

**ELECTRONIC FISCAL DEVICES (EFDs): A TOOL OF
ENHANCEMENT OF VALUE ADDED TAX (VAT) COMPLIANCE
IN TANZANIA:
A CASE OF TANZANIA REVENUE AUTHORITY (TRA) - ARUSHA
TAX REGION**

**ELECTRONIC FISCAL DEVICES (EFDs): A TOOL OF
ENHANCEMENT OF VALUE ADDED TAX (VAT) COMPLIANCE
IN TANZANIA:
A CASE OF TANZANIA REVENUE AUTHORITY (TRA) - ARUSHA
TAX REGION**

**BY
DAVID LEONARD**

**A Dissertation Submitted in Partial Fulfilments of the Requirements for
Award of the Degree of Master of Business Administration – Corporate
Management (MBA-CM) of Mzumbe University**

2014

CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, a dissertation entitled “**Electronic Fiscal Devices (EFDS): A Tool Of Enhancement Of Value Added Tax (VAT) Compliance In Tanzania: A Case of Tanzania Revenue Authority (TRA) - Arusha Tax Region**” in fulfilment of the requirements for award of the degree of Masters of Business Administration of Mzumbe University.

.....

Major Supervisor

.....

Internal Examiner

Accepted for the Board of School of Business

.....

Dean School of Business

DECLARATION

AND

COPYRIGHT

I DAVID LEONARD, declare that this dissertation is my own original work and that it has not been presented and will not be presented to any other university for similar or any other degree award.

Signature

Date

©

DAVID LEONARD

2014

This dissertation is a copyright material protected under the Berne Convention, the Copyright Act 1999 and other international and national enactments, in that behalf, on intellectual property. It may not be reproduced by any means in full or in part, except for short extracts in fair dealings, for research or private study, critical scholarly review or discourse with an acknowledgement, without the written permission of the Mzumbe University, on behalf of the author.

ACKNOWLEDGEMENT

I wish to thank all people who in various ways helped me to accomplish this study. The production of this dissertation would not have been possible without the help and abundant counsel given to me by my major supervisor AlexRocke of the School of Business - Mzumbe University. I would also like to express my sincere thanks to course lectures and staff members of School of Business for their constant friendly cooperation and encouragement they had provided to me during my study period.

The management of TRA Arusha Regional Office including heads and their subordinates deserve great appreciations for their very helpful support to my work. I would like also to thank all respondents of VAT registered traders at Arusha Municipal without them this study would not have been possible and successful.

DEDICATION

I dedicate this research report to my parents Mr. and Mrs. Leornad and to all my family members for their great support during the time of my study.

ABBREVIATION AND ACRONYMS

ARM	Assistant Regional Manager
EBT	Economic Based Theory
EFD	Electronic Fiscal Devices
EFDMS	Electronic Fiscal Devices Management Software
EFP	Electronic Fiscal Printer
ESD	Electronic Signature Device
ETR	Electronic Tax Register
FY	Financial Year
ICT	Information and Communication Technology
IMF	International Monetary Fund
PT	Psychological Theory
TRA	Tanzania Revenue Authority.
URT	United Republic of Tanzania
VAT	Value Added Tax
TSH	Tanzanian Shillings

ABSTRACT

It has been considered as a major source of income and governments are taking responsibilities of ensuring its collection is of success. To increase the efficiency of collections, governments have formed institutions which are direct dealing with revenue collection, for example in Tanzania the Tanzania Revenue Authority (TRA). The major source of income collected is through Value Added Tax (VAT) and other taxes. VAT has significance on the domestic economy and on government policies (especially fiscal policies (URT, 2010). To improve the corrections of VAT, TRA introduced the use of Electronic Fiscal Devices. The aim this study is to examine the electronic fiscal devices as a tool of enhancement of value added tax compliance in Tanzania. Very specifically on the effect of EFDs in filling, remittance and refund process to VAT collection, the effectiveness and efficiency of EFDs in VAT collection and the influence of EFDs in VAT compliance.

The total sample of 130 respondents were selected, sample for this study was drawn from the complete list of all employees and VAT registered taxpayers at the Arusha Tax Region in total 10 employees from TRA Arusha Tax Region and 120 VAT registered traders were involved. In this study the researcher uses interviews, questionnaires, documentary analysis. Descriptive analysis was conducted as it allows data to be quantified analyses. The use of different tools like tables, graphs and percentages or means were utilized, also where necessary further analysis was conducted using cross tabulation. Chi- square was deployed as a measure of acceptance or rejection of the hypothesis.

The study has the following findings EFDs do simplify the filling of returns mean of 1.56, do simplify remittance mean 1.97, do simply refund process mean 1.88 and EFD is time saving in tax payment activities in general mean 1.80. When ranked it was observed that EFDs do simplify the filling of return process than other activities followed by time saving in tax payment activities in general, then it simply refund process and lastly simplifies remittances. Further the findings show that EFDs do simplify the filling of returns at 41.28% calculated as mean of $3.44/5 \times 60\%$. The 60% is taken because the mean 3.4375 is under the group of 41% to 60%, so the maximum value was taken to compute the mean percentage.

The same concept has been used to calculate the other VAT payment activities. Therefore, EFDs do simplify the remittance by 39% calculated as $3.25/5 \times 60\%$, simplify refund process by 17.28% calculated as $2.16/5 \times 40\%$, and saves time for VAT payment activities in general by 31.44% calculated as $2.62/5 \times 60\%$ (60% is used because 2.62 can be approximated to 3 so possible maximum value is 60% not 40%). Moreover the effectiveness was measured in terms of low cost compared to VAT collected, register all EFDs hence more revenue collected, reducing much time and efforts in tax compliance and correct filled tax return. The findings on those measurements show that when EFDs is used it is of low cost compared to VAT collected mean of 1.06, that all EFDs are registered by TRA hence more VAT collected mean of 1.5, using EFDs have freed taxpayers from using much efforts in tax compliance mean of 1.5 and that all transactions are entered or recorded in EFDs hence fill the correct tax return mean of 1.97. The results show that taxpayers have required devices which include the Electronic Tax Register (ETR) also known as Electronic Fiscal Cash Register (EFCR), the Electronic Fiscal Printer (EFP) and the Electronic Signature Device (ESD) mean of 1.44. Also the results reveal that taxpayers and TRA has the specific budget to maintain the system or the devices mean of 1.16, and that have experts in operating the system and do attend the trainings mean of 1.38. when the output were measured the findings show that the output are achieved as there an increase in VAT collections, reduction of queuing time, EFDs do encourage VAT compliance and reduces costs of VAT collections.

In conclusion EFDs do influence VAT collections or compliance for about 30% and that the positive relationship between EFD and VAT compliance do exist. From the e ANOVA results which show, a sig.0.120 it means there significant effect of EFD to VAT compliance compared to standard 0.05 of Cohen. Therefore, the hypothesis that said there positive relation between EFDs and VAT compliance has been accepted and the influence are measured at the rate of 30%. The researcher recommends that TRA should make comparison possible in the EFDMS and EFDMS must show the details of each transaction done.

TABLE OF CONTENTS

CERTIFICATION	i
DECLARATION AND COPYRIGHT	ii
ACKNOWLEDGEMENT.....	iii
DEDICATION	iv
ABBREVIATION AND ACRONYMS.....	v
ABSTRACT	vi
LIST OF TABLES	xi
LIST OF FIGURES	xii
CHAPTER ONE	1
INTRODUCTION	1
1.0 Introduction	1
1.1 Background to the Problem	1
1.1 Statement of the Problem	4
1.3 Research Objectives	5
1.3.1 General Objectives	5
1.3.2 Specific Objectives	5
1.4 Research Questions	6
1.5 Significances of the Study	6
1.6 Scope and Limitation of the Study	6
1.7 Organization of the Study.....	7
CHAPTER TWO.....	8
LITERATURE REVIEW	8
2.0 Introduction	8
2.1 Definition of the Key Terms.....	8
2.1.1 Value Added Tax.....	8
2.1.2 Electronic Fiscal Devise	8
2.1.3 Tax Compliance.....	8
2.2 Tax Overview	9
2.3 Theories of Tax Compliance	10
2.3.1 Economic Based Theories	10

2.3.2 Psychological Theories.....	11
2.4 Factors Affecting Compliance Behavior	12
2.5. Application of EFD in Tanzania.....	14
2.5.1 EFD Infrastructures Support in VAT Collection.....	15
2.6 Empirical Literature Review	16
2.7 The Conceptual Framework	19
2.8 Hypothesis	20
CHAPTER THREE.....	21
RESEARCH METHODOLOGY	21
3.0 Introduction	21
3.1 Research Design	21
3.2 The Study Population	21
3.3 Sample Size and Sampling Technique	22
3.3.1 Sampling Techniques	22
3.4 Data Collection Methods and Instruments	22
3.4.1 Questionnaire.....	23
3.4.2 Interviews	23
3.5 Validity and Reliability	24
3.5.1 Validity	24
3.5.2 Reliability	24
3.6 Ethical Issues	24
3.7 Data Analysis.....	25
CHAPTER FOUR	26
PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS	26
4.0 Introduction	26
4.1 Characteristics of Respondents.....	26
Experiences of Respondents.....	27
Distribution of respondents by Education level	27
4.2 The Effect of EFDs in Filling, Remittance and Refund Process to VAT Collection..	28
4.3 The Effectiveness and Efficiency of EFDs in VAT Collection	34
4.3.1 The Effectiveness of EFDs in VAT Collections	34
4.3.2 The Efficiency of EFDs in VAT Collections	37

4.4 The Influence of EFDs in VAT Compliance.....	40
4.4.1 Opinion on the Trends of VAT collection.....	40
4.4.2 Relationship between EFD and VAT Compliance.....	42
CHAPTER FIVE	45
SUMMARY, CONCLUSION AND RECOMMENDATIONS	45
5.0 Introduction	45
5.1 Summary of Research Findings.....	45
5.2 Conclusion of Research Objectives.....	47
5.3 Recommendations	49
5.3.1 Making Comparison Possible in the EFDMS	49
5.3.2 Educating Taxpayers	50
5.3.3 Affiliation of Police Officers and the Public in General	50
5.3.4 Reducing Number of VAT Exemptions	50
5.3.5 EFDMS Must Show the Details of Each Transaction Done	50
REFERENCES	51
APPENDICES.....	56

LIST OF TABLES

Table 3.1: The Sample Size.....	22
Table 4.1: Respondent Distribution by Gender	27
Table 4.2: Respondent Distribution by Experiences	27
Table 4.3: Respondent Distribution by Education Level	28
Table 4.4: The Applicable EFD in VAT Collection.....	29
Table 4.5: The Extent of the Use of the EFDs	30
Table 4.6: The Effect of EFDs to VAT Collections	31
Table 4.7: The extent of EFDs in Simplifying VAT payment Activities.....	31
Table 4.8: Effectiveness of Various Activities in VAT collection.....	36
Table 4.9: Measurement of the Input of EFDs	37
Table 4.10: Measurement of Output of EFDs	38
Table 4.11: Fairness of EFDs Operationalization Costs	39
Table 4.12: The perception of EFDs in Practice	39
Table 4.13: Trend of Various aspects of VAT compliance after introduction of EFDs ...	41
Table 4.14; Model Summary	43
Table 4.16; ANOVA Results.....	44
Table 4.15; Coefficients of Regressions.....	44

LIST OF FIGURES

Figure 4.1: Use of EFD in increse of VAT collections	32
Figure 4.2: General Contribution of EFDs in VAT collections	33
Figure 4.3: Effectiveness of EFDs in VAT Collection.....	35
Figure 4.4: Trend of VAT registered taxpayers after introduction of EFDs	41

CHAPTER ONE

INTRODUCTION

1.0 Introduction

The study is about Electronic Fiscal Devices (EFDs) as a tool of enhancement of Value Added Tax (VAT) compliance in Tanzania. The chapter covers the introduction section, the background to the problem, the statement of the problem and research objectives. The chapter also discusses the research questions, significance of the study, scope and limitation of the study and lastly the organization of the study.

1.1 Background to the Problem

Taxation is one of the important elements in managing national income, especially in developed countries and has played an important role in civilized societies since their birth thousands years ago (Lymer& Oats, 2009). It has been considered as a major source of income and governments are taking responsibilities of ensuring its collection is of success. To increase the efficiency of collections, governments have formed institutions which are direct dealing with revenue collection, for example in Tanzania the Tanzania Revenue Authority (TRA). The major source of income collected is through Value Added Tax (VAT), though there other sources of taxes such as corporate tax, income tax and the like. VAT has significance on the domestic economy and on government policies (especially fiscal policies (URT, 2010). Its significance is due to the fact that VAT works on the destination principle which means that all imported products are levied with VAT, while all exported products have no VAT (Loudon, 2007). That is to say VAT is levied on the goods and services that are consumed in Tanzania, not the goods and services that are consumed elsewhere. VAT has been the heart of tax compliance issue as when claimed to be the most efficient and contributing revenue source, it has also criticized for the heavy compliance costs associated with its introduction (Wheatley, 2004).

VAT it-self is a consumption tax which is paid by the consumer at a rate of 18% of the value of the product bought (URT, 2012) and was 20% during its introduction in 1st July 1998 however started operations on 1st January 1999.

Retailers are collection agents for the tax. The retailer who sells the good sends the tax to the TRA on the consumer's behalf (URT, 2011). VAT works on an input output system instead of all the tax being levied at the final retail point which is levied as the value is added to the good or service in the chain of production (Wheatley, 2004). The cost of producing a product can be divided into two categories first category is the cost of purchase inputs that are goods and services purchased by the producer. The second category is the cost of value added for example labour costs, profits, rents and interest (IMF, 2005). The value added is the output value minus the costs of purchased inputs. The VAT that the producer sends to TRA is output VAT minus input VAT. The retailer will only send VAT on his/her own value added (the service of making the product available to the consumer) to the TRA (Lymer & Oats, 2009). The rest of the VAT has already been sent to the TRA when the retailer bought the product and paid VAT on it. It should be noted that VAT was mainly introduced to replace the Sales Tax, which was unable to generate sufficient revenue as it was narrow based (Loudon, 2010). VAT was considered more advantageous than Sales Tax as it is charged on all goods and services except those which are specifically exempt; it is economically neutral; it encourages exports and it is simple to administer (Lymer and Oats, 2009).

However, majority of the small businesses in Mainland Tanzania are not registered for VAT, they pay VAT on their purchases of taxable supplies (URT, 2010) and VAT becomes part of their costs but do not claim input tax because they are not registered for VAT (Clifford & Amayi (2013)). Since its introduction VAT has been using the manual system of collecting revenue which faces the following problems; Some of the VAT registered traders are not issuing tax invoices; non-accounting for VAT on sales regardless of whether they have issued a tax invoice or not; using more than one tax invoice books, one for tax purposes and hiding other books for his/her own use; difficult in the management of the VAT repayment claims (URT, 2010). During manual system the VAT registered trader was required to issue manual Tax Invoice to the purchaser and use the same to claim input tax. It was easy for the trader to make alteration to the tax invoice issued or received during the process of buying and selling (URT, 2011).

In order to reduce if not eliminate the manual system of VAT collection problems, the Government of Tanzania decides to use the Electronic Fiscal Devices (EFDs) so as to increase transparency and control of VAT collection, remittance and tax refund processing (Clifford & Amayi 2013). The introduction of EFDs helps to properly record sales, all sales are properly accounted for, VAT rate is charged appropriately and traders are refunded in time (URT, 2011). To enhance the application of EFDs, Electronic Tax Registers (ETRs) and Electronic Signature Devices (ESDs) were introduced by TRA to replace the manual paper system of issuing receipts and remitting VAT returns that was considered inefficient and straining. These devices offer unique benefits to traders and the Revenue Authority alike by recording transaction data in such a manner that it cannot be deleted.

Moreover, costs to taxpayers of the tax systems used in the processing and remittance of tax returns have been overlooked (Wheatley, 2004). It was in this regard TRA had tried to move from a system with rates and structures that are difficult to administer and comply with, the system with unresponsive both to growth and discretionary tax measures hence offering low tax productivity by introducing the electronic filing and electronic commerce to collect taxes from the taxpayers as other developed countries such as USA and Canada (URT, 2011) from October 1, 2010 with the main aim of enhancing VAT compliance (URT, 2010). The system aims at allowing the tax officer to get correct sales information from taxpayers, reduces tax collection costs and helping taxpayers to comply with the VAT regulations among others (URT, 2010).

Furthermore, the Tanzania national ICT policy of March 2003 together with TRA third Corporate Plan of 2008/9 to 2012/13 goal number two are insisting to modernize TRA Operations. A state of the art Information and Communication Technology (ICT) is one of the very important elements of an effective modern tax administration. ICT deployment was playing an important pivotal role in the implementation of the TRA third Corporate Plan. Information and Communication Technology (ICT) offers new opportunities to enhance revenue collection and to improve the quality of information delivery in tax collection in all areas.

The Ministry of Finance believes that the use of EFD in Tax collection as well as administration and management represent powerful tool with which to achieve economic development and National development objective which stipulated in the National Development Vision of 2025 that is effective implementation of ICT facilities in all sectors of the economy in order to reach the high quality human life hood. The Ministry has therefore formulated this policy to guide the integration of ICT in financial activities. However, there are number of challenges which affect the implementation EFD system. Among them being taxpayers not to issue a receipt from the EFD.

1.1 Statement of the Problem

It is evident that in order to increase VAT compliance, get correct sales information and reduce tax collection cost TRA introduces EFD in VAT collection (URT, 2010). The EFD is used for issuance of fiscal receipts. It is a machine designed for use in business for efficient management controls in areas of sales analysis and stock control system which conforms to the requirements specified in the Regulations and duly registered under regulation (URT, 2011).

In Tanzania context, TRA is insisting traders who are VAT registered to acquire and use EFD machine, there are some traders who have acquired the machine but not using them as intended (URT, 2010). The TRA is in the process of improving its automated systems and processes in the management of Value Added Tax (VAT) compliance through the use of Electronic Fiscal Devices by VAT registered taxpayers (URT, 2011).

Main reasons for introducing EFD machines to collect VAT is to broaden the tax base, to attain economic neutrality, to promote exports, and to attain its administrative advantages (URT, 2010). EFDs are an aid to tax revenue collections, the TRA says the machines have been showing considerable difference for the better, especially in the area of value-added tax (VAT) collections (URT, 2010). TRA acting director of Taxpayer Services & Education, YeremiahMaghi, said tax collections from VAT-registered operators have improved since TRA introduced the devices two years ago (Murutu 9th October 2012, Daily newspaper). For instance, TRA collected a total of Tsh785, 882.4 million in the 2009/2010 financial year, before the EFDs were introduced.

By comparison, the Authority collected Tsh791, 462.9 million in FY- 2010/11, immediately following introduction of the devices (URT, 2011) and in the following year – FY-2011/12 – TRA collected Tsh1, 086,374.0 million, about a 40 per cent increase (URT, 2013).

It indicates that the introduction and use of the machines has brought about marked improvement in the collection of VAT. According to the Revenue Authority, there are at least 14,000 EFDs that are currently in use across Tanzania, and the target is to cover all the VAT-registered traders in the country, who are estimated to number 17,000 (URT, 2013).

However, there have been tendencies of taxpayers not to issue the receipts for the sale they make hence not be included in the tax liability calculations. Therefore this proposed study seeks to examine the electronic fiscal devices as a tool of enhancement of value added tax (VAT) compliance in Tanzania, a case of Arusha Tax Region.

1.3 Research Objectives

The research objectives of this study can be divided into two, the general objective and the specific objectives. Specific objectives are formulated in a way that can be used to answer and express the general objective.

1.3.1 General Objectives

The general objective of this study was to examine the electronic fiscal devices as a tool of enhancement of value added tax compliance in Tanzania.

1.3.2 Specific Objectives

- i) To assess the effect of EFDs in filling, remittance and refund process to VAT collection.
- ii) To assess the effectiveness and efficiency of EFDs in VAT collection
- iii) To examine the influence of EFDs in VAT compliance

1.4 Research Questions

- i) What are the effect of EFDs in filling, remittance and refund processing?
- ii) Is collecting VAT using EFDs an effective and efficiency mode?
- iii) What is the influence of EFDs in VAT compliance?

1.5 Significances of the Study

The study was intended to reveal the effectiveness and the efficiency use of the EFD machine especially on influencing VAT compliance. This study enables to identify the efficiency and the effectiveness of EFDs looking the areas of increasing tax collection, number of tax payers, simplicity of the system and tax returns processing.

Also, the finding of the study shows the problems facing taxpayers in the process of adopting or implementing EFDs machine and the suggested ways to alleviate them. Therefore, the study benefits tax payers by enabling the TRA to solve problems facing taxpayers doing so may increase government revenues.

Moreover, the study was contributed to the existing literature and it helps other researchers to identify viable areas for further research. Apart from that, the study helps the government official to formulate suitable policy which relate with the real situation of Tanzania in order to overcome with the problem of tax collection so as to increase government revenue.

1.6 Scope and Limitation of the Study

The geographical focal point of the study is TRA Arusha Tax Region. An attempt is made to use data from TRA employees (Tax Officers) and taxpayers who are registered most of them are involved in activities such as Pharmacy Shops, Chemical/Drugs Store Operators, Hardware, Retail shops, Sub whole sales, and wholesales. The study involves examining the EFD especially its effectiveness and its efficiency in use but also its influence on voluntary compliance.

This study has faced some limitations during carrying it out, these limitations should not be taken as an excuse for unreliability of information. The limitations include time constraint and financial resources. Further, the study is based at Arusha tax region instead of large coverage of Tanzania. However, the researcher was kin and included registered traders who have experience in business and paying tax and most important who use EFDs services.

1.7 Organization of the Study

Chapter 1 of this study introduced the problem statement and described the specific problem addressed in the study as well as design components. Chapter 2 presents a review of literature and relevant research associated with the problem to be addressed in this study. Chapter 3 presents the methodology and procedures which was used for data collection and analysis. Chapter four present, analyses and discusses data analysis of the findings, Chapter five presents summary, conclusion and recommendation of the research findings.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter provides the literature on the EFDs and VAT compliance. The review includes definition of key terms, the EFDs, theories of tax including tax overview, the VAT compliance in Tanzania after introduction of EFDs and the empirical literature. Other issues covered in this chapter are conceptual framework, research gap and the research hypothesis.

2.1 Definition of the Key Terms

For the purpose of this study, the following terms was defined as follows.

2.1.1 Value Added Tax

VAT is a consumption tax levied by the government and paid by final consumer at the rate of 18% in Tanzania (URT, 2010). In this study VAT it mean that the final tax which is paid by the final consumer when is buying goods and services.

2.1.2 Electronic Fiscal Devise

Electronic Fiscal Device is a machine designed for use in business for efficient management controls in areas of sales analysis and stock control system and which conforms to the requirements specified under the Value Added Tax (URT, 2011). In this study Electronic Fiscal Devices it mean that is the machine which were used to provide receipt to the customer after selling goods and services.

2.1.3 Tax Compliance

Tax compliance means that business or organizations complies with statutory and legal tax obligations (URT, 2010). In this study Tax Compliance means that the organizations complies with all statutory and legal obligations regarding the selling and buying goods and services, and submitting VAT returns to TRA.

2.2 Tax Overview

Tax is a compulsory payment from an individual to the state. According to TRA-Handbook (2008) Taxation is important part of the fiscal policy of Government. Through Tax the governments raise its revenue required for recurrent and development expenditure. Citizen of any country have a civil obligation of paying taxes to the government so as to enable it to meet the cost of providing social and economic services. Tax is imposed by government on either income, expenditure or capital asset for which taxpayer receives nothing specific in return.

Tax has several basic principles, namely equity, certainty, convenience and efficiency. Lymer and Oats (2009) explained *Equity principle* as means a tax system should be fair among individuals and taxes should be levied based on taxpayers' capacity. Horizontal equity means that taxpayers with the same income or wealth should pay the same amount of tax (tax burden) while vertical equity means that taxpayers with high income (capacity) should pay higher tax (tax burden); The second principle is the *Certainty principle* which is defined as a taxpayer knowing his or her tax liability and when and where to pay the tax. It relates to the simplicity of the tax systems so that the taxpayers are easily understood and capable of calculating their tax liability. The third principle is the *Convenience principle* which relates to how people pay their taxes or engage with the tax system. For example, people more conveniently pay tax by it being deducted at source rather than paying a large amount of tax annually (Lymer and Oats, 2009).

The introduction of electronic filing is another example of a facility provided by the tax authority to ease the method of filing tax returns. The fourth principle is the *Efficiency principle* which refers to how the tax authority collects the tax revenues and can be divided into two subsections: administrative efficiency and economic efficiency. Administrative efficiency refers to the costs involved when collecting tax revenues. The more a tax costs to administer, the less of the money raised is available to the government to spend. The administrative cost should be as small as possible to achieve desirable economic efficiency (Lymer and Oats, 2009). Economic efficiency referring to tax should not interfere with the working of the markets.

For example, the introduction of a new tax or increase on the tax rates should not distort or affect taxpayers' behaviour (i.e. from compliant to less compliant) (Cummings *et al*, 2005).

Furthermore taxes can be classified into two main types: direct and indirect taxes. Direct taxes mean the burden (incidence) of tax is borne entirely by the entity/individual that pays it, and cannot be passed on to another entity/individual for example, corporation tax and individual income tax (Yilmaz & Coolidge 2013). Indirect taxes are typically the charges that are levied on goods and services (consumptions); for example VAT (Value Added Tax), sales tax, excise tax and stamp duties. Indirect taxes are not levied on individuals, but on goods and services. Mansoret *al*, (2005) contended that customers indirectly pay this tax in the form of higher prices. For example, it can be said that while purchasing goods from a retail shop, the retail sales tax is actually paid by the customer. The retailer eventually passes this tax to the respective authority. The indirect tax actually raises the price of the goods and the customer's purchase by paying more for that product. Unlike indirect tax, direct taxes are based on 'ability to pay' principle but (by being very obvious to the taxpayer) they sometimes work as a disincentive to work harder and earn more because that would mean paying more tax.

2.3 Theories of Tax Compliance

Tax compliance is mainly guided by two theories, the economic based theories and psychology based theories.

2.3.1 Economic Based Theories

Economic Based Theory (EBT) are also known as deterrence theory and they place emphasis on incentives. The theory of EBT suggests that taxpayers are moral utility maximizes; they are influenced by economic motives such as profit maximization and probability of detection (Feld & Frey, 2007). As such they analyze alternative compliance paths for instance whether or not to evade tax, the likelihood of being detected and the resulting repercussions and then select the alternative that maximizes their expected after tax returns after adjusting for risk (Trivedi & Shehata, 2005).

This process is referred to as “playing the audit lottery. Therefore according to the EBT, in order to improve compliance, audits and penalties for non-compliance should be increased.

The EBT has been used in different areas of the research to explain how different economic motives enable taxpayers to pay tax. However through EBT taxpayers are able to pay VAT through the maximization of the profit which they accumulated in their business activities (Feld & Frey, 2007). Wanjiku (2010) applied this theory on his increasing efficiencies of economic performance of various entrepreneurs in their daily activities through their financial transactions they perform.

Similarly to that, a study conducted by Papert’s on the turtle micro-world of logo argues that EBT is the one of the ways which improves efficiency of the businessman to pay VAT. This to certain degree influence the way of VAT collection through tax compliance. Indeed, it seems that the combination of the EBT is more appropriate for using EFD in increasing VAT compliance.

Applicability of Economic Based Theory (EBT)

In this study, EBT helps to understand how the taxpayers use EFD in selling goods and services. The taxpayers in the business areas were needed to give receipt to the customer when buying goods or when providing services. From EBT perspective the primary responsibility of the taxpayers is to provide receipt to the customers when buying goods or when providing services. TRA have argued that the primary responsibility of the tax payers is to use EFD machines to provide receipt to the customers in business areas (URT, 2010). From this perspective the use of EBT in VAT collection is to increase the understanding of how the business will be conducted and to determine the proper tax which will be collected from the taxpayers.

2.3.2 Psychological Theories

The founder of the Psychological Theory (PT) is Piaget (Pask, 1975). PT explains that the taxpayers are influenced to comply with their tax obligations by psychological factors which focus on the taxpayers’ morals and ethics (Ernest, 1994).

The theories suggest that a taxpayer may comply even when the probability of detection is low as opposed to the economic theories that emphasize increased audits and penalties as solutions to compliance issues, psychology theories lay emphasis on changing individual attitudes towards tax systems (Ford, 1964). Therefore, EFD machines will need psychological preparation of the taxpayers to be prepared well to use EFD machines in their business areas and the technological tools as well as the type of technical and administrative support mechanisms required for EFD to take place (URT, 2010). The taxpayer and the business that pay the VAT must be prepared well before given EFD to use in their business activities. The taxpayers must be prepared psychologically effective before using new technology including this EFD machines.

A study conducted by Ernest (1996) on the role ICT in attracting financial company in economic growth recommended that manager of the financial companies should be prepared well in term of the psychological way so as to attract customer and to pay tax. Therefore tax payers and customers must be prepared well in terms of psychological way in order to be aware on the role of tax in development of our economy. Therefore to day the use of the EFD tax payers should be prepared psychologically in all level of implementing the EFD as the new technology for taxpayers.

Applicability of Psychological Theory (PT)

In this study, PT helps to understand and prepare EFD machines as a technological tools and programs to support the use of EFD in increasing VAT compliance which must be conceived in such a way as to stimulate the electronic VAT collection. Therefore, today in using EFD taxpayers should be prepared effectively in term of psychology in order to use effectively EFD machines.

2.4 Factors Affecting Compliance Behavior

There are two broad approaches to the problem of tax compliance that is the one developed from economic rationality, using the economic analysis, while the second is concerned with behavioral issues and draws heavily on concepts and researches from other disciplines, such as psychology and sociology (OECD, 2006).

Economic and behavioral approaches are sometimes regarded as competing explanations (Valeria, 2004). The economic approach identifies economic factors that affect the tax compliance behavior as follows; a) Financial burden: There appears to be a relationship between the amount of tax owed and compliance behavior. For example if a business owner has a tax liability that can easily be paid, he/she may be willing to comply. However if the liability is large, potentially threatening the viability of the business, the owner may avoid paying it or trying to adjust the data reported so as to incur a smaller (but incorrect) tax liability (Palil, 2010); b) The costs of compliance: Costs of compliance are the common costs a taxpayer has to incur in complying with tax obligations for example, time taken to complete tax returns, costs of hiring tax accountants, psychological costs such as stress, arising as a result of uncertainty that one is not sure that he/she has met all of the tax rules.

The list is not exhaustive. The higher the compliance costs, the higher the chance of non-compliance (OECD, 2003); c) Incentives: Giving taxpayer incentives may have a positive effect on tax compliance (Kirchler *et al*, 2007). The behavioral scholars identified behavioral factors that affect the compliance behavior as follows:- i) Individual differences for example, gender, age, education level, moral compass, industry, personality, circumstances and personal assessment of risks; ii) Perceived inequity. Tax payers who believe that the system is unfair or who have personal experiences of unfair treatment are less likely to comply iii) Perception of minimal risks. If a taxpayer has the opportunity not to comply, and perceives that there is only a minimal risk of being detected he/she will take the opportunity (Kirchler *et al*, 2007) iv) Risk taking. Some people view tax avoidance/tax evasion as a game to be played on and on. They would like to test their skills in avoiding being caught (OECD, 2006).

The compliance attitude of the taxpayer is affected by the factors from the external environment of the taxpayer, for example, the nature of the business, industry and economic conditions prevailing on the market such as demand and supply. These are the factors that affect the competitive advantage hence creating a perception that non-compliance to tax is the solution. It is also affected by internal factors, such as sociological and psychological factors (Clifford and Amayi, 2012).

This suggests that to improve the taxpayer compliance, should target at improving the taxpayer capability to overcome the forces from those factors as outlined above, hence creating a positive tax compliance behavior and attitudes (Roak and Stephen, 1994). However, Lackson and Miliron (1986) listed the main factors that have influence as ethics, legal sanctions, complexity of the tax laws, and relationship with the tax authority, level and reliability of income sources, perceived fairness of the tax system possibility of being audited and the level of tax rates.

2.5. Application of EFD in Tanzania

The use of EFD in developing countries like Tanzania is considered to be necessary in order to overcome the challenges related to low tax collection (URT, 2010). The meaningfully use of EFD occurs only when there is effective application of EFD in tax collection. The potentials of EFD in VAT collection is seen when the increase of VAT collection in UK (Trivedi&Shehata, 2013). ETR this device is appropriate and commonly used by retail business that issue receipts manually alternatively known as Electronic Fiscal Cash Register (EFCR). This device may be used as a stand-alone which keeps totals in a fiscal memory and print retail receipts using an in built printer. Example of users includes small retailers of all types of businesses (URT, 2011).

However, Electronic Fiscal Printer (EFP), this is the form of EFD this device is commonly used by computerized retail outlets. The device is connected to a computer network and stores every sale transactions or details made in its fiscal memory. It is basically similar to printers that are currently used in supermarkets, except for the fiscal memory. Example of users of this kind of device includes supermarkets, Petrol stations and Ticketing (URT, 2012).

However, Electronic Signature Device (ESD), is the another form of EFD this device is used by computerized businesses that issue receipts or invoices via special accounting software. The device is designed to authenticate by signing any personal computer (PC) producing financial document such as tax invoice (URT, 2011). The device uses a special computer program to generate a unique number (signature) which is appended to and printed to every invoice issued by the user's system.

The number is unique in that no two numbers can be similar which makes it easy to distinguish between authentic and fake invoices (Ernest, 1994).

On the other hand, the use of EFD in western countries was more successfully which increase VAT hence leads to the economic growth (Trivedi & Shehata, 2013). In UK EFD use its show improvement on the VAT collections which enable the taxpayers to pay their tax on time ((IMF, 2005).

Moreover, the use of EFD in Tanzania is the new technology which is faced with various challenges which includes insufficient knowledge to the taxpayers on the use of EFD, restriction from the wholesaler and retailers to use EFD machines, lack of confidence from the taxpayers to use EFD in their business activities and poor infrastructures which support the taxpayers to use EFD machines (URT, 2012).

2.5.1 EFD Infrastructures Support in VAT Collection

The successful application of EFD in increasing VAT collection is dependent on many variables. One of the factors that influence the effective use of EFD by registered traders in the business transaction is the availability of resources or EFD infrastructure. According to URT (2010) the potential of EFD to increase VAT delivery can only be realized when the technologies are available in registered traders. This means the availability of EFD infrastructure to the VAT registered traders is what will lead to the full application or use of EFD in business transaction (URT, 2012).

However, in Tanzania, the government introduced EFD since the 2010 and get support with the TRA corporate plan for implementation of effective use of EFD to the registered traders. The use of EFD in Tanzania is entirely new in increasing VAT compliance to the registered traders in Tanzania (URT, 2010). The widespread use of EFD in 2010 would probably have been another step in increasing VAT collection to the registered traders, but no efforts were made to integrate these electronic media into services delivery (URT, 2011).

On the other hand, the use of EFD in developing countries like Tanzania is considered to be necessary in order to overcome the challenges related to poor VAT collection (URT, 2010).

Therefore, the meaningful use of EFD occurs only when there is effective use of EFD in VAT collection. The potential of EFD in economy can be unlocked through increasing VAT collection. Thomas and Ranga(2010) explained that applicability of EFD is concerned essentially with more effective in increasing VAT compliance and with the support of the various components of EFD.

Moreover, VAT application of EFD involves effective use of VAT registered traders with the EFD machine and other information technologies, serving the purpose of VAT collection. According to URT (2010) the potential of EFD in enhancing VAT collection can only be realized when the technologies have been well and appropriately adopted and integrated in the business area.

The literature (Wanjiku, 2010) shows that available EFD infrastructures are not used primarily for increasing VAT compliances in Tanzania. According to URT (2010), most registered traders in urban areas already use EFD, however in most cases EFD have not been integrated as a main tool in increasing VAT compliances. In many developing countries like Tanzania, the potential of EFD to support VAT collection to registered traders is yet to be fully realized.

2.6 Empirical Literature Review

Several factors are reported to affect effective use of EFD by VAT registered traders. A number of studies (Wanjiku, 2010) have shown that there are a wide range of factors which associated with VAT registered traders under-utilization of EFD in VAT collection.

Therefore, to date most of the attention on both policy and research has been on examining how the lack of infrastructure and access to technology affect the use of EFD in VAT collection (URT, 2010). However, it has also been shown that even in cases where the infrastructure is available, few VAT registered traders are effectively integrating EFD in their payments (URT, 2011).

However, it is not easy to identify the barriers to effective EFD use by looking at single variables independent of each other because there are interlocking factors, which hinder effective use of EFD in VAT collection.

According to Tolhurst (2011) there are three interlocking factors that affect traders' take-up of EFD. These are institutional factors: resource and the traders'. These factors depend on each other and affect each other, so we cannot get the whole picture by looking at one factor and ignoring the other because these factors are interrelated.

On the other hand, inadequate EFD is also reported as an important factor affecting EFD application in VAT registered business. Many traders in Tanzania do not have EFD machine as reported in Swart and Wanjiku (2010). The literature (Wanjiku, 2010) shows Tanzania like other developing countries lack strong policies, coordination and financial resources which serve to hamper the ability to integrate the use of ICTs effectively in business from the national level.

Research conducted in United State of America by Tolhurst (2011) to examine the role of technology in financial transaction found that tax collectors to have beneficial impacts on the collection of revenues. The technology enabled showing of numerous, complex examples enhanced the increasing of tax collection in the financial year which increase government revenues. In the United Kingdom EFD increase the tax collection of 18% at the first time when they started to be used as a main tool in tax collection (Wanjiru, 2010).

The EFD of new technologies in VAT collection raise new challenges in financial sectors settings particularly to registered traders. Since the introduction of EFD in VAT collection, traders now face new social, cultural and pedagogical phenomena that challenge traders in term of technical ability, knowledge and expertise. EFD create new possibilities; dilemmas and new opportunities that EFD offer to make VAT increasing more meaningful and rewarding (Levin et al., 2011). Traders' beliefs, perceptions and knowledge are very essential for successful application of EFD in VAT collection. According to Wanjiru (2010) traders' beliefs and attitude and their confidence and competence with EFD remain centrally important in increasing adoption of EFD.

Traders' perceptions and knowledge is a very crucial factor in successful EFD use in increasing VAT collection. According to Grainer and Tolhurst (2009) traders' attitude to EFD affect their use of those technologies in the VAT collection. Trader's perception and knowledge either can support or hinder successful use of EFD in VAT collection

activities. It is well known that the meaningful integration of technology assumes that traders' need to learn about the potential of technology in increasing VAT compliance collection, change their routine and learn to apply new EFD approaches (Sandholtz et al, 2010).

The use of EFD in VAT collection is very important for providing opportunities for traders to learn better due to the expected improvement in the quality of VAT payment (URT, 2010). URT (2010) suggests strategies to improve EFD use in VAT registered traders in Tanzania so as to bring about effective increasing of VAT collection. In order to be successful in EFD use there should be a shift from the traditional tax payment to new one, the use of EFD.

Wanjiru (2010) suggest that in order to promote the effective use of EFD in VAT collection, traders need to be reinforced with sufficient skills not only in basic skills but also in the proper use of EFD in VAT collection. There are few traders' currently with skills and knowledge on the use of EFD facilities. According to URT (2011) Tanzania wants to promote the use of EFD implementation in VAT collection, traders' need to be equipped with the basic EFD skills to make use of the technology.

As it relates to the successful use of EFD in VAT collection, we need to consider different interdependent variables. EFD use in business areas is not only about availability of EFD in the business areas, or traders' perception and knowledge or just about traders support, but all these factors affect each other. According to URT (2010) in the successful implementation of EFD, three interlocking variables have to be considered in order to effect change: trader's factors, VAT register factors and resource factors.

Rasshid, (2004) conducted a study to evaluate the influence of tax knowledge on the tax compliance behavior among the taxpayers in Malaysia. The objective of the study was to investigate the effect of the presence of tax knowledge and understanding, on the level of tax compliance behavior. Analyzing the data collected using questionnaires, to compare the compliance behavior of taxpayers with significant level of tax knowledge with those without tax knowledge. Statistical findings, confirmed that those with tax knowledge, had higher level of compliance than those without.

The results indicated a significant relationship between the level of tax knowledge and the level of tax compliance. Lin and Carrol (2000) conducted a study to determine how enhanced tax knowledge affects the compliance behavior among the taxpayers in New Zealand. Analyzing the compliance behavior of the taxpayers after acquiring the tax knowledge did not have significant relationship with tax compliance behavior.

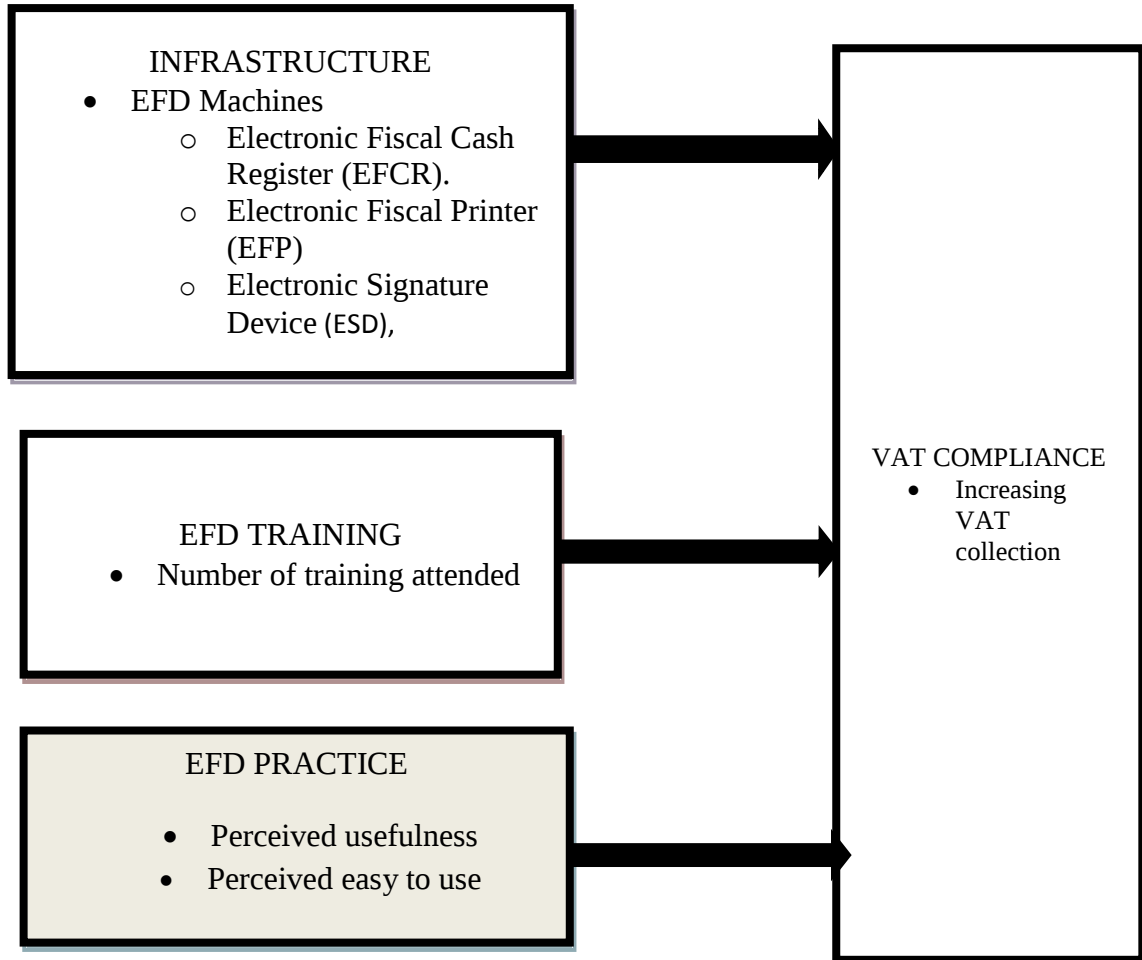
2.7 The Conceptual Framework

In order to understand the effectiveness of Electronic Fiscal Dives (EFD) in increasing value added tax (VAT) compliance in Tanzania, there was a need to have a comprehensive conceptual framework. According to Smyth (2004) a conceptual framework should assist a researcher to organize his or her thinking and complete an investigation successfully. This conceptual framework proposed here explains hypothesized causal relationships between factors that influence the use of EFDs hence VAT compliance. This framework consists of two variables: the dependent variable and the independent variables.

The dependent variable of this study is the VAT Compliance measured by increase in VAT collection. The second variable which is the independent variables is formed by three variables: the infrastructure support, EFD training to tax payers and the EFD practice.

The infrastructure supports were measured by the availability of EFD Machines, Electronic Fiscal Cash Register (EFCR), Electronic Fiscal Printer (EFP), and Electronic Signature Device (ESD). While the EFD training was measured by taxpayers attending the training on use of the machine while the EFD Practice was measured by perceived usefulness and perceived easy to use by the taxpayers. Figure 2.1 provides the detail of the conceptual framework.

Figure 2.1; Conceptual Framework



Source; Researchers' Model 2014

2.8 Hypothesis

A research Hypothesis is the statement created by researchers when they speculate upon the outcome of a research or experiment. It is a paring down of the problem into something testable and falsifiable (Adam &Kamuzora 2008). It is the researchers expectation that introduction of EFDs have influenced the available growth of VAT collections in Tanzania.

Therefore the research hypothesis is that;

H0; There are positive relationship between EFD and VAT compliance

H1; There are no relationship between EFD and VAT compliance

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter explains the methods that were used in obtaining and analyzing data from the area of study. The chapter was organized into research design; research approach; target population and sample of the study; data collection methods and instruments for data collection and data analysis strategy.

3.1 Research Design

The key question for this study is ‘whether EFDs is a tool that enhances VAT compliance in Tanzania’. To answer the question one should explore the levels of VAT compliance indicators very specifically influenced by EFDs. A case study approach is an appropriate research design that may enable various outcomes to be reached upon conclusion to the study. The case study design allows the researcher to deal with a particular individual organization within the group, and in conclusion, not to generalize the findings (McQueen & Knussen, 2002). TRA Arusha Tax Region was chosen as a case study in this area because firstly TRA Arusha has succeeded to enforce the purchase and use of EFD machine by all VAT registered traders. Also the researcher is familiar with the region hence enhances availability of data required for this kind of study.

3.2 The Study Population

A population is a group of individuals, objects or items from which samples are taken for measurement (Kombo & Tromp 2006; Panneerselvam, 2007). Population represent entire spectrum of a system of interest. The target population in this study was TRA staff from Audit unit, Debt Management section and Compliance Monitoring section, also VAT Traders in total of 215. As Kombo and Tromp (2006) suggest, effective population sample should have some idea of the topic being investigated.

3.3 Sample Size and Sampling Technique

Sample is a small group of respondents drawn from the population in which the researcher is interested in gaining information and drawing conclusion (Guba 1995). In most cases researchers uses samples and not population due to financial and time constraints as well as scattered population in a very wide geographical area which make sampling necessary. The sample for this study was drawn from the complete list of all employees and VAT registered taxpayers at the Arusha Tax Region in total 10 employees from TRA Arusha Tax Region and 120 VAT registered traders were involved. The details are shown in table 3.1 below;

Table 3.1: The Sample Size

Category	Population	Sample Size	Response
Audit	8	6	6
Debt Management	3	2	2
Compliance Monitoring	4	2	2
VAT registered Traders	215	120	116
Total	230	130	126

Source; Researchers Data 2014

3.3.1 Sampling Techniques

The sampling technique used in the study was purposive sampling. This technique were used to obtain and utilize personal experience of each respondent regarding the effective and efficiency use of EFDs and its influence in VAT compliance. Therefore, the researcher only considers the merits of the respondents and their expected knowledge and experience in use of EFDs in categorizing the respondents, thereafter respondents were obtained randomly.

3.4 Data Collection Methods and Instruments

The central focus for any research activity is the gathering of information/data for the production of knowledge. Adam at el (2008) defines data as those facts that a particular situation gives to an observer. In this study the researcher uses interviews, questionnaires, observation, documentary analysis and secondary data reviews for data collection from different sources.

3.4.1 Questionnaire

This study deployed self-administered questionnaires which comprises closed and open ended questions to 116 VAT registered traders. The researcher administers the questionnaire as means of reducing the rate of unreturned questionnaire but also making explanations to respondents on questions. The closed ended questionnaires were designed to gather more information about effect of EFDs in filling, remittance and refund process to VAT collection, effectiveness and efficiency of EFDs in VAT collection and the influence of EFDs in VAT compliance. The researcher was opted to use open ended questionnaires in order to allow more freedom of response on the effectiveness of the EFD in VAT compliance in Tanzania. Respondents also may provide “insight from their feelings, background, hidden motivation, interests and decisions (Adam, 2008). Moreover, the questionnaires consist of five scaled likert type question that will measure respondents opinion on the statement by showing there levels of agreement or disagreement.

3.4.2 Interviews

Interviews will seek in depth the information so as to examine the effectiveness of the EFD in increasing VAT compliance in Tanzania. The semi-structured interviews were used as they are useful in the collection of rich qualitative data due to their flexibility, being focused, time-effective and they enabled the researcher to get a complete and detailed understanding of the issue under research (Kombo& Tromp, 2006). The interviews were enabling to obtain data required to meet specific objectives of the study and to provide in-depth data which is not possible to get by using a questionnaires or give the respondents a chance to express their own opinion in details about the matter asked. The information were noted in a notebook and recorded by using mobile phone, and used in the discussion of the findings from questionnaire method.

3.5 Validity and Reliability

3.5.1 Validity

Hester, (1996), defines validity as the quality of procedure or instrument used in the research in accurate, correct, true, meaningful and in a right way. A valid instrument measures what the researcher claims to measure. The study uses data triangulation from VAT registered traders, where questionnaires, interview and observation was conducted to collect data. This is because triangulation is a method of highest priority in determining internal validity in a research (Waller, 200). However, Adam et al. (2008), acknowledge that no one method in social science research is a perfect measurement of constructs under consideration.

3.5.2 Reliability

Reliability is a measure of degree to which research instruments yield the same results or data after repeated trial (Bryman, 2001). A reliable instrument measures the data in a consistent and accurate manner rather than randomly. To make the instruments reliable, the research provides clear instructions of the instruments and clarification in order to remove ambiguity of the instructions. Moreover, to ensure reliability, multiple methods of data collection was employed which was questionnaires, interviews and observation. The language which was used in the instrument also was checked to determine if the instruments items was understood by the respondents before carrying the actual study.

3.6 Ethical Issues

Before going to the field for data collection, the researcher sought research clearance letter from the Director of postgraduate studies from the Mzumbe University. The letter states the purpose of the study and its importance in order to justify the need for data collection. The clearance letter was taken to Regional Administrative Secretary (RAS) Arusha region. The Mara Region Administrative secretaries (RAS) forward the letter directly to the TRA Regional Manager so as to allow conducting the study at Arusha Tax Region.

3.7 Data Analysis

Data collected were divided into two categories, qualitative data and quantitative data. Qualitative data is data that cannot use statistical methods in its analysis and interpretation of the findings while quantitative data uses statistical methods or measurements in reaching the conclusion of the findings (Kothari 2004). Qualitative data obtained has been used to enhance the discussion of the findings in quantitative data.

Descriptive analysis was conducted to enable the researcher to summarize the collected data and organize in a way that the researcher was able to answer the research questions. Descriptive analysis allows data to be quantified analyses. The use of different tools like tables, graphs and percentages or means were utilized, also where necessary further analysis was conducted.

In order to answer the general objective, Hypotheses formulated after conceptual framework was proved to make a conclusion if EFDs do enhance VAT compliance. In doing so a chi- square was deployed as a measure of acceptance or rejection of the hypothesis.

CHAPTER FOUR

PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.0 Introduction

The main purpose of the study was to examine the electronic fiscal devices as a tool that can enhance value added tax compliance in Tanzania. Both background and variable characteristics were thoroughly examined and the findings are presented in this chapter. This chapter reports the study findings after analyzing the data obtained through questionnaires and Interview from different categories of respondents. The presentation starts with major background characteristics of the respondents then the findings about the effect of EFDs in filling, remittance and refund process to VAT collection. Thereafter, the findings on the effectiveness and efficiency of EFDs in VAT collection are presented and lastly the chapter presents the findings on the influence of EFDs in VAT compliance.

4.1 Characteristics of Respondents

Questionnaires distributed wanted to know the sex of respondents, the experience and the educational level of respondents as these factors may lead to different opinions upon the asked questions. Whenever necessary, the researcher conducted the further analysis to see if there differences in opinion among the characteristics studied. The findings are presented below;

Gender of Respondents

The total response of the study was 126, where by 10 were TRA staff members respondents, of whom 7 (5.6%) were male while 3 (2.4%) were female. VAT registered traders were 116 of whom 89 (70.6%) were male while 27 (21.4%) were female. The findings are presented under table 4.1 below.

Table 4.1: Respondent Distribution by Gender

Respondent categories	Respondents sex	Total	
		Frequency(N)	Percent (%)
TRA staff members	Male	7	5.6%
	Female	3	2.4%
VAT registered traders	Male	89	70.6%
	Female	27	21.4%
Total		126	100%

Source: Researchers' Findings 2014

Experiences of Respondents

The study explores the experience of TRA staff in terms of working experience while for traders in terms of experience in paying tax or when they started paying tax or being registered. The findings show that 9.5% of all respondents have an experience of less than one year and there all from VAT registered trader's category. 70.7% of respondents have experience of 2years to 5 years among them 3.2% are TRA staff and 67.5% are VAT registered traders. The findings further show that 13.5% and 6.3% have experience of 6years to 10years and above 10 respectively. The details of the findings are presented in table 4.2 below.

Table 4.2: Respondent Distribution by Experiences

Respondents Experiences	TRA Staff members		VAT registered traders		Total	
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)	Frequency (N)	Percent (%)
Less than 1year			12	9.5	12	9.5
2 to 5 years	4	3.2	85	67.5	89	70.7
6 to 10 years	4	3.2	13	10.3	17	13.5
Above 10years	2	1.6	6	4.7	8	6.3
Total	10	8.0	116	92.0	126	100

Source: Researchers' Findings 2014

Distribution of respondents by Education level

The education of respondents is very important in when comes to the opinion of individuals as understanding of the matter is likely of different from one level of education to another. Five levels of education was assessed, however only four them have respondents. The levels are primary education, secondary education, certificate and diploma level, bachelor degree and masters and above.

The findings show that 41 respondents equivalent to 32.6% of respondents have secondary education, 42.8% of respondents have certificate and diploma, bachelor degree amount to 15.9% of all respondents and masters and above are about 8.7% of all respondents. From these findings it can be agreed that the level of education is satisfactorily to express the knowledge of the respondents on the matters asked. For detail the results are presented in table 4.3 below;

Table 4.3: Respondent Distribution by Education Level

Education Qualifications	TRA Staff members		VAT Traders Registered		Total	
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)
Secondary education	-	-	41	32.6	41	32.6
Certificate and diploma	1	0.8	53	42.0	54	42.8
Bachelor	6	4.8	14	11.1	20	15.9
Master's and above	3	2.4	8	6.3	11	8.7
Total	10	8	116	92	126	100

Source: Researchers' Findings 2014

4.2 The Effect of EFDs in Filling, Remittance and Refund Process to VAT Collection

This section wanted to identify the effect of EFD in filling, remittance and refund process to VAT collection in Tanzania. The researcher met respondents at their work place and managed to extracted information from 126 respondents to eventually come out with the feedback. In accomplishing this specific objective TRA staff members and VAT registered traders was given questionnaire to indicate the effect of EFD in filling, remittance and refund process to vat collection. Additionally semi-structured interview were conducted to TRA Debt management. Several questions were asked so that the relevant information can be obtained to answer this objective.

Firstly the researcher wanted to know if the said devices are used by traders at Arusha. The question posed was that **“Do VAT registered traders use any of the following EFD?”** Respondents were required to choose the applicable answer by indicating whether “Yes”, or “No”, or “Sometimes”, for analysis purpose coded as 1, 2, 3 respectively. Findings were calculated and presented in terms of means.

The decision criterion for this question is that mean less than or equal to 1.44 ($\text{mean} \leq 1.44$) the Devices is in use, mean above 1.44 but less than or equal 2.44 ($1.44 < \text{mean} \leq 2.44$) the device is not in use and the mean above 2.44 ($\text{mean} > 2.44$) the device is used in a rare cases that is sometimes. The findings are presented in table 4.4 below.

Table 4.4: The Applicable EFD in VAT Collection

Device	Mean	Std. Deviation
Electronic Tax Register (ETR) also known as Electronic Fiscal Cash Register (EFCR)	1.1250	.35355
Electronic Fiscal Printer (EFP),	1.2500	.46291
Electronic Signature Device (ESD),	1.1250	.35355
Grand Total Mean	1.1666	
Key : 1= Yes, 2= No, 3= Sometimes		

Source; Researchers' Findings 2014

The findings presented in table 4.4 above shows that all devices that are put in place by the Tanzania government as administered by TRA are used in transactions. The results shows ETR/EFCR scored the mean 1.12, the EFP scored the mean of 1.25 and the ESD scored the mean of 1.12, all these means are less than the mean of 1.44 the maximum in study decision to the Yes answer, therefore using study decision criterion, the results shows that the devices are used by registered traders. It can be said that by average 60% of respondents agreed that VAT registered traders use EFDs, calculated as $1.17/2 \times 100$.

This findings expresses that VAT registered traders are not fully using the EFDs machines, from the interview it was said that some of VAT registered traders uses EFDs only for few customers while they do not use the machines for many of the customers. This behaviour is created by citizen themselves (customers for Traders) who always they do not ask for receipts when they make a purchase.

Since it is observed that the devices are in use, the researcher wanted to know how often the devices are used by traders. Respondents were required to rank from very often to Not at all coded as; 1= Very often, 2= often, 3= rarely, 4= very rare 5= not at all. The decision criterion in this case is that any mean less than 2.44 the device is used often and mean above 2.44 the devices are used rarely. The findings are presented here under, see table 4.5.

Table 4.5: The Extent of the Use of the EFDs

Device	Mean	Std. Deviation
Electronic Tax Register (ETR) also known as Electronic Fiscal Cash Register (EFCR)	1.7188	1.02342
Electronic Fiscal Printer (EFP),	1.7500	.95038
Electronic Signature Device (ESD),	1.8750	.33601
Grand Total Mean	1.7812	
Key; 1= Very often, 2= often, 3= rarely, 4= very rare 5= not at all		

Source; Researchers' Findings 2014

Using the decision criterion of this question which is mean less than or equal 2.44 the device is used often, it can be said that all devices that is ETR, EFP and ESD are used often by Arusha registered taxpayers. These opinions are not of different when the researcher tried to analyse the same question to TRA –Arusha Tax region employees only, where the mean score was mean of 1.625 for ETR machine, mean of 1.5000 for EFP machine and mean of 1.5000 for ESD machine, the grand total mean was 1.5416. All these findings using same decision criterion it can be observed that the devices are used often. The grand total mean show the score value of 1.7812, that is by average all devices are used often. Though this finding show the devices are used often and not very often the results concur with the interview opinion that some VAT traders do not issue receipts that is to say they do not use EFDs.

The findings above show that EFDs are used and are often used by registered taxpayers at Arusha region. These findings then show that our respondents at their best knowledge they can be able to express the effect of EFDs to VAT collection. The researcher used to explain the requirement to respondents so that they can be able to express freely and at their best understanding on the matter. The effect of EFDs to VAT collection should be undertaken by taxpayers under the perception that EFDs helps them pay the required VAT through different services of VAT payment that are enhanced by EFDs. Respondents were required to show there agreement or disagreement on the statement provided. Five choices levels of agreement were provided and coded as follows; 1= Strongly Agree, 2= Agree, 3= Not Sure, 4= Disagree and 5= Strongly Disagree.

The decision criteria for the question are the mean less than or equal to 2.44 the statement is agreed, the mean above 2.44 but less than 3.44 the statement is a not sure answer and mean above 3.44 the statement is disagreed. The findings are presented using table 4.6 below.

Table 4.6: The Effect of EFDs to VAT Collections

Effect	Mean	Std. Deviation	Rank
EFD simplifies filling of returns	1.5625	.98169	1
EFD simplifies remittance	1.9688	1.14960	4
It simplify refund process	1.8750	.90696	3
Is Time saving in tax payment activities in general	1.8021	.87963	2
Grand Total Mean	1.8021		
Key; 1= Strongly Agree, 2= Agree, 3= Not Sure, 4= Disagree and 5= Strongly Disagree			

Source; Researchers' Findings 2014

From the decision criteria provided above, it is observed that all the tested effects are agreed by respondents. This is to say respondents have agreed that EFDs do simplify the filling of returns mean of 1.56, do simplify remittance mean 1.97, do simply refund process mean 1.88 and EFD is time saving in tax payment activities in general mean 1.80. When ranked it was observed that EFDs do simplify the filling of return process than other activities followed by time saving in tax payment activities in general, then it simply refund process and lastly simplifies remittances.

However it is important to find the possible extent of EFDs in assisting or simplifying the above activities as the finding from table 4.6 suggests. The researcher asked respondents to rank the possible extent of simplification gained by the use of EFDs. The extent were set in percentage from 0% to 100%, where five categories were provided ranging and coded as; 1= 0 to 20%, 2= 21 to 40%, 3= 41 to 60%, 4= 61 to 80% and 5= 81 to 100%. Table 4.7 presented the findings on the extent of simplification.

Table 4.7: The extent of EFDs in Simplifying VAT payment Activities

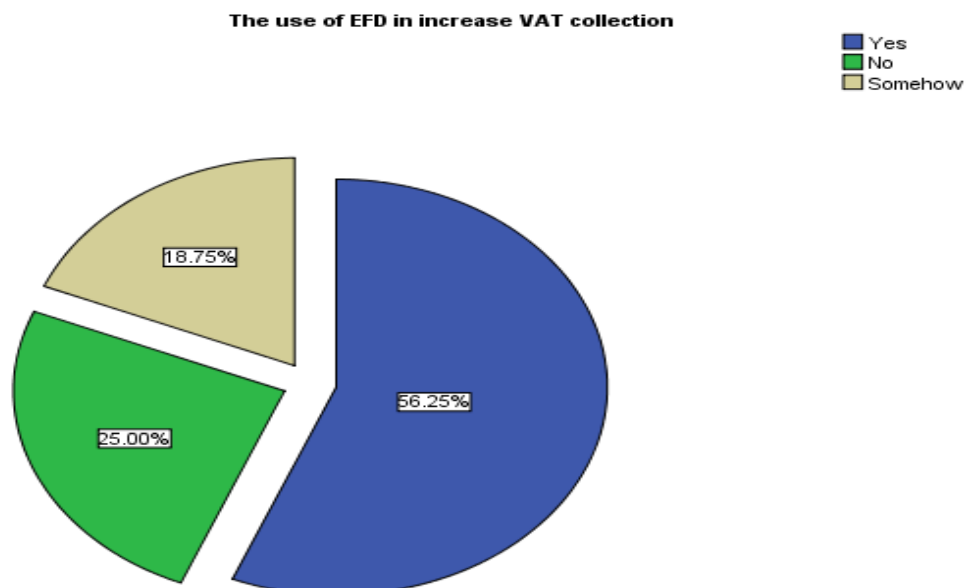
VAT payment Activities	Mean	Std. Deviation	Rank
Simplifies filling of returns	3.4375	.51755	1
Simplifies remittance	3.2500	.53452	2
Simplify refund process	2.1613	.74402	4
Time saving in VAT payment activities in general	2.6162	.63321	3
Grand Total Mean	2.86625		
Key; 1= 0 to 20%, 2= 21 to 40%, 3= 41 to 60%, 4= 61 to 80% and 5= 81 to 100%			

Source; Researchers' Findings 2014

There no decision criterion on this kind of measuring the extents, just to express the possible percentage. From table 4.7 it can be observed that EFDs do simplify the filling of returns at 41.28% calculated as mean of $3.44/5 \times 60\%$. The 60% is taken because the mean 3.4375 is under the group of 41% to 60%, so the maximum value was taken to compute the mean percentage. The same concept has been used to calculate the other VAT payment activities. Therefore, EFDs do simplify the remittance by 39% calculated as $3.25/5 \times 60\%$, simplify refund process by 17.28% calculated as $2.16/5 \times 40\%$, and saves time for VAT payment activities in general by 31.44% calculated as $2.62/5 \times 60\%$ (60% is used because 2.62 can be approximated to 3 so possible maximum value is 60% not 40%).

The researcher also wanted to know the opinion of respondents on whether EFDs do increase VAT collections. Respondents were required to answer the Yes coded as 1, or the No coded as 2 and the somehow coded as 3. The results are presented in pie chart format and in percentage so there no need of decision criterion, see figure 4.1 below.

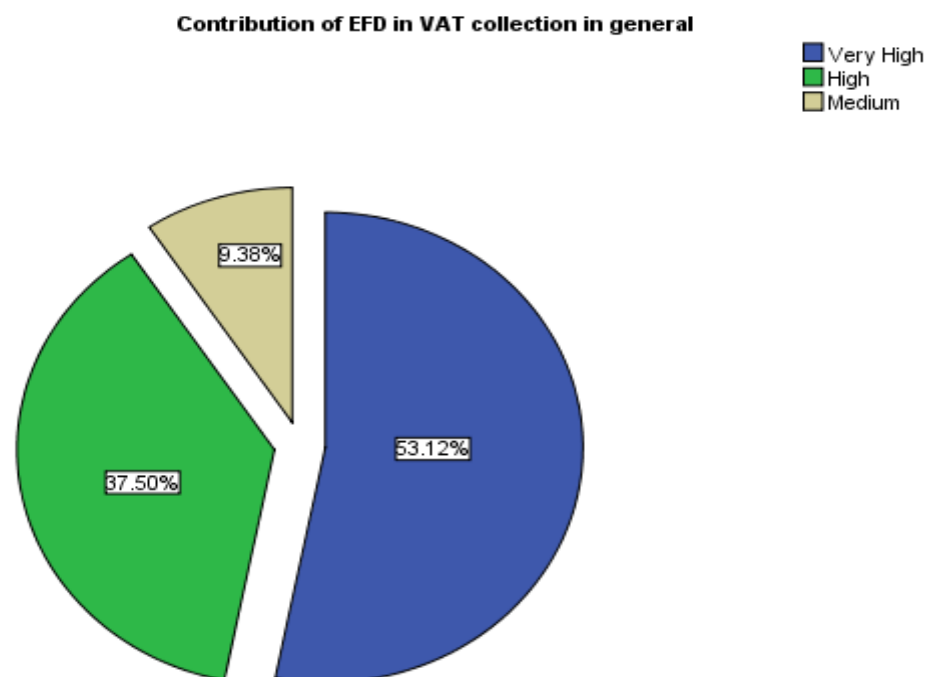
Figure 4.1: Use of EFD in increse of VAT collections



Source; Researchers' Findings 2014

The findings show that 56.25% of respondents agreed that use of EFDs do increase VAT collections while 25% said EFDs does not increase VAT collections. It also found that 18.75% of respondents said that EFDs do increase VAT collections at the margin or say somehow. To know the extent of its contribution to the raise of VAT collections the researcher wanted to know the general opinion of respondents and the extent were set into very high, high, medium and low. Respondents were required to choose from those options. It was observed that 53.12% of respondents considers very high EFDs contributes to the increase in revenue collections at Arusha while 37.50% of respondents considers that EFDs contribute high to the VAT collections at Arusha. The findings are presented by figure 4.2 below.

Figure 4.2: General Contribution of EFDs in VAT collections



Source; Researchers' Findings 2014

The VAT collection from VAT registered traders continues to face the loss of revenues including the huge budget deficit. The findings from the interview show the root cause for this loss is insufficient of the laws and regulations governing the administration of the tax exemptions granted to the Investors and VAT registered traders under TRA in Tanzania. In short, in the line of the theoretical overview the researcher found that the VAT registered traders in Tanzania are granted as incentives to attract investors and others traders and indirectly facilitate the growth of the economy by extension and provision of social services and not otherwise. Further, the findings shows that up to now the tax VAT registered traders are required to use EFD in their business so as to contribute to the growth of the economy; instead it acted as a conduit pipe to benefit VAT registered traders themselves hence resulted into the source for the loss of the government revenues.

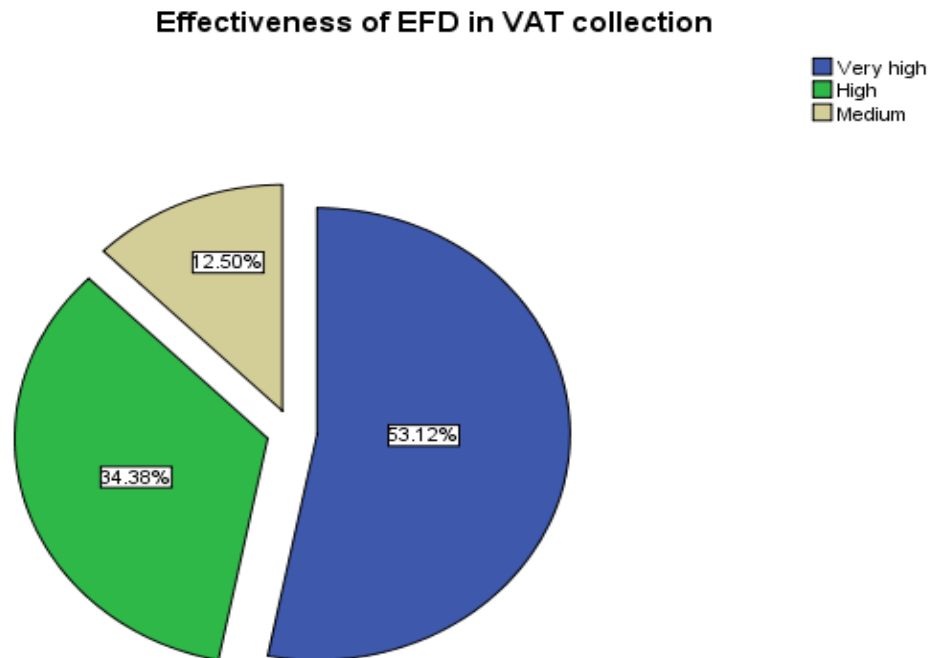
4.3 The Effectiveness and Efficiency of EFDs in VAT Collection

This section is divided into two the effectiveness of the EFDs in VAT collections and the Efficiency of EFDs in VAT collections.

4.3.1 The Effectiveness of EFDs in VAT Collections

The researcher was interested to assess the effectiveness and efficiency of EFD in VAT collection in Tanzania. The effectiveness was measured by asking the respondents to give out their opinion by making the comparison between targeted objective vis-a-vis the actual outcome. It was explained to respondents that TRA adopted EFDs among others is to increase VAT compliance and reduction of collection costs. Therefore, respondents who are traders can be able to assess if the TRA is achieving this goals in comparison to what TRA collecting. Also registered traders can assess themselves to see if they have been complying to tax laws and regulation due to introduction of EFDs. Therefore respondents were asked that **“If you will consider effectiveness to be measured by target/objective v/s actual/outcome, how do you rank the effectiveness of EFD in VAT collection?”** Respondents were required to choose from very high to low coded as; 1=very high, 2=high, 3=medium and 4=low. The findings are presented using pie chart figure 4.3 below.

Figure 4.3: Effectiveness of EFDs in VAT Collection



Sources; Researchers' Findings 2014

From the above figure 4.3 it can be seen that when effectiveness is measured by targeted objectives vis a vis the actual outcome, 53.12% of respondents agreed that the effectiveness is very high while 34.38% said the effectiveness is high. That is to say about 87.50% of respondents agreed that the effectiveness is high. It is also seen that 12.5% of all respondents agreed the effectiveness is medium and there no respondents who said the effectiveness is low.

Furthermore to measure the effectiveness of EFDs machines the researcher created some statement that required respondents to show their level of agreement or disagreement in each of the statement. The levels were coded as 1= strongly agreed, 2= Agreed, 3= Not sure, 4= disagree 5= strongly disagreed.

The decision criterion of this question is that the mean less than or equal to 2.44 the statement is agreed, the mean above 2.44 but less than 3.44 the statement is a not sure answer and mean above 3.44 the statement is disagreed. The findings are presented using table 4.8 below.

Table 4.8: Effectiveness of Various Activities in VAT collection

Statements	Mean	Std. Deviation
Using EFDs have low cost compared to VAT collected	1.06066	1.06066
All EFDs are registered by TRA, hence more VAT collected	1.5000	.75593
Using EFDs had freed me from using much effort in VAT compliance	1.5000	.53452
All transactions are entered or recorded in EFDs hence fill the correct tax return	1.9750	.51755
Grand Total Mean	1.5089	
Key; 1= strongly agreed, 2= Agreed, 3= Not sure, 4= disagree 5= strongly disagreed		

Source; Researchers' Findings 2014

Table 4.8 shows that when EFDs is used it is of low cost compared to VAT collected mean of 1.06, that all EFDs are registered by TRA hence more VAT collected mean of 1.5, using EFDs have freed taxpayers from using much efforts in tax compliance mean of 1.5 and that all transactions are entered or recorded in EFDs hence fill the correct tax return mean of 1.97.

When cross tabulation were undertaken to see if their differences of opinion on the taxpayer's respondents only based on gender, experience and education. By gender the results shows the Pearson's R value of 0.214 the relation has significant correlation as significance value is 0.04 which is less that the common 0.05 of Cohen. This is to say that increase or decrease of gender in our study has significance influence on the levels of effectiveness of EFDs. Was observed that female was by 95% on very effective to the statement that using EFDs have low cost compared to VAT collected, all EFDs are registered by TRA, hence more VAT collected and using EFDs had freed me from using much effort in VAT compliance and 90% to the statement all transactions are entered or recorded in EFDs hence fill the correct tax return, While for male there were 82% effective to the statement using EFDs had freed me from using much effort in VAT compliance and all transactions are entered or recorded in EFDs hence fill the correct tax

return and 80% effective to the statement that said using EFDs have low cost compared to VAT collected, all EFDs are registered by TRA, hence more VAT collected. There were no significance differences on opinion based on the experience and education.

4.3.2 The Efficiency of EFDs in VAT Collections

In order to measure the efficiency of EFDs in VAT collection the researcher asked respondents to measure the efficiency by analysing the inputs vis a vis the output. The researcher identified the possible inputs required by taxpayers and TRA officials in carrying their responsibilities that are related to VAT collection. Respondents were required to show their level of agreement or disagreement from strongly agree to strongly disagree. The levels are coded as 1= strongly agreed, 2= Agreed, 3= Not sure, 4= disagree 5= strongly disagreed. The decision criterion of this question is that the mean less than or equal to 2.44 the statement is agreed, the mean above 2.44 but less than 3.44 the statement is a not sure answer and mean above 3.44 the statement is disagreed. The findings are presented using table 4.9 below.

Table 4.9: Measurement of the Input of EFDs

Statements	Mean	Std. Deviation
We have devices required (EFCR, EFP, ESD)	1.4375	.50402
I/TRA has the specific budget to maintain the system/Devices	1.1562	.44789
I/TRA has Expert personnel in operating the system/Devices including training	1.3750	.51755
Grand Total Mean	1.3229	
Key; 1= strongly agreed, 2= Agreed, 3= Not sure, 4= disagree 5= strongly disagreed		

Source; Researchers' Findings 2014

From table 4.9 it can be seen that at Arusha tax region all the input required for the implementation of EFDs are available as the results shows that taxpayers have required devices which includes the Electronic Tax Register (ETR) also known as Electronic Fiscal Cash Register (EFCR), the Electronic Fiscal Printer (EFP) and the Electronic Signature Device (ESD) mean of 1.44. Also the results reveal that taxpayers and TRA has the specific budget to maintain the system or the devices mean of 1.16, and that have experts in operating the system and do attend the trainings mean of 1.38.

In addition the researcher wanted to measure the output expected by TRA during introduction of EFDs. Some statements were created where respondents were required to say if they agree or disagree. The coding was as 1= strongly agreed, 2= Agreed, 3= Not sure, 4= disagree 5= strongly disagreed. The decision criterion of this question is that the mean less than or equal to 2.44 the statement is agreed, the mean above 2.44 but less than 3.44 the statement is a not sure answer and mean above 3.44 the statement is disagreed. The findings are presented using table 4.10 below.

Table 4.10: Measurement of Output of EFDs

Statement	Mean	Std. Deviation
Increase of VAT collection	1.5938	.94560
Reduced queues	1.3438	.48256
Encouraged VAT compliance	2.2500	.55600
Reduced costs of VAT collection	1.4545	.71111
Grand Total Mean	1.6602	
Key; 1= strongly agreed, 2= Agreed, 3= Not sure, 4= disagree 5= strongly disagreed		

Source; Researchers' Findings 2014

The findings above shows that the output are achieved as there an increase in VAT collections, reduction of queuing time, EFDs do encourage VAT compliance and reduces costs of VAT collections see table 4.10 above.

It is important to find the opinion of respondents about the cost of operationalization of the EFDs. The researcher asked respondents to show their opinion on the mater by asking them that **“How do you rank the costs of operationalizing EFD system? Rank from 1 Very fair to 5 very unfair”** the coding system used is that 1= very unfair, 2= Fair, 3 = Not sure 4=unfair 5= very unfair. The decision criterion of this question is that the mean less than or equal to 2.44 the statement is fair, the mean above 2.44 but less than 3.44 the statement is a not sure answer and mean above 3.44 the statement is unfair. The findings are presented using table 4.11 below and shows that costs of operationalization are fair to the devices and for the training.

Table 4.11: Fairness of EFDs Operationalization Costs

Element of Cost	Mean	Std. Deviation
Personnel (e.g. Training, new employee etc.)	1.2188	.42001
Electronic Fiscal Cash Register (EFCR).	1.5625	.50402
Electronic Fiscal Printer (EFP)	3.51824	2.4062
Electronic Signature Device (ESD)	1.5000	1.5000
Grand Total Mean	1.9498	
Key; 1= very unfair, 2= Fair, 3 = Not sure 4=unfair 5= very unfair		

Source; Researchers' Findings 2014

In general the efficiency of a machine is related to the perception of the user in two angles one the perceived usefulness and the second the perceived easy to use by operator of the system. Therefore the researcher asked question to respondents that relate with practice of EFDs. The question asked was that **“Use the scale provided below to show your general perception on EFD and tick (✓) in the respective column”**. Respondents were required to rank from very high to very low and coded as 1= Very High, 2= high, 3= Not Sure, 4= low, 5= very low. The decision criterion of this question is that the mean less than or equal to 2.44 the statement is high, the mean above 2.44 but less than 3.44 the statement is a not sure answer and mean above 3.44 the statement is low. The findings are presented using table 4.12 below.

Table 4.12: The perception of EFDs in Practice

Perception	Mean	Std. Deviation
Leads to the attainment and surpassing of target	1.5000	.75593
Taxpayers consider EFDs very useful	1.3750	.51755
Taxpayers consider EFDs easy to use	1.0000	.00000
Grand Total Mean	1.2916	
Key; 1= Very High, 2= high, 3= Not Sure, 4= low, 5= very low		

Source; Researchers' Findings 2014

These findings show that taxpayers and TRA Arusha Tax Region do consider EFDs very useful and easy to use also considers EFDs as an instruments or tolls that can lead to attainment and surpassing of the target set.

When cross tabulation were undertaken there were no significance differences of opinion among different groups of respondents or personal characteristics. However the interview shows that the perception of VAT taxpayer to the use of EFDs were not good for the first two years, but there an improvement of perception in terms of its easy to use though not at very useful. Head of Compliance and monitoring section said

“The perception of taxpayers to the usefulness of EFDs is currently improving however if I can measure their perception in number of correct returns submitted compared to wrong returns submitted their perception is low, because number of incorrect returns submitted are high than number of correct returns submitted”

Therefore the efficiency of EFDs in general is good though up to now the EFDs has not fully attained its targeted objectives so still use a lot of costs.

4.4 The Influence of EFDs in VAT Compliance

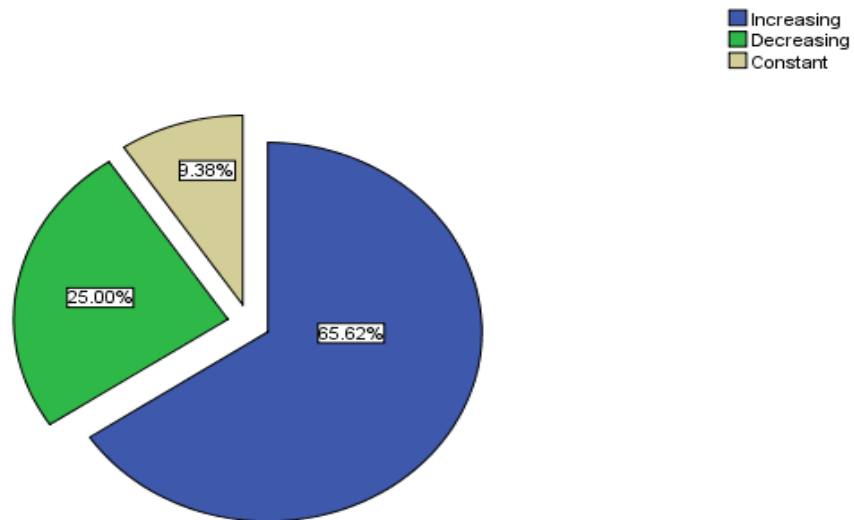
This section presents, analyse and discuss the two elements, the first is the influence through exploring the perception of respondents opinion comparing the after and before adoption of EFDs. The second section proves the hypothesis of the study where researcher assumes that there positive relation between EFDs and VAT compliance.

4.4.1 Opinion on the Trends of VAT collection

The researcher asked the respondents that **“after the introduction of EFDs, are VAT taxpayers increased, decreased or are the same?”** The coding system show that increasing was coded as 1, decreasing coded as 2 and constant coded as 3. The findings show that 65.62% of respondents agreed that VAT taxpayers are increasing while 9.38% of respondents shows that the number of VAT taxpayers are constant. The finding also show that 25% of respondents have the opinion that the number of taxpayers have been decreasing see figure 4.4 below.

Figure 4.4: Trend of VAT registered taxpayers after introduction of EFDs

Are VAT registered traders increasing or decreasing after introduction of EFDs



Source; Researchers' Findings 2014

Furthermore it is important to consider the trend of VAT compliance after introduction of EFDs in some aspects. The researcher asked respondents to show the increase coded as 1 or the decrease coded as 2 in each of the identified aspects. The decision criterion is that the mean less than or equal to 1.44 the aspect have been increasing and the mean above 1.44 the aspect have been decreasing. The findings are presented in table 4.13 below.

Table 4.13: Trend of Various aspects of VAT compliance after introduction of EFDs

Aspect	Mean	Std. Deviation
Number of traders using EFD machine	1.1250	.35355
Issuance of receipts when sales is made	1.0000	.00000
Sales declared	1.1250	.35355
VAT collection	1.2500	.46291
Number of refunds and in time	1.2500	.46291
Purchases	1.1250	.35355
Low Compliance costs (Ratio of costs of collecting VAT viz tax collected)	1.2500	.46291
Grand Total Mean	1.1800	
Key; 1=Increase, 2= Decrease		

Source; Researcher Findings 2014

These findings shows that after introduction of EFDs there increase in number of traders using EFDs mean of 1.12, increase in issuance of receipts when sales is made mean of 1.0 and increase in declared sales mean of 1.12. The findings also show that there increase in VAT collection mean of 1.25, increase in number of refunds and done in time mean of 1.25 and the increase in purchases mean of 1.13. In addition there has been a decrease in compliance costs which are measured by the ration of costs of collecting VAT vies VAT collected.

4.4.2 Relationship between EFD and VAT Compliance

Further analysis was considered necessary by the researcher to prove the influence of EFD in enhancing VAT compliance. The null hypothesis was formed stating that **“There is a positive relationship between EFD and VAT compliance”**.

First it was assumed that given other factors constant, all VAT are paid/collected using EFD Also it was assumed that the registered traders are using their machines for every transaction they conduct. Therefore, all transactions are counted for VAT purposes.

For the analysis purposes, effectiveness of EFD was measured by budget v/s actual; while the Efficiency was measured through Perceived Usefulness (PU) and Perceived Ease of Use (PEOU) of respondents. VAT compliance can only be enhanced if three factors will be in place namely, first, infrastructure support which include EFD Machines (Electronic Fiscal Cash Register (EFCR), Electronic Fiscal Printer (EFP), Electronic Signature Device (ESD)), second EFD Training and thirdly EFD Practices. All these factors can be measured by measuring the effectiveness and efficiency of EFD.

In this case the model will be;

VAT compliance = f (Effectiveness and efficient of EFD)

VAT compliance variable is a new created variable to include the effectiveness and the efficiency of EFD, includes variable applicable EFD, often use of device, contribution of EFD in VAT collection, general ranking of effectiveness of EFD, inputs, outputs, costs of operationalization and general efficiency.

The simple linear regression analysis will be;

$$\text{VAT compliance} = f(X_{1(\text{effectiveness, efficiency})}) + \text{Constant}$$

$$\text{That is to say; } Y = (b_1X_1 + c)$$

Where; Y is the VAT compliance

X_1 is the effectiveness and the efficiency of EFD

b_1 is the slope of the variable

After formulating this model, simple linear regressions were conducted using data collected from the questionnaires distributed to our respondents. In the respondent's questionnaire question number 2 to 13 only were used to create this variable.

The model summary tells us whether the predictors in the model are successful in predicting the outcomes (Field, 2009). The value of R is 0.173. This represents the correlations between the predictor variables and the VAT compliance. The results tell us whether the variations in VAT compliance can be explained by the selected variables. The value of R^2 tells us that the independent variables can account for 30% (0.301) of the variation in VAT compliance. That is to say, in other words, only 30% of VAT compliance can be influenced by infrastructure.

Table 4.14; Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.173 ^a	.301	.018	.69981

a. Predictors: (Constant), at what EFD machines are you using?

Furthermore, β values tell us about the direction and strength of the relationships between each of the predictors and VAT compliance. Positive relationships exist between VAT compliance and effectiveness and efficiency of EFD see tablebelow.

Table 4.15; Coefficients of Regressions

Model	Unstandardized Coefficients		Standardised Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	1.241	.161		7.696	.000
Efficiency and effectiveness of EFD	.121	.077	.173	1.573	.120

a. Dependent Variable: Poverty reduction

Having established the relationship between dependent variables and independent variables as we have seen above, now we should try to answer our hypothesis. The null hypothesis (H0) states that “There is a positive relationship between EFD and VAT compliance”. The finding shows that there existing positive relationship between EFD and VAT compliance as discussed above. The remaining matter is if the relationship is significant so that we can accept or reject our hypothesis. Then, Analysis of variance (ANOVA) will help us in making proper decision.

The ANOVA results shows that, a sig.0.120 which means there significant effect of EFD to VAT compliance compared to normal 0.05. Therefore, the hypothesis has been accepted.

Table 4.16; ANOVA Results
ANOVA^b

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1.212	1	1.212	2.474	.120 ^a
Residual	39.179	80	.490		
Total	40.390	81			

a. Predictors: (Constant), Efficiency and Effectiveness of EFD

b. Dependent Variable: VAT compliance

To sum up, on the effect of EFD upon VAT compliance from the analysis, our model will be;

$$Y = 0.121X_1 + 1.241$$

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

This chapter covers the summary of research findings, the conclusion and the recommendations. The summary and conclusion of research findings are related with the Effect of EFDs in Filling, Remittance and Refund Process to VAT Collection, the effectiveness and efficiency of EFDs in VAT collection and the influence of EFDs in VAT compliance.

5.1 Summary of Research Findings

The findings of this study show that at Arusha Tax Region VAT taxpayers use EFDs. The findings show that the available devices are used such as Electronic Tax Register (ETR) also known as Electronic Fiscal Cash Register (EFCR) has scored the mean of 1.12, the Electronic Fiscal Printer (EFP) scored the mean of 1.25 and the Electronic Signature Device (ESD) scored the mean of 1.12. Also the findings show that these devices are used often as the total grand mean shows the mean of 1.78 which means the devices are used often. In addition it was found that EFDs do simplify the filling of returns mean of 1.56, do simplify remittance mean 1.97, do simplify refund process mean 1.88 and EFD is time saving in tax payment activities in general mean 1.80. When ranked it was observed that EFDs do simplify the filling of return process than other activities followed by time saving in tax payment activities in general, then it simply refund process and lastly simplifies remittances. Further the findings show that EFDs do simplify the filling of returns at 41.28% calculated as mean of $3.44/5 \times 60\%$. The 60% is taken because the mean 3.4375 is under the group of 41% to 60%, so the maximum value was taken to compute the mean percentage. The same concept has been used to calculate the other VAT payment activities.

Therefore, EFDs do simplify the remittance by 39% calculated as $3.25/5 \times 60\%$, simplify refund process by 17.28% calculated as $2.16/5 \times 40\%$, and saves time for VAT payment activities in general by 31.44% calculated as $2.62/5 \times 60\%$ (60% is used because 2.62 can be approximated to 3 so possible maximum value is 60% not 40%).

On the effectiveness and the efficiency of EFDs in VAT collections the research findings show 53.12% of respondents agreed that the effectiveness is very high while 34.38% said the effectiveness is high. That is to say about 87.50% of respondents agreed that the effectiveness is high. It is also seen that 12.5% of all respondents agreed the effectiveness is medium and there no respondents who said the effectiveness is low. Moreover the effectiveness was measured in terms of low cost compared to VAT collected, register all EFDs hence more revenue collected, reducing much time and efforts in tax compliance and correct filled tax return. The findings on those measurements show that when EFDs is used it is of low cost compared to VAT collected mean of 1.06, that all EFDs are registered by TRA hence more VAT collected mean of 1.5, using EFDs have freed taxpayers from using much efforts in tax compliance mean of 1.5 and that all transactions are entered or recorded in EFDs hence fill the correct tax return mean of 1.97. Therefore there is effectiveness in use of EFDs machine at Arusha Tax Region.

Furthermore the efficiency of EFDs in VAT collections show that all inputs required are in place such as devices required, specific budget to maintain the devices and do attend training for the devices. The results show that taxpayers have required devices which include the Electronic Tax Register (ETR) also known as Electronic Fiscal Cash Register (EFCR), the Electronic Fiscal Printer (EFP) and the Electronic Signature Device (ESD) mean of 1.44. Also the results reveal that taxpayers and TRA has the specific budget to maintain the system or the devices mean of 1.16, and that have experts in operating the system and do attend the trainings mean of 1.38. when the output were measured the findings show that the output are achieved as there an increase in VAT collections, reduction of queuing time, EFDs do encourage VAT compliance and reduces costs of VAT collections.

Moreover, the findings show that the findings show that 65.62% of respondents agreed that VAT taxpayers are increasing while 9.38% of respondents shows that the number of VAT taxpayers are constant. The finding also shows that 25% of respondents have the opinion that the number of taxpayers have been decreasing. These results are confirmed by the findings obtained that show after introduction of EFDs there increase in number of traders using EFDs mean of 1.12, increase in issuance of receipts when sales is made mean of 1.0 and increase in declared sales mean of 1.12. The findings also show that there increase in VAT collection mean of 1.25, increase in number of refunds and done in time mean of 1.25 and the increase in purchases mean of 1.13. In addition there has been a decrease in compliance costs which are measured by the ration of costs of collecting VAT vies VAT collected.

Also the findings show that Effectiveness and the efficiency of EFDs do influence VAT collections or compliance for about 30% and that there existing positive relationship between EFD and VAT compliance. The ANOVA results shows that, a sig.0.120 which means there significant effect of EFD to VAT compliance compared to normal 0.05. Therefore, the hypothesis has been accepted.

5.2 Conclusion of Research Objectives

At Arusha Tax Region VAT taxpayers uses EFDs such as Electronic Tax Register (ETR) also known as Electronic Fiscal Cash Register (EFCR), the Electronic Fiscal Printer (EFP) and the Electronic Signature Device (ESD) and that these devices are used often. It can be concluded that EFDs do simplify the filling of returns, do simplify remittance, do simply refund process and EFD is time saving in tax payment activities in general. When ranked it was observed that EFDs do simplify the filling of return process than other activities followed by time saving in tax payment activities in general, then it simply refund process and lastly simplifies remittances

On the effectiveness of EFDs machine its concluded that in general EFDs are very effective as the following activities were found low cost compared to VAT collected, register all EFDs hence more revenue collected, reducing much time and efforts in tax compliance and correct filled tax return.

The efficiency of EFDs also was of high as the results show that taxpayers have required devices which include the Electronic Tax Register (ETR) also known as Electronic Fiscal Cash Register (EFCR), the Electronic Fiscal Printer (EFP) and the Electronic Signature Device (ESD). Also taxpayers and TRA has the specific budget to maintain the system or the devices and those have experts in operating the system and do attend the trainings about the devices. In case of output it is concluded that in this study the output are achieved as there an increase in VAT collections, reduction of queuing time, EFDs do encourage VAT compliance and reduces costs of VAT collections.

Furthermore the conclusion on the influence of EFDs in VAT compliance is that, after introduction of EFDs there increase in number of traders using EFDs, increase in issuance of receipts when sales is made and increase in declared sales. The findings also show that there increase in VAT collection, increase in number of refunds and done in time and the increase in purchases. In addition there has been a decrease in compliance costs which are measured by the ration of costs of collecting VAT vies VAT collected. In addition, EFDs do influence VAT collections or compliance for about 30% and that the positive relationship between EFD and VAT compliance do exist. From the e ANOVA results which show, a sig.0.120 it means there significant effect of EFD to VAT compliance compared to standard 0.05 of Cohen. Therefore, the hypothesis that said there positive relation between EFDs and VAT compliance has been accepted and the influence are measured at the rate of 30%.

It is not in dispute as per the findings of the researcher that there is increasing number of the VAT registered traders and the level of the revenues is too high. Example in a written response to the Business Times Newspaper of 8th December, 2012, the TRA acting director of Taxpayer Services and Education YeremiahMaghi, said tax collection from VAT registered traders have improved since TRA introduced the devices in 2010. For instance TRA collected a total of Tshs.785,882.4 million in the 2009/2010 financial year before the EFD were introduced. By comparison the Authority collected Tshs.791,462.9 million in financial year 2010/2011 immediately following the introduction of the devices.

Significantly enough in the following year financial year 2011/2012 TRA collected Tshs.1,086,374 million, about a 40% increase. This indicates that the introduction and use of the machines has brought about marked improvement in the collection of VAT.

EFDs are used by traders when issuing a sale receipt to a customer that makes possible for the machine to transmit a message directly to TRA showing the transaction. This way TRA get to know the sales made each day. However, the research still reveal that the use of EFD still continue to face the challenge of the quality of paper used and the machine itself, the cost of the machine, the network problems especially in the remote areas and the insufficient features of the EFD management system.

Moreover, the researcher depicted various strategies for effective use of EFD in VAT collection like collaboration with other international agencies,improving the quality of the paper used in the EFD machine, educating taxpayers on the advantages of using EFD machines to their businesses and tax purpose in general, enforcement measures, provide motivation and incentives to employees and improve employee's wages and working conditions.

5.3 Recommendations

As the findings revealed herein above in this research, the introduction and use of EFD machine so as to boost revenue collection and simplify tax administration has marked improvement in the collection of VAT. In order to increase the effectiveness and efficiencies of the EFD machine, I recommend the following to be done so as to attain the objectives of introducing EFD;

5.3.1 Making Comparison Possible in the EFDMS

The current EFDMS do not allow comparison of sales declared by one registered trader with the corresponding purchases of another trader as it was in the previous system. In order for the system to function well the system must allow the comparison of purchases and sales made by one trader with purchases and sales made by other traders.This will make easier to detect and hence prevent false declaration in the VAT return.

5.3.2 Educating Taxpayers

When a trader issue a receipt without writing the name and the TIN, that must not be accepted as a legal receipt by the buyer and the TRA in claiming input tax paid by the VAT registered traders

5.3.3 Affiliation of Police Officers and the Public in General

A police officer must be allowed to arrest any person who sells without issuing EFD receipts and those who do not request the receipts when doing purchase. Gift must be provided to persons who will disclose traders who do not issue EFD receipt when making sales.

5.3.4 Reducing Number of VAT Exemptions

Even if the EFDs are useful, the revenue to be collected from VAT will decline if the number of exemptions to be granted to various people will keep on increasing. VAT should be granted only on capital goods and not on consumables.

5.3.5 EFDMS Must Show the Details of Each Transaction Done

Although in their brochures TRA claim that the EFDMS shows the details of each transaction done by the users of EFD, it is not true in practice. The system does not show the details of each transaction and hence it is difficult for the TRA officer to know exactly how much each EFD user has to pay as a monthly VAT obligation by only looking at the EFDMS. The system must integrate both sales and purchases made by the VAT registered trader.

REFERENCES

- Adam, J. and Kamuzora, F. (2008) Research Methods for Business and Social Studies. Mzumbe Book Project, Morogoro, Tanzania.
- Bryman, A. (2001). Social Research Methods, Oxford University press, New York, USA.
- Hester, E.L. (1996). *Successful Marketing Research: The Guide to Getting and Using Essential Information about your Customers and Competitors*, John Wiley & Sons Inc, Canada.
- Frans van Peperstraten: 2007, *Samenleving ter discussie*, uitgeverij Coutinho, Bussum, p. 277.
- Kombo, D.K & Tromp, D. L. A. (2006). Proposal and Thesis Writing: An introduction. Paulines Publications Africa, Nairobi:
- Kothari, C.R (2004). *Research Methodology: Methods and Technique 2nd Edition*. New Delhi: New International Limited.
- Lacobucci, D and Churchill, G.A. (2009). *Marketing Research: Methodological Foundations*. Mason: Cengage Learning, Inc.
- Loudon, D.L., Stenens, R.E & Wrenn, B. (2007). *Best Business Books*. Binghamton: The Hawaorth Press, Inc.
- Rgdhagen, B. & Troja, J. (2005). Digital Delivery. E-Learning in Rural economic development in Tanzania, Blekinge Institute of Technology
- URT. (2010). Application of EFD. Ministry of finance and economy. Dar es Salaam.
- URT. (2011). Tax collection. Ministry of finance and economy. Dar es Salaam.
- VAT Act of 1996 Revised edition of 2006
- Waller, D.S & Polonsky, M. J. (2010). *Designing and Managing a Research Project. A Business Students' Guide 2nd Edition*. SAGE Publications, California, USA.

- Wanjiku, R., 2008. Kenya Rolls out Digital Villages Project. Retrieved from <http://www.infoworld.com/news/feeds/08/04/02/Kenya-rolls-out-Digital-Villages-project.html>
- Wheatley, M. J. (2004). The real work of knowledge management. In M. Goldsmith, H. Morgan & A. J. Ogg (Eds.), *Leading organizational learning: harnessing the Power of knowledge* 1st edition, pp. 53-63. San Francisco: Jossey-Bass.
- White B (2002). *Writing your MBA dissertation*. Continuum, London
- Allingham, M, G. and Sandmo, A (1972). Income tax evasion: A theoretical analysis, *Journal of Public Economics* 1, pp. 323-338.
- Alm, J. and J. Martinez-Vazquez (2003), "Institutions, Paradigms, and Tax Evasion in Developing and Transition Countries," in *Public Finance in Developing and Transition Countries*, eds. J. Martinez-Vazquez and J. Alm, Edgar Elgar: 146-178.
- Bahl, R., Smoke, P. and Solomon, D. (2003) '*Overview of the Local Government Revenue System*' (Chapter 3, pp. 71–93), in R. Bahl& P. Smoke (eds) *Restructuring Local Government Finance in Developing 20 Countries. Lessons from South Africa* (Cheltenham: Edward Elgar).
- Barjoyai, B. (1987). *Taxation: Principle and Practice in Malaysia* (PencukaaianPrinsipdanAmalan di Malaysia. Kuala Lumpur: Dewan Bahasa danPustaka.
- Baurer, L. I. (2005) *Tax administrations and small and medium enterprises (SMEs) in Developing Countries*. Retrieved from [http://www.ifc.org/ifcext/sme.nsf/AttachmentsByTitle/BEE+SME+Taxation/\\$FILE/SME+Taxaton+Toolkit.pdf](http://www.ifc.org/ifcext/sme.nsf/AttachmentsByTitle/BEE+SME+Taxation/$FILE/SME+Taxaton+Toolkit.pdf)
- Bird, R. M., J. Martinez-Vasquez, and B. Torgler (2008). Societal Institutions and Tax Effort in Developing Countries, in: J. Alm and J. Martinez-Vazquez (eds.), *The Challenge of Tax Reform in the Global Economy*. Springer-Verlag.
- Chaudhry, I.S (2010). Determinants of Low Tax Revenue in Pakistan. *Pakistan Journal of Social Sciences*. Vol 30. No 2, December, 2010 pp 439-452
- Chijoriga, M.M (2012). *New Areas for Enhancement of Revenue collection and Broadening Tax Base of the Country*. Unpublished Report.

- Chipeta, C. (2002), The Second Economy and Tax Yield in Malawi, Research Paper No. 113, *African Research Consortium*, Nairobi.
- Clifford, G and Amayi, J (2013).The Effects of Taxpayer Education on Voluntary Tax Compliance among SMEs in Mwanza City-Tanzania.*International Journal of Marketing, Financial Services and Management Research*.Vol. 2.No. 8, August.
- Cooper J and Schindler, M (2008).*Perfect Sample Size in Research*. Macmillan. New Jersey
- Cowell, F.A., (1990).*Cheating the Government: The Economics of Evasion*, MIT Press. Cambridge, MA.
- Cummings, R, Martinez, J McKee, M and Torgler, B (2005).*Effects of Tax Morale on Tax Compliance.Experimental and Survey Evidence*.Department of Economics. Georgia State University
- De Simone, L, Ege, M. and Stomberg, B (2012).*Tax Internal Control Quality: The Role of Auditor-Provided Tax Services*.University of Texas at Austin.
- Fagbemi, O. T., Uadile, O. M., and Noah, A. O. (2010). The ethics of tax evasion: perpetual evidence from Nigeria. *European Journal of Social Sciences*, 17(3), 360-371.
- Farzbod, J. (2000). *Investigation of the effective factors in the tax efficiency*.Unpublished master's thesis, Governmental Management Training Center, Tehran.
- Fjeldstad, O.-H.(2003). 'Fiscal decentralisation in Tanzania.For better or for worse?' *Journal of Public Administration*, Vol. 38, No. 2 (June), pp. 133-149.
- Fjeldstad, O-H. Geisler, G., Nangulah, S., Nygaard, K., Pomuti, A., Shifotoka, A. and Van Rooy, G. (2005) 'Local Governance, Urban Poverty and Service Delivery in Namibia', *CMI Report*, 12:2005 (Bergen: Chr. Michelsen Institute).
- Fjeldstad O. (2006). *Tax Evasion and Fiscal Corruption, essay on Compliance and Tax Administrative Practices in East and South Africa*. A dissertation submitted for the Degree of RD of econ. Norwegian School of Economics and Business Administration (NHH)
- Gordon, H. R. (2010) Taxation and Corporate Use of Debt: Implication for Tax Policy". *National Tax Journal* 63, no. 1, 1st March, 151-174. Available from: https://auth.athensams.net/?ath_returl=http%3A%2F%2Fpqathens.umi.com%2Fcgibin%2

- FAL_allback.cgi%3FCERT%3DcHFyZXR1cmw9aHR0cDovL3Byb3F1ZXN0LnVtaS5jb20vcHFkdViLz9SUVQ9NTA0&ath_dspid=PROQUEST. Accessed 26/04/10.
- Jackson, W and Milliron, J (1986), *Why People Pay Taxes?: Tax Compliance and Enforcement*, University of Michigan Press, Ann Arbor, MI.
- Kastlunger, B, Kirchler, E., Mittone, L., and Pitters, J. (2009). "Sequences of Audits, Tax Compliance, and Taxpaying Strategies," *Journal of Economic Psychology*, 30(3): 405-418.
- Kiabel, D. B. and Nwokah, G. N. (2009) "*Boosting Revenue Generation by State Governments in Nigeria: The Tax Consultant Option Revisited*". European journal of sciences, vol. 8, no 4. Available from: http://www.eurojournals.com/ejss_8_4_02.pdf. Accessed 16/03/13
- Kirchler, E, Stephan M, Kastlunger, B and Wahl, I. (2007). Why Pay Taxes? A Review of Tax Compliance Decisions, *International Studies Program, Working Paper* 07/30, Andrew Young School of Policy Studies Georgia State University.
- Knack, S. and P. Keefer, (1997), "Does Social Capital Have an Economic Payoff? A Cross country Investigation," *Quarterly Journal of Economics*, 112, pp 1251-88.
- Lymer, A., and Oats, L. (2009). *Taxation: Policy and Practice*. 16th ed. Birmingham: Fiscal Publications.
- Mansor, M., Tayib, M., and Yusof, R.N. (2005). Tax administration system: a study on the efficiency of Malaysian indirect taxes. *International Journal of Accounting, Auditing and Performance Evaluation*, 2(3), 321-43.
- Massala, D.E. (2009). *Success in Taxpayer Services: Lessons from Malaysia*. In volume 2, No. 25, The Revenues
- Mittone, L. (2006). "Dynamic Behavior in Tax Evasion: An experimental Approach," *The Journal of Social-Economics*, 35(5): 813-835
- Mugenda E and Mugenda E. (1999). *The Merits of Cross sectional research design*. McGraw Hill. New York
- Mugume, J., (2006), "Can We Trust Social Capital?" *Journal of Economic Literature*, vol. XL, 139-154.
- OECD (2006). "Social Norms and Economic Theory," *The Journal of Economic Perspectives*, 3 (1), 99-117.

- Palil, M (2010). *Tax Knowledge and Tax Compliance determinants in self assessment system in Malaysia*. A thesis submitted to the University of Birmingham for the degree of Doctor of Philosophy
- Pope, J., and Abdul-Jabbar, H. (2008). *Tax Compliance Costs of Small and Medium Enterprises in Malaysia: Policy Implications*.
- Slemrod, J. (2003) '*Trust in Public Finance*' (pp. 49–88), in S. Cnossen and H-W. Sinn (eds) *Public Finance and Public Policy in the New Century* (Cambridge, Mass.: MIT Press).
- Yin, R.K. (2003). *Case Study Research: Design and Method: Applied Social Research Methods*, Vol.5: Sage Publications Ltd.
- Yongzhi, N. (2010). *Tax Audit Impact on Voluntary Compliance*. New York State. Department of Taxation and Finance

APPENDICES

APPENDIX A

QUESTIONNAIRE TO THE TRA STAFF AND TAXPAYERS

Dear respondent,

The purpose of this questionnaire is to obtain information on EFD as a tool of facilitating VAT compliance in Tanzania, a case of Arusha tax Region. Your input will be essential part of the EFD usage evaluating process and thus an integral for attaining the objectives of implementing the usage of EFD and its influence towards VAT Compliance.

Your response to this questionnaire is completely anonymous. Please feel free to give the response that you think is most appropriate.

PART A; RESPONDENT'S INFORMATION

1. Respondent's details

Sex	Female		Male	
Experience	Less than 1year	2 to 5 years	6 to 10 years	Above 10years
Education	Secondary education	Certificate and diploma	Bachelor	Master's and above
Department				
Position				

PART B; EFFECT OF EFD IN FILLING, REMITTANCE AND REFUND PROCESS TO VAT COLLECTION

2. Do VAT registered traders use any of the following EFD? Choose the applicable answer

Device	YES	NO	Sometimes
Electronic Tax Register (ETR) also known as Electronic Fiscal Cash Register (EFCR)			
Electronic Fiscal Printer (EFP),			
Electronic Signature Device (ESD),			

3. How often the devices are used? Rank from 1(every time of transaction) to 5 (Not at all)

Device	1	2	3	4	5
Electronic Tax Register (ETR) also known as Electronic Fiscal Cash Register (EFCR)					
Electronic Fiscal Printer (EFP),					
Electronic Signature Device (ESD),					

4. Use scale provided to show the effect of EFD and tick (✓) in the respective column.

1: Strongly Agree (SA) 2: Agree (A) 3: Not Sure (NS) 4: Disagree (D)

5: Strongly Disagree (SD)

Effect	1	2	3	4	5
EFD simplifies filling of returns					
EFD simplifies remittance					
It simplify refund process					
Time saving in tax payment in general					

5. To what extent do you think EFD has an impact to; Rank each, the lower percent means low impact, higher percent means high impact

VAT payment Services	0 to 20%	21 to 40%	41 to 60%	61 to 80%	81 to 100%
Simplifying filling of returns					
Simplifying remittance					
Simplifying refund process					
Time saving in refund process					

6. Does the EFD increase VAT collection?

- a) Yes
- b) No
- c) Somehow

7. How do you rank the contribution of EFD in VAT collection in general?

- a) Very High
- b) High
- c) Medium
- d) Low

PART C; THE EFFECTIVENESS AND EFFICIENCY OF EFD IN VAT COLLECTION

8. If you will consider effectiveness to be measured by target/objective v/s actual/outcome, how do you rank the effectiveness of EFD in VAT collection?

- a) Very high
- b) High
- c) Medium
- d) Low

9. The following statements measure the effectiveness when EFDs are used, how do you rank the following statements? Rank by ticking from 1 (Strongly Agree) to 5 (Strongly Disagree) to show the degree of acceptance on the statement.

Statement	1	2	3	4	5
Using EFDs have low cost compared to VAT collected					
All EFDs are registered by TRA, hence more VAT collected					
Using EFDs had freed me from using much effort in compliance					
All transactions are entered or recorded in EFDs hence fill the correct tax return					

10. The following are expected inputs in order to make EFD operate well, show if these inputs are applicable by ranking from 1(Not available) to 5 (Available enough)

INPUT	1	2	3	4	5
We have devices required (EFCR, EFP, ESD)					
I/TRA has the specific budget to maintain the system/Devices					
I/TRA has Expert personnel in operating the system/Devices including training					

11. The following are expected outputs of EFDs, rank each of them from 1 (strongly disagree) to 5 (strongly agree).

OUTPUT	1	2	3	4	5
Increase of VAT collection					
Reduced queues					
Encouraged VAT compliance					
Reduced costs of VAT collection					

12. How do you rank the costs of operationalizing EFD system? Rank from 1 unfair to 5 very fair.

Areas		Rank				
		1	2	3	4	5
Personnel (e.g. Training, new employee etc.)						
Devices	Electronic Fiscal Cash Register (EFCR).					
	Electronic Fiscal Printer (EFP)					
	Electronic Signature Device (ESD)					

13. Use the scale provided below to show your general perception on EFD and tick (✓) in the respective column.

1: Very High 2: high 3: Not Sure (NS) 4: low

5: very low

Statement	1	2	3	4	5
Leads to the attainment and surpassing of target					
Users consider EFDs useful					
Users consider EFDs easy to use					

PART D; THE TREND OF VAT COMPLIANCE COSTS BEFORE AND AFTER USE OF EFD

14. Do all VAT registered traders use EFD?

- a) Yes
- b) No
- c) Somehow

15. Are VAT registered traders increasing or decreasing after introduction of EFDs?

- a) Increasing
- b) Decreasing
- c) Constant

16. What is the trend of VAT compliance before and after the use of EFD? Is it increasing or decreasing?

(Put tick where appropriate)

	Response	
	Increases	Decreases
Number of traders using EFD machine		
Issuance of receipts		
Sales declared		
VAT collection		
Number of refunds		
Purchases		
Compliance costs (Ratio of costs of collecting VAT viz tax collected)		

Thank you for your participation

APPENDIX B:

Interview Guide for Assistant Regional Managers (Debt Management & Compliance Monitoring and Audit)

Dear Sir/ Madam

Interview questions

1. What kind of training opportunities you do for TRA staff and VAT registered traders to acquire more skills in the EFD use?
2. What do you think are the major challenges towards effective use of EFD in facilitating VAT compliance?
3. Which strategies do you employ to make sure that VAT registered traders use EFD machine in their daily transactions?
4. What do you think should be done to support effective use of EFD in facilitating VAT compliance?

Thank you for your participation