and tax compliance (section 7.2); EFD use and tax compliance (section 7.3); audit effectiveness and tax compliance (section 7.4); fairness, transparency in tax process and tax compliance (section 7.5) and lastly, the chapter summary.

### **7.2 Demographic Variables and Tax compliance**

Tax compliance is the main output variable of the study. It is assumed that demographic variables can affect the level of compliance in a way that will be useful to tax professionals and academicians. Tax professionals will manage to make various decisions related to tax compliance and demographic variables, provided that this background is available (Al-Mamun, Entebang, Mansor, & Yasser, 2014). As a result, this study examines the following demographic variables: age, gender, education and business experience.

In the first step, the study conducted a simple descriptive analysis using the percentage of responses. According to Figure 7-1, a total of 54.3% of respondents admitted to complying with taxation regulations through paying their tax dues. The remaining percentage admitted to not fully complying. The percentage of those who do not comply is significant; therefore, it requires the attention of the revenue authority. The percent of those who do not comply carries more significance because it was drawn from among active taxpayers, who are registered with the revenue authority (Agbi, 2014; Kastlunger, Kirchler, Mittone, & Dressler, 2010). The implication is that the percentage of non-

compliance would be greater if the sample were to be drawn randomly from the general population of Tanzanians.



*Figure 7-1: The perceived level of tax compliance*

Source: (Author's Design, 2020)

Furthermore, the study determined the categorical relationship between demographic variables and the perceived level of tax compliance. The study observed that the age of respondents, gender, and their level of education showed no significant relationship with the perceived compliance to tax laws. Based on extracts of the One Way ANOVA presented in Table 7-1, each tested variable showed the p-value greater than the threshold (0.05). Likewise, the variables showed an insignificant impact on the perceived tax compliance, after the ordinal regression model was applied between suggested variables (refer Table 7-3). In each case, the model-fitting information p-value was greater than the threshold (0.05). Moreover, none of the parameter estimates showed a significant impact as indicated in Table 7-3. Given this information, the age of respondents, gender and level of

education cannot be used in predicting the compliance of taxpayers. Regardless of these results, a different perspective may be observed if the study were to be conducted in the general population; this is supported by Antwi, Inusah, Mohammed and Hamza (2015) and Curristine, Lonti and Joumard (2007) who observed that age, gender and education related to the level of compliance of individuals. For example, the aged population was more responsive to compliance than the young population in the study conducted on a general population by Al-Mamun, Entebang, Mansor and Yasser (2014).

*Table 7-1: Demographic variables and Tax compliance – ANOVA extracts*

<b>Demographic variable</b>	<b>P-value</b>	<b>Status</b>
Age	0.370	Rejected
Gender	0.420	Rejected
Education	0.369	Rejected
Business experience	0.005	Confirmed

*Source: (Author's Design, 2020)*

On the other hand, the study observed that the business experience relates significantly with the level of compliance. According to Table 7-1, there is a significant categorical relationship between business experience and the level of compliance; the observed One Way ANOVA p-value was 0.005. According to descriptive information presented in Table 7-2, those with business experience of between 3 and 5 years are more compliant, followed by those with the lowest experience. It was surprising to learn that those with more experience in business were more inclined to non-compliance; this is the group with 6 years and more business experience.

*Table 7-2: Business experience and tax compliance-descriptive extracts*

	<b>N</b>	<b>Mean</b>
2 years and below	148	2.56
Between 3 and 5 years	78	2.31
6 years and above	53	3.02
Total	279	2.58

*Source: (Author's Design, 2020)*

Moreover, an additional analysis was conducted between business experience and the level of compliance. The analysis aimed at knowing the presence of a causal relationship between business experience and the level of tax compliance. The ordinal regression results presented in Table 7-3 suggest that the model is suitable for analysis. The observed model-fitting information p-value was 0.008; this is less than the threshold. Moreover, the study observed that the business experience offered a 3.6% influence on the level of tax compliance. Additional evidence shows a significant difference on the response of clients across parameters for business. After respondents with business experience of more than 6 years were set as the reference value, the p-value for respondents with less than 2 years, and those between 3 and 5 years were observed to be less than the threshold (refer Table 7-3). In this study, it is collectively confirmed that business experience is a good determinant of the level of compliance expressed by registered taxpayers, more especially, in a non-VAT category of respondents.

*Table 7-3: Demographic variables and level of compliance –ordinal regression extracts*

Input variable	Element of measurement	Value	Parameter estimates for respective input variables	
			Input variable scale	P-value
Gender	Model-fitting information p-value	0.631	Female	0.634
			Male	Ref. value
	Nagelkerke Pseudo r-square	0.001		
Education	Model-fitting information p-value	0.568	Primary	0.374
			Secondary	0.203
	Nagelkerke Pseudo r-square	0.008	Certificate/Diploma	0.543
			Degree or above	Ref. value
Business experience	Model-fitting information p-value	0.008	2 years and below	0.030
			Between 3 and 5 years	0.002
	Nagelkerke Pseudo r-square	0.036	6 years and above	Ref. value

Age	Model-fitting information	0.252	18-30 years	0.671
	p-value		31-40 years	0.738
	Nagelkerke Pseudo r-square	0.015	41-50 years	0.166
			51 or above	Ref. value

*Source: (Research, 2020)*

In addition, the study conducted interview to ten (10) business owners. Their selection was based on their availability at the Tanzania Revenue Authority regional office. The interview intended to know why business experience offered a negative impact on tax compliance (refer Table 7.2). This paragraph summarises their responses: First, they believe that business experience gives them the knowledge about areas of the tax law that can be exploited for their benefits. In addition, it enables them to know weaknesses within tax administrative structures, which facilitates tax avoidance. This includes colluding with corrupt officials of Tanzania Revenue Authority. In support of these observations, studies by Al-Mamun, Entebang, Mansor and Yasser (2014) and Tehulu and Dinberu (2014) support their opinions by suggesting that weak administrative structure in tax administration, attracts corruption and non-compliance.

### **7.3 EFD use and Tax compliance**

Chapter 4 of this study provided the primary information on EFD use and its characterisation with demographic variables. In addition, section 7.2 provided the information on tax compliance, and its relationship with demographic variables. The interest of the current section is to test the influence of the rate of EFD use (and other related EFD factors) on the level of tax compliance. Moreover, the study determines the categorical relationship between similar variables through its analysis. Table 7-4 presents the results of the One Way ANOVA analysis between tax compliance and other variables, including the rate of using EFDs.

*Table 7-4: Tax compliance and other variables – ANOVA extracts*

<b>Input variables</b>	<b>P-value</b>	<b>Status</b>
Rate of EFD use	0.479	Rejected

EFD use experience	0.017	Confirmed
EFD use in tax audit	0.000	Confirmed
Effectiveness in tax audit	0.004	Confirmed
Fairness in procedures	0.003	Confirmed
Transparency in tax procedures	0.002	Confirmed

Source: (Research, 2020)

According to results presented in Table 7-4, the study confirmed no significant categorical relationship between the rate of EFD use and the declared level of tax compliance. This is because the observed One Way ANOVA p-value was greater than 0.05; the p-value is equal to 0.479. Furthermore, according to Table 7-5, the study observed upon testing the impact of the rate of EFD use on the level of compliance, that the model-fitting information p-value was 0.581, and all parameter estimates had the p-value above 0.05. Based on this information, the rate of EFD use does not have a significant causal influence on the level of tax compliance. Regardless of the level of EFD use expressed, the level of tax compliance was not affected.

Based on findings explained in the above paragraph; the study conducted an interview to know why the rate of EFD use had no impact on the level of tax compliance. Findings from the interview suggested that some business owners offered receipt recording a lesser amount of selling price, when compared to the actual price tag. Regardless of the rate of EFD use, this affected the level of compliance. In addition, tax assessment depended on the credibility of tax officers; therefore, the level of corruption among tax officers marred the level of tax compliance. Janeska-Iliev and Debarliev (2015), who suggested that the EFD use rate does not impact the level of tax compliance, support the observations of the current study. This suggests that people can have different use rates and share the same level of compliance.

Table 7-5: Ordinal regression results between different variables and tax compliance<sup>1</sup>

Input variable	Element of measurement	Value	Parameter estimates for respective input variables
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<sup>1</sup> The results of equation 3-7 of the regression model are presented in Table 7-5, 7-8 and 7-10 for ease of interpretation of the independent variable.

			<b>Input variable scale</b>	<b>P-value</b>
Rate of EFD use	Model-fitting information p-value	0.581	Above 80% of use	0.275
			Between 60% and 80%	0.449
	Nagelkerke Pseudo r-square	0.011	Between 40% and 60%	0.238
			Between 20% and 40%	0.678
			20% and below	Ref. value
EFD use experience	Model-fitting information p-value	0.014	1 years and below	0.727
			Between 2 and 4 years	0.049
	Nagelkerke Pseudo r-square	0.031	5 years and above	Ref. value
Transparency in tax procedure	Model-fitting information p-value	0.008	Very high	0.879
			High	0.890
	Nagelkerke Pseudo r-square	0.051	Moderate	0.912
			Low	0.199
			Very low	Ref. value

Source: (Author's Design, 2020)

On the other hand, it was surprising to note that the experience of users with the use of EFDs, resulted to a significant relationship with tax compliance. For example, results in Table 7-4 suggested the One-Way ANOVA p-value equal to 0.017. The observed p-value meets the requirement for a confirmatory test of the categorical relationship between user experience and tax compliance, because it is less than 0.05. Accordingly, the descriptive information extracts presented in Table 7-6 suggest that users with EFD experience of between 2 and 4 years were more inclined to comply with tax rules, than the rest of the categories. According to Okpeyo, Gakpetor and Mussah (2019) those with little experience are expected to be more resistant to compliance than those with experience; however, the current study does not completely support this position. Consistent with the current study is Mansor, Mohamed, Ling and Zakaria (2015) who found that, those with more experience find ways to avoid paying tax, with the feeling that they will not be noticed because of their experience.

Furthermore, the ordinal regression analysis presented in Table 7-5 suggested that when the parameter with 5 years and above experience is set as a reference value, only those

with experience of between 2 and 4 years were significantly different in their response. Referring to Table 7-6 shows that the category with between 2 and 4 years“ experience is the only one with respondents who are more compliant with taxation, compared to the rest of the parameters.

*Table 7-6: EFD use experience and tax compliance – descriptive information extracts*

	<b>Frequency</b>	<b>Mean</b>
Below 12 months	108	2.78
Between 2 and 4 years	143	2.37
Above 5 years	28	2.86
Total	279	2.58

*Source: (Research, 2020)*

#### **7.4 Audit Effectiveness and Tax Compliance**

This section tests the relationship between the audit effectiveness and the level of tax compliance. The perceived audit effectiveness is among variables predicted to influence the perceived tax compliance in section 2.5. Before testing the main hypothesis, the study tested the categorical relationship between the perceived audit effectiveness and tax compliance. The observed One Way ANOVA p-value was 0.004, which is smaller than the threshold. Therefore, it is evident that there is a significant categorical relationship between audit effectiveness and tax compliance. This result is further explained through descriptive information presented in Table 7-7, which suggests that those who agree/strongly agree on the audit effectiveness are more inclined to tax compliance than their counterparts. Their mean response value is lesser than the average mean, which is 2.58.

*Table 7-7: Audit effectiveness and tax compliance One-Way ANOVA mean extracts*

	<b>Frequency</b>	<b>Mean</b>
Strongly agree	52	2.06
Agree	105	2.53
Moderately agree	82	2.77
Disagree	23	3.00
Strongly disagree	17	2.94

Total	279	2.58
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Source: (Author's Design, 2020)

According to Table 7-7, those who strongly agreed with the audit effectiveness showed few counts in their frequency. Therefore, the study merged the following parameters of the variable: disagree merged with strongly disagree, agree merged with strongly agree. The new parameters were “agree” and “disagree”. The study used the new set of variables to test the impact of the perceived audit effectiveness on tax compliance.

According to the results of the ordinal regression model presented in Table 7-8, the regression model fits the current relationship, with the model-fitting information p-value presented as 0.001. Furthermore, the Nagelkerke r-square value is 0.065, suggesting an influence of 6.5%. It is further observed that when the parameter “disagree” is set as a reference value, the parameter “agree” showed a significant difference in its p-value (p=0.004). Therefore, a significant influence is exerted by the perceived audit effectiveness on the level of tax compliance. This observation supports those of Verboon and Goslinga (2009) and Sidik, Zandi, and Ruhoma (2019) who in their studies suggested that when taxpayers are treated fairly through the audit process, they are likely to comply.

Table 7-8: Ordinal regression between different variables and tax compliance

Input variable	Element of measurement	Value	Parameter estimates for respective input variables	
			Input variable scale	Input variable scale
Audit effectiveness	Model-fitting information p-value	0.001	Agree	0.004
			Moderately Agree	0.399
	Nagelkerke Pseudo r-square	0.065	Disagree	Ref. value
EFD use in tax audit	Model-fitting information p-value	0.000	Strongly agree	0.000
			Agree	0.000
	Nagelkerke Pseudo r-square	0.113	Moderately Agree	0.000
			Disagree	0.260

			Strongly disagree	Ref. value
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Source: (Author's Design, 2020)

Another variable that was engaged in this section is the performance of audit through the EFD system. In the first case, the study determined whether the use of EFD in auditing categorically related to the level of tax compliance. According to results presented in Table 7-4, the observed One Way ANOVA p-value was 0.000; this value suggested a significant categorical relationship between the use of EFD in tax auditing and the level of tax compliance. Furthermore, the descriptive information presented in table 7-9, suggests that the mean value for those who agree/strongly agree on the effectiveness of EFD use in audit, prefers EFDs for audit compared to those who disagreed. This information suggests that the EFD use in audit is linked more to tax compliance.

Table 7-9: EFD use in audit and tax compliance mean extracts

	<b>N</b>	<b>Mean</b>
Strongly Agree	49	2.49
Agree	102	2.36
Moderately agree	98	2.48
Disagree	21	3.67
Strongly disagree	9	4.00
Total	279	2.58

Source: (Author's Design, 2020)

In another set of analysis, the study determined the impact of the use of EFD systems on tax compliance. According to the results presented in Table 7-8, the ordinal regression model fits properly to the relationship by the two variables; the model fitting information p-value is 0.000. Furthermore, the Nagelkerke r-square value is 0.113, which suggests 11.3% influence on tax compliance by EFD use in the audit process. These observations are further described by parameter values obtained after setting the response of those who strongly disagree that EFD is useful for effective audit as the reference value. It is observed that those who disagree that EFD use leads to effective audit exercise are the only ones who expressed opinions similar to those who strongly disagree. The rest of the parameters

significantly differed with the reference value. According to Table 7-9 those who agree on the use of EFDs in auditing are more compliant than their counterparts.

Generally, the use of EFDs in auditing is perceived to create a fair ground because it enables the tax auditor and the auditee to have a common ground for their discussions and estimations (Chatama, 2013). This is made possible because the ability of the EFD machine to capture transaction records and preserve them for future use (Hassan Darwish, Sahraei, Zakrifar, & Talebi, 2014; Lubua & Pretorius, 2019). Furthermore, the EFD sets a platform for sharing different tax-related information (Kira, 2016).

### **7.5 Fairness, transparency in tax process and tax compliance**

Fairness and transparency are two variables that were widely discussed in Chapter 6. They represent the perception of taxpayers on the levels of transparency and fairness. In this section, the intention is to test their categorical relationship with tax compliance. Furthermore, the study tests the influence of these variables (independently) to tax compliance.

In the first set of analyses, the study used the One Way ANOVA to determine the categorical relationship between perceived fairness and tax compliance. According to the information presented in Table 7-4, the study showed the presence of a significant categorical relationship between fairness in tax procedures and tax compliance. The observed One Way ANOVA p-value was 0.003. A closer look at descriptive information presented in Table 7-11 suggests that respondents who moderately agree, agree or strongly agree are more compliant with tax laws.

In addition, the study conducted an analysis to determine the impact of the perceived fairness on the level of tax compliance. Results of this analysis are summarised in Table 7-10.

*Table 7-10: Ordinal regression analysis between different variables and the level of tax compliance*

<b>Input variable</b>	<b>Element of measurement</b>	<b>Value</b>	<b>Parameter estimates for respective input variables</b>
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			<b>Input variable scale</b>	<b>Input variable scale</b>
Fairness in tax process	Model-fitting information p-value	0.007	Very fair	0.136
			Fair	0.099
			Moderate	0.073
	Nagelkerke Pseudo r-square	0.052	Unfair	0.700
			Very unfair	Ref. value
Transparency in tax procedure	Model-fitting information p-value	0.008	Very high	0.879
			High	0.890
			Moderate	0.912
	Nagelkerke Pseudo r-square	0.051	Low	0.199
			Very low	Ref. value

Source: (Author's Design, 2020)

According to the results of the ordinal regression the following values were observed: model-fitting information ( $p=0.007$ ), and the Nagelkerke r-square value was 0.052. Regardless of these values, parameter estimates are all above 0.05, which therefore confirms the lack of significant influence by the perceived fairness in tax processes. Nonetheless, it is encouraging to note that those who perceive more fairness are more inclined to compliance, and vice versa. Fairness affects the trust of taxpayers toward their government (Kagoro, 2011; Gurama, Mansor, & Pantamee, 2015).

Table 7-11: Fairness and tax compliance – mean extracts

<b>Parameters</b>	<b>N</b>	<b>Mean</b>
Strongly agree	40	2.50
Agree	69	2.32
Moderately agree	83	2.37
Disagree	66	3.05
Strongly disagree	21	2.90
Total	279	2.58

Source: (Author's Design, 2020)

Furthermore, the study conducted an analysis which was intended to determine the significance of the categorical relationship between the perceived level of transparency and tax compliance. Based on the results presented in Table 7-4, the One Way ANOVA analysis observed that the p-value was 0.002, which confirms the significance of the relationship. Moreover, the descriptive information presented in Table 7-12 suggests that respondents who agree or strongly agree that audit processes are transparent are more compliant to tax laws than their counterparts. Transparency in taxation enhances the confidence of taxpayers (Grimmelikhuijsen, Porumbescu, Hong, & Im, 2013).

*Table 7-12: Transparency and tax compliance mean extracts*

	<b>N</b>	<b>Mean</b>
Strongly agree	56	2.52
Agree	103	2.40
Moderately agree	72	2.46
Disagree	43	3.28
Strongly disagree	5	2.60
Total	279	2.58

*Source: (Author's Design, 2020)*

Moreover, the study used ordinal regression to determine whether the perceived level of transparency significantly impacts the level of tax compliance. According to results presented in Table 7-10, the following regression information was observed: model-fitting information p-value is 0.008, and the Nagelkerke r-square value is 0.051. Regardless of the above observation, none of the parameters showed a significant difference when the parameter known as “strongly disagree” was set as a reference value. All the p-values were greater than 0.05. Therefore, the perceived transparency is not a good determinant of the level of compliance.

## **7.6 Discussion of findings**

This chapter concentrated on four key areas. The first part tested the null hypothesis that the rate of EFD use does not determine the perceived level of tax compliance. According to the findings of the study presented in section 7-3, the study confirmed that the rate of EFD

use alone is not a good determinant of tax compliance. This position takes EFD use as the tool for collecting information relevant for tax estimation; however, it does not determine compliance by itself. This is possibly the reason why the studies by Hartner, Rechberger, Kirchler and Schabmann (2008), and Kasipillai and Jabbar (2006), both conducted in developing countries, concluded that the willingness of the taxpayer is critical to ensure tax compliance. In addition, Al-Khulaifi (2012) and Mukhlis, Utomo and Soesetio (2015) emphasised that a proper use of the national income obtained through taxation would enhance the level of compliance of taxpayers. On the other hand, it would be difficult for taxpayers to comply where there are loopholes for non-compliance, especially due to corruption (Schlenter, 2017).

Furthermore, the study tested the second hypothesis, which suggested that the perceived level of audit effectiveness does not determine the level of tax compliance. Based on the results presented in section 7-4, the study confirmed that audit effectiveness determines the level of tax compliance. This finding is supported by Badara (2012) and Simangunson (2014) who observed that effectiveness in tax audit determines the level of tax compliance. One reason for effective audit is the availability of data for the audit exercise (Emmanuel, Ajanya, & Audu, 2013). It is on this case that the use of EFD is expected to enhance the availability of data (Kira, 2016). Furthermore, the effectiveness is enhanced where tax officers are competent enough, and are openly accomplishing the exercise (Birskyte, 2013; Kiri, 2016). Furthermore, results suggested that EFD use in tax audit enhanced the perception of taxpayers on tax compliance.

The third null hypothesis proposed that fairness in tax procedures does not determine the level of tax compliance. This hypothesis was confirmed after testing data collected during research time. The study by Gberegbe and Umoren (2017) suggested fairness to be the subject of the absence of corruption, while encouraging transparency in the audit process. Taxpayers or their representatives should be confident of the process, which established their tax dues (Song, 2016; Al-Maghrebi, Ahmad, & Palil, 2016). Additionally, Sidik, Zandi and Ruhoma (2019) suggested that fairness alone is not a good determinant of tax compliance; instead, the study emphasised on the motive of the taxpayer to determine the level of tax compliance. The position of the current study on the impact of the perceived fairness to the level of tax compliance, does not ignore the fact that there are other findings

conducted on a general setting of taxpayers, where fairness is an important determinant of the level of compliance. For example, Siahaan (2012) and Thomas (2012) shared the same position that fairness determined compliance in a general taxation setting, which differs from the current setting where small business owners using EFDs are the only ones included.

Lastly, the chapter tested the null hypothesis that transparency does not determine the level of tax compliance. Findings of the current study supported the hypothesis. The study by Kosack and Fung (2013) and Obicci (2015) concluded that a transparent environment would support tax compliance only if tax processes were fair and corruption free. In addition, Al-Khulaifi (2012) suggested that if the tax process is transparent, but government expenditures in social services are undesirable, taxpayers' compliance would drop. The position of the current study on transparency and fairness contradicts the findings of Kasipillai and Jabbar (2006) and Hartner, Rechberger, Kirchler and Schabmann (2008) who posited that both transparency and fairness provide a good environment for the taxation process.

## **7.6 Chapter summary**

The main dependent variable of this part of the study is the level of tax compliance perceived by taxpayers. The preliminary information of the study suggested the presence of a significant number of individuals who admitted that they were not compliant to tax demands. Accordingly, business experience is the only demographic characteristic that showed a significant relationship with the perceived level of tax compliance. Equally, the same variable was confirmed to have a significant influence on the perceived level of tax compliance among respondents.

On the other hand, the study observed the following input variables to have a significant categorical relationship with tax compliance: EFD use experience, EFD use in tax audit, effectiveness in tax audit, fairness in tax procedures and transparency. Further to this, the study observed the following variables to have a significant impact on the perceived level of tax compliance: EFD use experience, audit effectiveness and EFD use in tax audit. Moreover, the following variables did not show a significant impact with tax compliance: rate of EFD use, fairness in the tax process and transparency in tax procedures.



## **CHAPTER 8 : SYNTHESIS, CONCLUSION AND RECOMMENDATIONS OF THE STUDY**

### **8.1 Introduction**

The current chapter brings the current research to its pinnacle. It revisits objectives and assumptions formulated in sections 1.4 and 2.5. In addition, the chapter synthesises the observed findings with the current knowledge of Electronic Fiscal Devices (EFDs) and tax compliance in the Tanzanian context. Furthermore, the chapter presents conclusions on key findings of the study, guided by the conceptual framework presented in Figure 2-6. The chapter also pinpoints findings contributing to the current theoretical body of knowledge. This is useful for future academic, professional and research-based references. This is followed by the identification of limitations of the current study where elements that seem to be related to the study but were not within the current scope are identified. This is followed by key recommendations to potential beneficiaries of the knowledge generated. Accordingly, propositions for future works are presented.

### **8.2 Research Synthesis and Conclusions**

Recalling from section 1.4 of this document, the general objective of the study was to assess the impact of EFDs in ensuring that small business owners are complying with Tanzanian tax laws. In addressing this general objective, the following specific objectives were developed.

- The first objective is to determine the impact of the probability of being reported by others on the rate of EFD use.
- The second objective is to determine whether taxpayers' perceptions of the punishment arising from non-compliance impact their rate of using EFDs.
- The third objective is to determine the impact of using EFDs on audit effectiveness, level of transparency, and fairness in tax procedures, and to determine the influence of EFDs, audit effectiveness, level of transparency and the fairness of tax procedures towards tax compliance.

These objectives are used in the organisation of this section.

### **8.2.1 Objective One: The Impact of Whistle-blowing to the rate of EFD use**

The first objective of this study determined the impact of whistle-blowing on the rate of EFD use. Practically, this was to be met through testing one null hypothesis (suggested in section 2.5), which suggested that the fear of whistle-blowing does not impact the rate of EFD use. The whistle-blower was expected to be the business client, who intends to buy some goods or services.

Before addressing the requirement of the hypothesis, the study tested the relationship between demographic characteristics of respondents and their perceived vulnerability to whistle-blowing. Two demographic variables showed a significant categorical relationship with the perceived chance of being reported by others. First, it was clear that females are more associated with the fear of whistle-blowing than men. This is possibly because of the masculinity tradition of most African societies, and Tanzania in particular (Kastlunger, Kirchler, Mittone, & Dressler, 2010). Since men are more masculine, they tend to disassociate themselves with fear; in the current case, they do the same with the fear of whistle-blowers as also acknowledged by Chung and Trivedi (2003), and D'Attoma, Volintiru and Steinmo (2017). The second variable that showed a significant categorical relationship with the fear of whistle-blowers, is the business experience of respondents. The fear of whistle-blowers is low to respondents with high business experience, and vice versa. Experience enriches the knowledge of business and associated risks (Kira, 2016); this could be the reason for less fear.

Furthermore, the study tested the relationship between different variables with the rate of using EFDs. In this category of analysis, only two variables showed a significant relationship. First, the competency of respondents showed a significant categorical relationship with the rate of EFD use. For example, those with high competence had a high rate of use compared to their counterparts. It was further observed that the high competency increased the rate of use. This observation supports the findings by Venkatesh and Bala (2008) and Lubua and Semlambo (2017) who, in their findings, suggested that the ease of use enhances the rate of technology use; only people who are competent find the technology easy to use. Moreover, the relationship between the perceived benefits due to technology and the rate of use, was confirmed. Respondents who perceived high benefits had a high rate of EFD use; the impact was both categorical and causal. This observation

supports that of Liu, et al. (2019) where users who perceived benefits were found to frequently engage the use of technology in their activities compared to their counterparts.

The last relationship tested was that which engaged the fear of whistle-blowing and the rate of use. Recalling the opening paragraph of this section, the two variables are the core components of the analysis. The results of the analysis suggested that those who fear whistle-blowing have a high rate of EFD use. The observed result is both categorical and causal in nature. This observation corresponds with findings by Murphy (2008) and Mohdali, Isa, and Yusoff, (2014) who observed that some people in business comply with tax laws due to the fear of punishment. This is because whistle-blowing would eventually lead to punishment when the offence is confirmed. Collectively, it is safe to conclude that the fear of whistle-blowers increases the rate of EFD use.

### **8.2.2 Objective Two: Fear of Punishment Due to Non-compliance Impacts the Rate of EFD Use**

The current study was conceived knowing that the government of Tanzania executes different types of punishment on people who avoid paying tax. In this case, the main purpose was to know the impact of the fear of punishment on the rate of EFD use. Generally, in this study those who fear punishment were expressed as 61% of the entire sample. In understanding the characterisation of the fear of punishment in relation to demographic characteristics, an analysis was conducted. However, none of the demographic variables (age, gender, education, or business experience) yielded a significant relationship with the fear of punishment.

Before testing the relationship between the fear of punishment and the rate of EFD use, the study began with other variables which were close to the fear of punishment. The first test was between the awareness of punishment and the rate of EFD use; this resulted in a positive relationship. Those with high awareness of the punishment are more linked to the high rate of EFD use. The result is true for both categorical and the causal relationship. It is apparent that the knowledge of users on the impact of avoidance, helps them in the decision to comply. This is supported by studies by Hastuti (2014) and Armborst (2017) who suggested that the knowledge of the cost of avoidance helps them make the right and informed decisions. Accordingly, the expressed level of punishment is another variable impacting the rate of use. When the perceived level of punishment is high, the rate of EFD

use also increases. In this case, the user is engaged in the use of EFDs because of the awareness of the traded opportunity cost between using and avoiding EFDs (Murphy, 2008).

The last part of analysis focused on the main issue of the current section; this was to determine the impact of the fear of punishment on the rate of EFD use. In this case, the study concluded that there is neither categorical nor causal relationship between the fear of punishment and the rate of EFD use. Therefore, the study rejects the hypotheses suggesting the presence of the relationship.

### **8.2.3 Objective Three: The Impact of Using EFDs on Audit Effectiveness, Level of Transparency, and Fairness in Tax Procedures**

Chapters 4 and 5 concentrated on the impact of different factors on the rate of EFD use. In Chapter 6, the study determined the impact of EFD use on factors such as the audit effectiveness, the perceived level of transparency in taxation processes, and the perceived fairness of tax procedures. According to the results of the analysis, a significant number of respondents are still not fully comfortable with the effectiveness of tax audit and the extent to which EFDs support tax audit. In this regard, the revenue authority has the responsibility of enhancing this perception through information sharing and technical demonstrations as recommended by Bucciarelli, Odoardi and Muratore (2010).

Before testing the relationship between the rate of using EFDs and the audit effectiveness, the analysis began with other preliminary analyses. According to findings, the level of education is the only demographic variable which provided a positive categorical relationship with audit effectiveness. Respondents with lower levels of education suggested that the tax audit was effective. Traditionally, those with higher education levels are thought to be more in a position to understand technical issues than those with lower education as concluded in the study by Riddell and Song (2012). In the current case, it is possible that those with the low education levels did not bother with details of the audit process and therefore considered the process effective. On the other hand, the study found no categorical relationship between the rate of EFD use and the audit effectiveness. Furthermore, no causal relationship was observed between the two variables. Therefore, based on the context of the current study, the hypothesis suggesting a significant impact on the rate of EFD use on the audit effectiveness is rejected.

The second part of this section tested the hypothesis which suggested that EFD use determines the perceived level of transparency. First, the age of respondents and the level of education were the two demographic variables which showed both categorical and causal relationships with the perceived level of transparency. Respondents aged between 31 and 50 years are more inclined to perceiving transparency in the taxation process. This category is considered more active in business than those below or above them in age (Kagoro, 2011; Bostan, Popescu, Istrate, Robu, & Hurjui, 2017). They are also considered to be more experienced and knowledgeable than the younger ones (Palil, Hamid, & Hanafiah, 2013). These may be the reasons for observed differences with other age categories. On the other hand, it was surprising to learn that those with lower levels of education are the ones more inclined to perceive transparency than other categories. In addition, the study observed the presence of a significant categorical and causal relationship between the rate of EFD use and the perceived level of transparency. It is interesting to learn that the higher the rate of use the more the perceived level of transparency. With this information, the study accepts the hypothesis suggesting that the rate of EFD use determined the level of transparency in taxation procedures.

The last set of variables that was tested included the rate of EFD use and the perceived fairness of tax procedures. In the analysis of the age of respondents and the perceived level of fairness, both categorical and causal relationships were confirmed. People above 51 years of age were more inclined to a perceived fairness than the rest. Other demographic variables showed insignificant relationships with perceived fairness. In the case where the core variables for analysis were tested (that is, EFD use and perceived fairness), both categorical and causal relationships were significant as well. It was surprising to learn that those with the use rate below 20% were more inclined to perceived fair tax procedures. Given this information, the current study confirms the hypothesis suggesting the rate of EFD use determines the perceived fairness in taxation. The less they use the more they perceive fairness; this is not good for the progress of the nation.

#### **8.2.4 Objective four: The influence of the rate of EFD use, audit effectiveness, the level of perceived transparency, and the fairness in tax procedures on tax compliance**

Tax compliance is the ultimate output variable of the whole study. Other variables were either completely independent or moderating variables with respect to tax compliance.

Although the percentage of those who perceive compliance is 54.4%, a large group of taxpayers is still not fully complying with tax laws and regulations. This is more interesting, because respondents are aware that they are not complying. With reference to demographic variables, only business experience showed a significant relationship with the level of compliance. The approved relationship is both categorical and causal. It was observed that people with business experience below 5 years are more compliant than those more experienced. According to Deyganto (2018), and Edogbanya and Sule (2013), the observation is possible because experience exposes the taxpayers to more methods of avoidance, with a low chance of being detected.

In this part of analysis, one of the hypotheses tested whether the rate of EFD use determined the level of compliance. The result of the analysis suggested no significant relationship between the two variables; neither categorical nor causal relationship is confirmed. Furthermore, the study tested other variables related to EFDs against tax compliance. In this case, the EFD use experience, and EFD use in tax audit both tested positive with tax compliance. The less experienced are more compliant, and the more that EFDs are used in audit the greater the level of compliance. With this information, the relevance of EFD use is a good cause for compliance as concluded by the study of Mandari, Koloseni and Nguridada (2017).

Accordingly, the study confirmed the hypothesis suggesting that effectiveness in tax audit related to tax compliance. In this case, both categorical and causal relationships were confirmed. It was revealed that respondents who perceive effectiveness in tax audit are more inclined to compliance. Another relationship that was confirmed was between fairness in tax procedures and compliance. Hartner, Rechberger, Kirchler, and Schabmann (2008) suggested that fairness is a motivation to taxpayers. On the other hand, transparency was equally detected to determine the level of compliance. In this case, both categorical and causal relationships were confirmed. When the level of transparency is high, the chance for tax compliance also increases. As concluded by Verboon and Goslinga (2009), transparency removes the room for corruption and hence it becomes the point of motivation.

### 8.3 Theoretical Contribution

The foundation of this study was formed upon different theoretical stances. Some of the theories are directly related to tax compliance, while others are related to technology use. Since the current study was equally engaged in hypothesis testing, it is important to identify areas in which the study is contributing to the body of theories. The concentration of the study will be on key areas of the study, hypothesised through section 2.5.

The first input to the theoretical body suggested that the level to which the taxpayer fears whistle-blowing due to the non-use of EFDs determines the rate of use. In this case, the more the user fears being reported by customers or fellow business owners, the more they are compelled to comply. Another component added to the theoretical body is the impact of the rate of EFD use on both the perceived level of transparency and the perceived fairness in tax procedures. Furthermore, the perceived level of transparency, perceived fairness in tax procedures, audit effectiveness, EFD use experience, and EFD use in audit exercise were confirmed to determine tax compliance. Table 8-1 summarises all relationships contributing to the body of theory, including demographic variables.

*Table 8-1: Relationships contributing to the body of theory.*

<b>Input variable</b>	<b>Output variable</b>
Effectiveness in tax audit	Level of tax compliance
EFD use in audit	
EFD use experience	
Business experience	
Age group	Perceive fairness in tax procedures
Rate of EFD use	
Rate of EFD use	Perceived level of transparency
Level of education	
Age group	
Fear of whistle-blowers	Rate of EFD use

*Source: (Author's Design, 2020)*

Furthermore, it is important to recall that the conceptual framework presented in Figure 2-7 guided the current study. Based on the analysis, only variables presented in Figure 8-1 showed a significant relationship during analysis.

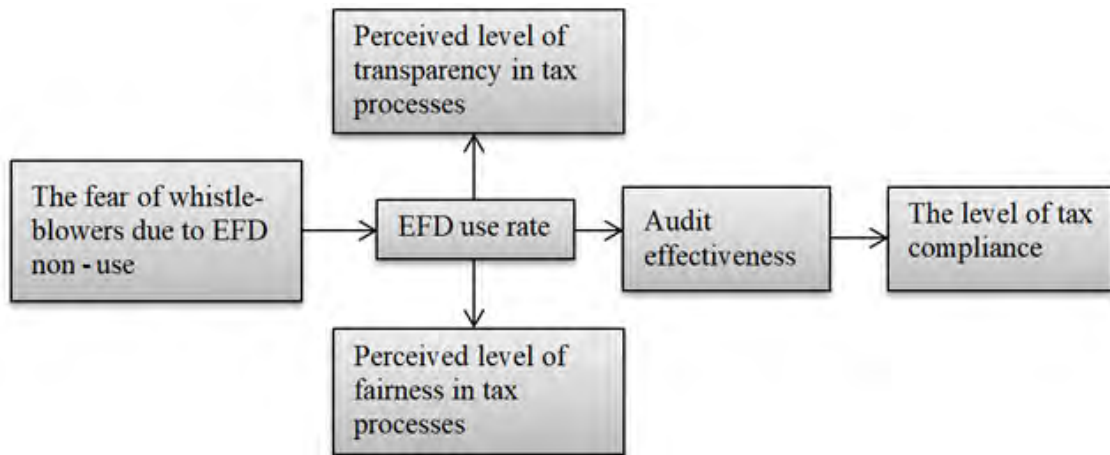


Figure 8-1: Integrating EFD use in enhancing tax compliance

Source: (Author's Design, 2020)

#### 8.4 Implication of findings and Recommendations

This section discusses the implication of the current study to the economy of Tanzania, and stakeholders of the revenue authority.

##### *i.) Economic perspective*

In July 2020 the World Bank declared Tanzania as a lower-middle income country. This position occurs for the first time since Tanzania obtained her independence in 1961. It is the focus of Tanzania to meet its next target of progressing to the upper-middle income category of countries. This is achievable through ensuring that the nation expands and improves different economic activities of the country to increase the GDP. The expansion of economic activities depends on numerous factors, including the establishment of critical infrastructure such as those for transportation and sources of power. Furthermore, the government can establish critical infrastructure through adequate funds, which are obtained through revenue collection and other sources.

The current study focused on the relevance of EFDs in tax compliance. Findings showed that the fear of whistle-blowers affects the rate of EFD use. On the other hand, the rate of EFD use affects and determines the perceived level of transparency and the perceived level of fairness in taxation which are important determinants of tax compliance. In this regard, the study provides information of relevance for enhancing the rate of EFD use and

eventually tax compliance. In this context, EFD use will go a long way to enhancing government revenue income emanating from taxation. The ultimate result will be getting adequate revenue to build the infrastructure necessary to boost the national income.

*ii.) Implications for stakeholders of the current study*

The revenue authority involves different stakeholders in meeting its mandate of collecting tax. These stakeholders include the revenue authority, which represents the government of Tanzania. The revenue authority uses tax officers to carry out its mandate in the taxation process. The first implication of this study is that whistle-blowing as a TRA initiative/effort and its associated incentives is producing the desired results. This is pertinent when the multiplier effect of EFD use is put into consideration. The current study is beneficial to the revenue authority and tax officers because it provides factors for enhancing EFD use and eventually tax compliance in an EFD-enabled environment. The second implication is that the introduction of EFDs is a good initiative by the TRA to promote the fundamental characteristics of a good tax system such as fairness and transparency. Additionally, findings imply that EFD is capable of achieving the intended objective such as accuracy and efficiency in tax management, addressing tax and poor record-keeping. This will eventually simplify the process of tax auditing and revenue collection in general.

The second category of stakeholders in the current study is that of taxpayers. Taxpayers are to use EFDs in making different transactions in their businesses. They enable the system to capture all information necessary for taxation process. The information becomes useful to them in ensuring that the correct tax amount is deducted from their income. By implication, the current study is important because it informs taxpayers that the use of EFDs makes the tax process fair and more transparent to both the TRA and taxpayers.

Policymakers comprise the third category benefiting from the results of the current study. Policymakers can use the current study to develop policies, which will enable the smooth implementation of EFDs countrywide. For example, they can use the findings to make policies on punishment and its impact to the adoption of EFDs. In addition, they can use the findings to enhance policies that will advocate the use of EFDs, so as to achieve fairness and transparency in the taxation process. Accordingly, they can use the findings to

make policies to enhance transparency and fairness in taxation; factors which are important in ensuring tax compliance.

Researchers form a further category of individuals expected to benefit from the current study. This study adds knowledge to the area of EFD use and tax compliance, especially among small business owners of Tanzania, and related developing economies. This knowledge is the point of reference to future studies.

#### **8.4.1 Recommendations of the Study**

This subsection provides recommendations to different tax stakeholders based on findings presented between Chapters 4 and 7. The recommendations are expected to benefit groups such as taxpayers, the revenue authority, policymakers, the general population and researchers.

##### *i.) Taxpayers*

Overall, the study focused on collecting data from taxpayers. It was the intention to understand their different perceptions of EFD use and tax compliance. A general observation was that not all taxpayers are comfortable with using EFDs. The recommendation is that taxpayers should deliberately invest effort in making sure that they understand the use of EFDs. Also, the study recommends voluntary compliance to taxation.

##### *ii.) Policymakers*

Policymakers are key group of stakeholders of taxation. They make policies guiding the taxation process and tax formula. Policymakers are to know that tax compliance is still a problem since not all respondents in the research were compliant. Furthermore, they have to know that some taxpayers do not value the use of EFDs, which is why they are not compliant. In this regard, policymakers should introduce measures for enhancing compliance, other than punishments or the fear of whistle-blowers.

##### *iii.) Revenue authority*

Employees of the revenue authority are key in carrying out the government's agenda on taxation. The main recommendation is on creating awareness to taxpayers on the value of EFDs in ensuring a fair taxation process. The revenue authority must equally advocate for

transparency and fairness in the audit process. In this case, EFD use has an impact on these two factors.

*iv.) Citizens*

Citizens are the clients of different businesses. Part of the money they give as payment for their purchases is deducted as tax, according to the national law. It is unfortunate that there are times where business owners do not want to provide EFD receipts to their customers. The current study recommends the use of whistle-blowing opportunities, through channels established by the revenue authority, to uncover misconduct by businesses.

*v.) The government*

The current study recommends that the government should enhance whistle-blowing in other areas of its operations in different entities to increase the rate of use of a system or technology in Tanzania, and other similar developing economies. This will address challenges arising due to the lack of cooperation when it comes to the use of a new technology introduced by government. In addition, the study recommends other government agencies to consider the adoption of relevant technology in operation areas where transparency, fairness and compliance are desirable. Inclusion of other sectors that are not currently captured by EFD use will be a step in the right direction.

## **8.5 Limitations**

Despite the achievement of objectives of this study, some limitations were observed and discussed in this section. The study acknowledges the fact that it was executed in a given scope, which limited the inclusion of other factors to the study. It is believed that factors which were not covered, could equally contribute to the current body of knowledge. The following are the key limitations of the study.

*i.) Population limitation*

Taxation is a broad area of profession. It includes people from different professional fields and background. Some of the stakeholders of taxation include employees of the revenue authority, the government, tax auditors, and taxpayers (Hillenbrand, Money, Brooks, & Tovstiga, 2019). Furthermore, taxpayers are similarly categorised into different groups such as small business owners, medium business owners and large business owners (Chariye, 2016). The current study sampled small business owners using EFDs in their

business. This is because the study desired to derive the information which is unique to this category of taxpayers. The study of small business owners is important because approximately two-thirds of taxpayers visiting the revenue authority are from this category (Tanzania Revenue Authority, 2020). Therefore, in the circumstances where the information provided by the current study is limited, the use of information from other categories of taxpayers is recommended.

*ii.) Geographical limitation*

Another limitation of the study comes with the geographical confinement of the study to the Arusha Region of Tanzania. It is apparent that the extension of the study to other regions and countries would supply more information on the contribution of EFDs to tax compliance. In addressing this limitation, the study included key District Councils of Arusha Region, which have citizens from rural areas and big towns. The assumption is that the diversity of taxpayers in Arusha Region, will be a reflection of other parts of Tanzania, and closely related regional countries. Nevertheless, an extension of the study to other geographical areas will bring additional value to the knowledge.

*iii.) Sample limitation*

Taxpayers can be categorised based on different criteria. In the current study Value Added Tax (VAT) was one of the criteria. Only respondents who were not eligible for the VAT category were sampled. This category of taxpayers is considered to be complicated in paying tax, and the tax estimation is mostly based on the best judgement of the tax auditor (Tanzania Revenue Authority, 2019b). The use of best judgement is mostly problematic because it opens the door for corruption (Haji, 2015). The question of whether EFDs enhanced compliance within this group of taxpayers, needed answers. The reader is recommended to consult the VAT-related studies for a comparative knowledge.

*iv.) The study was more inclined to a quantitative approach and the use of ordinal regression*

This study was more inclined to a quantitative approach. Key facts were derived through hypothesis testing. The purpose was to obtain objective facts useful in making different decisions by either the revenue authority or taxpayers toward EFD use and tax compliance. However, an extensive study with a qualitative perspective would bring additional information. Furthermore, even within the quantitative approach other models such as

Structural Equation Modelling (SEM) could provide their own perspective of relationships within the conceptual framework. Nevertheless, the study opted for ordinal regression because it is more specific for ordinal data, which specifically fits all stated hypotheses.

## **8.6 Future Work**

In research, it is generally known that concluded studies form the basis for future references (Bahari, 2010; Collins, 2010). Therefore, the current study advocates for future extension of the current study in different areas. This will enable future studies not to duplicate effort, and to have relevance. One of the areas that could be explored by future studies is on the extensive use of technology adoption models. This component is not adequately covered, because the current interest was on tax compliance. Furthermore, future studies can extend their focus to engage taxpayers in the VAT category; their results may offer a different perspective of EFD use and tax compliance. Moreover, future research will be invaluable if it extensively considers the qualitative approach. The approach will provide detailed unstructured information, which may be useful in deriving new hypotheses for testing (Kelliher, 2005; Gialdino, 2009). Additionally, the current study suggests future studies to consider the impact of demographic factors on EFD compliance. Likewise, future studies are advised to determine the impact of the use of tax revenues by the government towards the compliance of taxpayers on the use of EFD. This area was not covered in the current study. Their findings may broaden the understanding of the factors which influence EFD compliance. Lastly, the study encourages future works to consider an extension of the geographical boundaries of the study. The inclusion of other regions within Tanzania will be invaluable.

## **8.7 Chapter Summary**

This chapter intended to provide the synthesis of the study, conclusion, and recommendations, and to propose areas for future studies. The following are the key conclusions of the study: first, the fear of whistle-blowers affects the rate of EFD use. Moreover, the rate of EFD use influences both the perceived level of transparency and fairness in tax procedures. Collectively, the perceived fairness, transparency and effectiveness in tax audit are proven to impact the level of tax compliance. These variables are under the indirect impact of EFD use. Furthermore, relationships summarised in Table 8-1 are new inputs to the literature on EFD use and tax compliance. On the other hand, the study acknowledges limitations of the study such as the study population, the geographical

scope and the research approach adopted. The study recommends further studies in its areas of limitation. Lastly, further studies are recommended in the following areas: technology adoption, VAT category, and the use of the qualitative approach.

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## APPENDIX I: ENGLISH QUESTIONNAIRE

Dear participant,

This questionnaire is for a PhD (Accounting) research project to be conducted by Ms. Agnes Malima, a student of the University of KwaZulu-Natal. The purpose of the study is to understand the role of Electronic Fiscal Devices (EFDs) in ensuring tax compliance in Tanzania. In order to succeed, you are kindly requested to answer the questions below, through selecting the most correct answer, among provided choices. The questionnaire takes the average of 10 minutes, and the confidentiality upon your responses is highly assured. You are encouraged to respond to all questions.

In case of any question, you can contact Ms. Agnes Malima through:

Mob: +255 766583848,

Email: [aemalima@gmail.com](mailto:aemalima@gmail.com)

Please, sign in the space provided if you agree to respond to questions provided below

**Signature .....**

**Date .....**

### Part A: Participant's profile

No	Inquiry	Choices
1	Gender	a.) Female b.) Male [       ]
2	Age category in years	a.) 18-30 b.) 31-40 c.) 41-50 [       ] d.) Above 51
3	Level of education	a.) Primary education b.) Secondary education c.) Certificate or Diploma [       ] d.) Degree and above
4	Years of experience in business	a.) 2 years and below b.) Between 3 and 5 years [       ]

		c.) 6 years and above
5.	Type of business	a.) Merchandising business b.) Service business [       ] c.) Manufacturing business
6.	Size of your business	a.) Micro (1-9 employees) [       ] b.) Small (10-49 employees)

**Part B: The use of Electronic Fiscal Devices (EFD) in business transactions:**

- 6) For how long have you been aware of EFD machines and their use in business activities?
- a.) Below 12 months
- b.) Between 1 year and 3 years [       ]
- c.) Between 3 and 5 years
- d.) Above 5 years
- 7) Kindly estimate the period of time that you have been using EFD machine(s) in your business.
- a.) Below 12 months
- b.) Between 1 and 4 years [       ]
- c.) Above 5 years
- 8) How do you rate your competency on the use of EFDs?
- a.) Very high
- b.) High
- c.) Moderate [       ]
- d.) Low
- e.) Very low
- 9) How do you rate your competency on maintaining the EFD machine from technical failure?
- a.) Very high
- b.) High
- c.) Moderate [       ]
- d.) Low
- e.) Very low
- 10) To what extent do you perceive benefits to the use of EFDs in your business?
- a.) Very high

- b.) High
- c.) Moderate [       ]
- d.) Low
- e.) Very low

11) Both technical factors (eg. System availability) and human factors (eg the ability of the user) affect EFD uses. Taking the impact of the two categories of factors in to consideration, how do you averagely rate your use of EFD machine in your business operations?

- a.) Above 80% of use
- b.) Between 60% and 80% of use
- c.) Between 40% and 60% of use [       ]
- d.) Between 20% and 40% of use
- e.) Below 20% of use

**Perceived Level of Punishment**

12) Any business person who fails to use the EFD machine is liable to receive punishment in terms of fines and penalties. Generally, how do you rate your knowledge on consequences (punishments) resulting from the non-usage of EFD?

- a.) Highly aware
- b.) Aware
- c.) Moderate [       ]
- d.) Unaware
- e.) Highly unaware

13) How do you rate the level of punishment (e.g. fines and penalties) to the business owner who does not comply with EFD uses?

- a.) Very high
- b.) High
- c.) Moderate [       ]
- d.) Low
- e.) Very low

14) Some business owners use / adopt EFDs because they are scared of severe penalties. Being a business owner, to what extent do you personally agree with this statement?

- a.) Strongly agree
- b.) Agree

- c.) Moderately agree [       ]
- d.) Disagree
- e.) Strongly disagree

**Probability of being reported**

15) Based on my personal experience, i think citizens report criminal incidents of non-compliance of some businesses. To what extent do you personally agree the citizens have a contribution of giving out the information?

- a.) Strongly agree
- b.) Agree
- c.) Moderately agree [       ]
- d.) Disagree
- e.) Strongly disagree

16) To what extent do you perceive that EFD uses make business owners vulnerable from being reported by their customers about the lack of compliance?

- a.) Highly vulnerable
- b.) Vulnerable
- c.) Moderate [       ]
- d.) Not vulnerable
- e.) Highly not vulnerable

**Perceived Level of Transparency of the tax system**

17) I think EFD uses enhance transparency in establishing the outstanding tax.

- a.) Strongly agree
- b.) Agree
- c.) Moderately agree [       ]
- d.) Disagree
- e.) Strongly disagree

18) I am comfortable with the current level of transparency exercised by tax officers in establishing tax liabilities.

- a.) Strongly agree
- b.) Agree
- c.) Moderately agree [       ]
- d.) Disagree

e.) Strongly disagree

**Perceived Level of Audit Effectiveness**

19) To what extent do you agree that the application of EFDs in business positively facilitates the tax audit process?

a.) Strongly disagree

b.) Agree

c.) Moderately agree [ ]

d.) Disagree

e.) Strongly disagree

20) Some people are avoiding the use of EFDs because they are scared of a higher tax liability. To what extent do you agree with this statement?

a.) Strongly agree

b.) Agree

c.) Moderately agree [ ]

d.) Disagree

e.) Strongly disagree

21) Based on your experience, to what extent do you agree on the ability of tax audit to detect non-compliance?

a.) Strongly agree

b.) Agree

c.) Moderately agree [ ]

d.) Disagree

e.) Strongly disagree

**Perceived level of procedure Fairness and Tax compliance**

22) I am aware of the procedures for the EFD system operation

a.) Strongly agree

b.) Agree

c.) Moderately agree [ ]

d.) Disagree

e.) Strongly disagree

23) To what extent do you agree that general tax procedures applied by the revenue authority offer a fair treatment to all taxpayers, including yourself?

a.) Strongly agree

b.) Agree

c.) Moderately agree [ ]

d.) Disagree

e.) Strongly disagree

24) How do you generally rate the current level of tax compliance among business owners?

a.) Highly compliant

b.) Compliant

c.) Moderate [ ]

d.) Non-compliant

e.) Highly non-compliant

## APPENDIX II: SWAHILI QUESTIONNAIRE

### DODOSO LA UTAFITI WA KIMASOMO

Ndugu mhusika,

Dodoso hili ni kwa ajili ya kufanikisha utafiti wa ndugu Agnes Malima, mwanafunzi wa shahada ya uzamivu (PhD), Chuo Kikuu Cha KwaZulu Natal, Afrika ya kusini. Lengo la utafiti huu ni kutambua mchango wa mashine za kielektroniki za kutunza kumbukumbu za biashara (EFD) katika kufanikisha ulipaji kodi wa hiari, Tanzania. Ili kufanikisha zoezi hili, ninaomba muda wako mchache katika kujibu maswali hapo chini, kwa kuchagua jibu lililo sahihi. Kama dodoso hili limekufikia kwa njia ya kielektroniki, oneshwa jibu kwa kubonyeza kitufe cha jibu sahihi. Hakikisha maswali yote yamejibiwa, ndipo ubonyeze kitufe cha kurudisha kwangu (submit). Usiri katika majibu yako umezingatiwa

Endapo unahitaji maelezo ya ziada kuhusu dodoso hili, tafadhali, wasiliana nami kupitia simu namba +255 766583848, au barua pepe ifuatayo: [aemalima@gmail.com](mailto:aemalima@gmail.com)

Natanguliza shukrani

#### Kifungu A: Wasifu wa muhusika

No	Swali	Chaguzi
1	Jinsia yako	c.) Kike d.) Kiume [ ]
2	Umri wako kwa miaka	e.) 18-30 f.) 31-40 g.) 41-50 [ ] h.) Zaidi ya miaka 51
3	Kiwango cha elimu yako	e.) Shule ya msingi f.) Sekondari g.) Cheti au diploma [ ] h.) Shahada na zaidi
4	Miaka ya uzoefu katika	d.) Miaka 2 au chini ya hapo

	biashara	e.) Kati ya miaka 3 hadi 5 [ ] f.) Miaka 6 na zaidi
5	Aina ya biashara	a.) Kuuza biadhaa b.) Kutoa huduma [ ] c.) Kuzalisha bidhaa kiwandani

**Kifungu B: Matumizi ya mashine za kielektroniki za kutunzia kumbukumbu za biashara (EFD):**

- 5) Ni muda gani sasa tangu ufahamu uwepo wa mashine za EFD, zinazotumika kutunza kumbukumbu za biashara?
- e.) Chini ya miezi 12  
f.) Kati ya mwaka 1 na 3 [ ]  
g.) Kati ya miaka 3 na 5  
h.) Zaidi ya miaka 5
- 6) Tafadhali kadiria muda ambao umekuwa ukutumia mashine ya/za EFD katika biashara yako.
- d.) Chini ya miezi 12  
e.) Kati ya miaka 2 na 4 [ ]  
f.) Zaidi ya miaka 5
- 7) Unakadiriaje uwezo wako katika kutumia mashine za EFD kwenye biashara?
- f.) Wa juu sana  
g.) Wa juu  
h.) Wa wastani [ ]  
i.) Wa chini  
j.) Wa chini sana
- 8) Unakadiriaje uwezo wako katika kurekebisha mashine ya EFD kipindi hitilafu ya kiufundi inapotokea?
- f.) Wa juu sana  
g.) Wa juu  
h.) Wastani [ ]  
i.) Wa chini  
j.) Wa chini sana

- 9) Ni kwa kiwango gani unadhani matumizi ya machine ya EFD yana faida kwenye biashara yako?
- f.) Cha juu sana
  - g.) Cha juu
  - h.) Cha wastani [            ]
  - i.) Cha chini
  - j.) Cha chini sana
- 10) Zingatia sababu za kiufundi na zile za kibinadamu, pale ambapo ungepaswa kutumia, unakadiriaje matumizi ya EFD katika biashara yako kwa sasa?
- a.) Matumizi ni zaidi ya 80%
  - b.) Matumizi ni kati ya 60% na 80%
  - c.) Matumizi ni kati ya 40% na 60% [            ]
  - d.) Matumizi ni kati ya 20% na 40%
  - e.) Matumizi ni chini ya 20%

**Mtazamo wako kuhusu kiwango cha adhabu**

- 11) Mfanyabiashara yeyote ambaye hushindwa kutumia mashine ya kieletroniki (EFD) hupewa adhabu ya kulipa faini na fidia. Unakadiriaje ufahamu wako kuhusu adhabu za kisheria zitokanazo na kutokutumia EFD kwenye biashara yako?
- f.) Wa juu sana
  - g.) Wa juu
  - h.) Wa wastani [            ]
  - i.) Wa chini
  - j.) Wa chini sana
- 12) Unakadiriaje kiwango cha adhabu inayotolewa kwa mmiliki wa biashara ambaye hazingatii matumizi ya EFD?
- f.) Cha juu sana
  - g.) Cha juu
  - h.) Cha wastani [            ]
  - i.) Cha chini
  - j.) Cha chini sana
- 13) Baadhi ya wamiliki wa biashara huamua kutumia EFD kwa sababu wanaogopa adhabu kali. Kwa kuwa wewe ni mfanyabiashara, ni kwa kiwango gani unakubalina na kauli hii?

- f.) Nakubali sana
- g.) Nakubali
- h.) Nakubali kwa wastani [            ]
- i.) Sikubali
- j.) Sikubali kabisa

**Uwezekano wa kushitakiwa kwa kutokutumia EFD**

14) Kulingana na uzoefu binafsi, umeshuhudia baadhi ya watu wakitoa taarifa kuhusiana na matukio ya ukiukwaji sheria za kikodi. Kwa kuzingatia uzoefu wako, tafadhali kadiria kiwango cha uaminifu wa wananchi katika kutoa taarifa za matukio ya uhalifu.

- f.) Cha juu sana
- g.) Cha juu
- h.) Cha wastani [            ]
- i.) Cha Chini
- j.) Cha chini sana

15) Ni kwa kiwango gani unadhani matumizi ya EFD huwawezesha wanunuzi kutoa taarifa za ukiukwaji wa matakwa ya kodi, pale mfanyabiashara wanapofanya hivyo?

- f.) Kikubwa sana
- g.) Kidogo
- h.) Wastani [            ]
- i.) Kidogo
- j.) Kidogo sana

**Mtazamo wako kuhusu kiwango cha uwazi wa taarifa**

16) Kwa mtazamo wangu, matumizi ya EFD yameongeza uwazi wa taarifa zitumikazo katika kukokotoa au kukadiria madeni ya kodi

- f.) Nakubali sana
- g.) Nakubali
- h.) Nakubali kwa wastani [            ]
- i.) Sikubali
- j.) Sikubali kabisa

17) Kwa mtazamo wangu, ninaridhishwa na kiwango cha sasa cha uwazi kinachooneshwa na maofisa wa mamlaka ya mapato, katika kukokotoa deni lako la kodi

- a.) Naridhika sana

- b.) Naridhika
- c.) Naridhika kwa wastani [            ]
- d.) Siridhiki
- e.) Siridhiki kabisa

**Mtazamo wako kuhusu ufanisi katika ukaguzi wa kodi**

18) Ni kwa kiwango gani unakubali kwamba matumizi ya EFD kwenye biashara husaidia kufanikisha zoezi la ukaguzi wa kodi?

- f.) Nakubali sana
- g.) Nakubali
- h.) Nakubali kwa wastani [            ]
- i.) Sikubali
- j.) Sikubali kabisa

19) Baadhi ya watu hukwepa kutumia EFD kwa sababu wanaogopa deni kubwa la kodi. Ni kwa kiwango gani unakubaliana na kauli hii?

- f.) Nakubali sana
- g.) Nakubali
- h.) Nakubali kwa wastani [            ]
- i.) Sikubali
- j.) Sikubali kabisa

20) Kulingana na uzoefu wako, ni kwa kiwango gani unakubali kuwa zoezi la ukaguzi wa kodi lina uwezo wa kufichua uvunjifu wa sheria za kodi?

- a.) Nakubali sana
- b.) Nakubali
- c.) Nakubali kwa wastani [            ]
- d.) Sikubali
- e.) Sikubali kabisa

**Mtazamo wako kuhusu usawa katika taratibu za kodi**

21) Kwa mtazamo wangu, ninadhani ninafahamu taratibu za undeshaji mfumo wa EFD katika shughuli za kila siku

- f.) Nafahamu sana
- g.) Nafahamu
- h.) Nafahamu kwa wastani [            ]

- i.) Sifahamu
  - j.) Sifahamu kabisa
- 22) Ni kwa kiwango gani unakubali kwamba taratibu za kodi zinazotumiwa na mamlaka ya mapato hutoa haki sawa kwa walipakodi wote ukiwemo wewe?
- f.) Nakubali sana
  - g.) Nakubali
  - h.) Nakubali kwa wastani [            ]
  - i.) Sikubali
  - j.) Sikubali kabisa
- 23) Unakadiriaje kiwango cha ulipaji kodi kwa hiari cha wafanyabiashara kwa sasa?
- a.) Cha juu sana
  - b.) Cha juu
  - c.) Cha wastani [            ]
  - d.) Cha chini
  - e.) Cha chini sana

### **APPENDIX III: INTERVIEW QUESTIONS**

#### Interview questions

1. What are the impacts of non-compliance should a person be reported through whistleblowing?
2. Why the users with a lesser experience on using EFDs are do not fear whistleblowing compared to others?
3. Why do you think there are times where you fail to use the EFD machine in your business?
4. What makes the process of maintaining the EFD difficult?
5. Why do you think those with more business experience avoided tax compliance?
6. Why is the rate of EFD use had no impact on the level of tax compliance?