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THE CONTRIBUTIONS OF ONLINE TAX PAYMENT SYSTEM ON REVENUE COLLECTION IN RWANDA: A CASE OF SMALL & MEDIUM ENTERPRISES (SMEs) TAXPAYERS IN KICUKIRO DISTRICT

A THESIS SUBMITTED IN PARTIAL FULFILLMENT FOR THE AWARD OF MASTER'S DEGREE IN INFORMATION SYSTEMS (OPTION OF E-GOVERNMENT) AT UNIVERSITY OF RWANDA

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NYARUGENGE, JUNE, 2021

DECLARATION

I, the undersigned, declare that this is my own research work and it has never been submitted to anywhere higher institution, college or university for the award of master's degree in information systems (e-government option) at the University of Rwanda- College of Science and Technology.

Date:

KAGABO ANANIAS January 10, 2021

CERTIFICATION

This is to certify that this thesis entitled "The contributions of online tax payment systems on revenue collections: A case of SMEs taxpayers in Kicukiro District

" is a record of the original work done by Mr. KAGABO ANANIAS (REF NO: 219014700) in partial fulfilment for award of master's degree in Information Systems. It has been submitted for examination with the approval of research supervisors at University of Rwanda, College of Science and Technology.

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DEDICATION

I would like to dedicate this project to Almighty God. Our beloved parents, our brothers, our sisters, all relatives and our friends for their encouragement and assistance.

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ABSTRACT

There is underutilization of online tax services in Rwanda despite the presence of electronic tax systems that was introduced by Rwanda Revenue Authority, where Information Technology (IT) allows government to serve citizens in a more timely, effective and cost-efficient way. The objectives of this study is to assess the role of mobile tax payment on revenue collection among taxpayers of RRA in Kicukiro District, Rwanda; to examine the contribution of Electronic Billing Machine (EBM) tax payment on revenue collection among taxpayers of RRA in Kicukiro District, Rwanda; to analyze the effect of e-tax payment on revenue collection in Kicukiro District, Rwanda. This research addressed the challenges for the taxpayers to efficiently adopt the e-tax systems to prevent extra wastage of time and money. The scope of this research takes a case of Rwanda Revenue Authority on revenue collection. It is in this regard that it identifies and discusses the challenges and elaborately suggests the possible solutions for successful implementation of online tax payment. This exploratory study elicited information using a structured questionnaire from respondents in taxpayers 'services department. The results revealed that there is a relationship between online tax payment and revenue collection, because there is a relationship between Electronic Billing Machine (EBM) tax payment and tax compliance, between Electronic Billing Machine (EBM) tax payment and tax convenience, between Mobile Payment and tax compliance, between mobile tax Payment and tax convenience, between tax compliance and tax convenience which implies that online tax payment has impact on revenue collection among the taxpayers in Kicukiro District, Rwanda.

Keywords: Online tax, Taxation, Tax payment, Revenue collection, Rwanda Revenue Authority, Rwanda

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LIST OF ABBREVIATION

RRA: Rwanda Revenue Authority

UR: University of Rwanda

CST: College of science and Technology

ICT: Information Communication Technology

SMEs: Small and Medium Enterprises

ADBG: African Development Bank Group.

E-Gov: E-government

IS: Information Systems

IT: Information Technology

OECD: Organization for Economic Co-operation for Development

AC: Activity Theory

EBM: Electronic Billing Machine

PAYE: Pay As You Earn

VAT: Value Added Tax

IRB: Inland Revenue Board

IRS: Internal Revenue Services

MNOs: Mobile Network Operators

PC: Personal Computer

SMS: Short Message Service

GDP: Gross Domestic Product

EAC: East African Countries

IMF: International Monetary Fund

NED: National Economic Development

WCO: World Customs Organization

CHAPTER ONE: INTRODUCTION

1.0. Introduction

This chapter covers background of the study, motivation of the study, problem statement, hypothesis, research objectives, research significance, and scope of the study and organization of the study.

1.1.Background of the Study

Technological advancement in systems of revenue collections and administration continues to rapidly transform on the association involved between the tax authorities and taxpayers around the globe (Young, 2016). Modern systems of tax administration incorporate an improved tax management, efficient and effective tax collections and an accountable model that retrieve tax information of the users through the archival technology. Sophisticated technology with electronic based archives is not only providing to be useful and practical when it comes to revenue collection but also helping taxpayers to fulfil their tax obligations in correct counts, timely filing and payment (Hardika et al, 2018).

The performance of an economy is predicted on revenue collection. Governments need finances to support administrative, infrastructure and service provision. Dowe (2016) contends that increased use of technology has arguably improved taxpayer services, compliance and administration (Sifile et al, 2018).

The Rwanda Revenue Authority (RRA) is a government revenue collection agency established by the parliament of Rwanda. The RRA is in charge of enforcing, assessing, collecting and accounting for the various taxes imposed in Rwanda. Rwanda Revenue Authority was formed by the Rwandan parliament in 1997 but officially became operational in 1998. It is under supervision of ministry of finance and economic planning, RRA started in 1998, with 200 employees who needed training and equipping with skills and technology to perform their duties. An organizational structure had to be established and streamlined into departments and a coherent chain of thorough knowledge. The RRA continued to grow to ensure that the revenues are collected to increase the development of the country. Thus, the RRA adopted use of ICT to facilitate and ensure that revenues are flexibly and appropriately collected.

The impact of e-services system has not yet easily been determined to demonstrate its vital role in revenue collection. Hence, it is of great important to understand the adoption of electronic payments by taxpayers given the investment in infrastructure and it is potential for reducing costs. Developing countries are facing challenges of low tax compliance and tax collection. This study seeks to establish the influence of e-services or paying on voluntary compliance by the usually unwilling taxpayers. Rwanda Revenue Authority (RRA) launched an e-services solution which was developed in order to fit with online tax services which should be reliable, dependent, efficient, safe, low risk of theft, save time and cost effective to all citizens to facilitate them to improve service delivery most especially taxpayers/clients to pay taxes through online. The e-service platform gives RRA an opportunity to interact with its clients and at the same time allowing them to do business with the authority in the comfort of their homes or offices. It is an important step towards the creation of a virtual tax office.

For several governments to match in performance with the growth and expectations of its citizenry, it must drastically increase its fiscal depth incurring costly recurring overheads. Automated systems must be capable of introducing massive efficiencies to business processes that can result in increased revenue. Applying technological solutions towards the strategic goals for government will be a key step towards transforming government into an entity that can keep abreast of needs, requirements and expectations of today's modern world (Muturi, 2015).

Government today is under an increasing pressure to improve the delivery of public services in cost-effective ways. To meet this challenge for example tax authorities are turning to e-governments that led solutions like electronic tax payments (e-tax). To date, the use of ICT is prominent in business and tax settings. Notably tax authorities around the world are using electronic tax administration systems to interact with taxpaying public in tax collection, administration and compliance settings. Technology has influence to the way we work, play and interact with others. The use of technology to improve the effectiveness of the tax administration, expand taxpayer services and increase tax compliance has come to attract increasing attention in developed and developing countries (Muturi, 2015).

According to Prayoga, et al (2019), it is undeniable that the tax sector is the most strategic source of state revenue, not least for the local government. Various innovations in the campaigns and procedures of tax collection have been made to make it easier for people to pay local taxes, one of

which is through the implementation of an e-tax system or online tax. Information technology can be used in an attempt of promoting taxation, which in this case can have impact on increased taxpayer compliance (Winerungan, 2012). This shows that the development of innovations in the era of regional autonomy takes place simultaneously with the democratization process which in this case can give space for the emergence of various actors (multi-stakeholders) to engage in various policies (Pratikno, 2007).

Such a tax system is made to facilitate the public as taxpayers in obtaining information concerning tax and tax payment mechanisms because an application-based online tax system, when implemented properly, impacts on time and administrative cost savings for the government and provide quality public services to citizens easily, affordably, and fast (Chamberlain & Castleman, 2003). In line with the rapid development of science and technology, the implementation of an online tax system is designed to facilitate the public in accessing information and provide ease in tax payment. This is shown by a study which reveals that online tax payments contribute to increased local revenue, for the online system in the payment of local taxes provides convenience for taxpayers in tax services, making the tax administration process more effective and keeping confidentiality of tax documents (Leliya & Afiyah, 2016). Meanwhile, another study shows that the utilization of information technology has a positive and significant influence on taxpayer compliance (Sudrajat & Ompusunggu, 2015) did not explain in detail the convenience obtained by conventional citizens from the implementation of the system (Prayoga et al, 2019).

1.2 Motivation of the study

The motivation of this study is centered on finding out the effect of online tax payment on revenue collection among the SMEs taxpayers of RRA in Kicukiro District in Rwanda. Rwandan government relies heavily on taxes to fund its development. An increase or decline in tax revenues has a direct attitude on the economy of Rwanda as a country. Thus, e-service has become a popular focus of government efforts in many countries around the world. More governments around the world have implemented and introduced e-government systems as means of reducing costs, improving services, saving time and increasing effectiveness and efficiency in the public sector. E-government and internet has made an essential change in the whole society structure, values, culture and ways of conducting business by using the potential of ICT as a tool in the daily work (Alshehri & Drew, 2010). Hence, another motivation of the study is based on the potentiality of

ICT in promoting development which has also involved its use in revenue collection. Therefore, it is of very great importance to prove or disapprove the contribution of online tax payment on revenue collection in Kicukiro District, Rwanda.

E-government is defined as a way for governments to use the most innovative information and communication technologies, particularly web based Internet applications, to provide citizens and businesses with more convenient access to government information and services and to provide greater opportunities to participate in democratic situations and processes (Fang, 2002).This definition emphasizes building good relation among the governments, citizens and businesses as the main aspect of e-government. However, this research focuses on the exploring existing e-government information services. Along with providing information access, e-government could also facilitate citizen's access to public service.

Ahmed, Alhadi, and Seliaman (2015) define e-Government as the utilization of the information technology, and especially the internet, to improve the government services delivery to citizens, businesses, and other government agencies. It can be defined as the use of ICT to provide the public sector services to the citizen and business. That means the using of recent and advanced technology such internet and mobile technology to provide the citizen and business with improved better and government services (Sulehat &Taib, 2016).

Electronic government (e-government) is also simply a facility using information technology (IT) to deliver public services directly to the customer. The customer can be a citizen, a business or even another government entity. He considers e-government as a technology to help simplify and automate transactions between governments and constituents, businesses or other governments. IT has the potential to transform government structures and to improve the quality of government services. With so many public sector organizations undertaking major e-governments projects, there is a growing need to understand how these projects can be successfully implemented for maximum realization of their predicted benefits.

1.3 Statement of the Problem

The utilization of Information Communication Technology (ICT) in paying taxes is still at a lower level despite of the efforts provided by government initiatives for instance before the introduction of EBM there was low revenue collection using e-payment which has been resulting in failures of

RRA to meet its targets (RRA, 2014). The report of African Development Bank Group has asserted that SMEs faces a number of challenges regarding online tax payment due to poor ICT infrastructure, unskilled taxpayers in ICT and lack of online tax payment awareness (ADBG, 2010).

The study conducted by Kamana (2016) have revealed that online tax payment system which was introduced by Rwanda Revenue Authority, indicated that e-filing and e-payment improved revenue collections and bridged the gap of budget but still there are challenges like unreliable network and inadequate computer skills associated with online tax payment system making it a problem to achieve their targeted budget. The current report by the Rwanda Revenue Authority (2020) indicates that they are 3307 registered SMEs in Kicukiro District whereby only 1514 SMEs pay taxes pays online while 1793 do not pay taxes via online.

The same report of RRA have shown that 1,553 SMEs pay taxes using cash, 441 SMEs pay taxes using mobile payment, 87 SMEs pay taxes through payment orders, 240 SMEs pay taxes using cheques, 2 SMEs pay taxes using funds transfer, 2 SMES pay taxes using manual payment and 892 SMEs pay taxes through e-banking (RRA, 2020). Thus, this report indicates that a big number of SMEs do not pay taxes online though they are registered taxpayers of Rwanda Revenue Authority. It is in this regard the researcher has conducted this study to determine the contribution of online tax payment system on revenue collection in Rwanda.

1.4 Research Hypotheses

H_0: There is no relationship between e-tax payment and revenue collections among the taxpayers of RRA in Kicukiro District, Rwanda

H_1: There is relationship between e-tax payment and revenue collections among the taxpayers of RRA in Kicukiro District, Rwanda

1.5 General Objective

The general objective of the study is to examine the effect of online tax payment on revenue collection among the SMEs taxpayers of RRA in Kicukiro District in Rwanda.

1.5.1 Specific Objectives

The specific objectives are as follows;

(i) To assess the role of mobile tax payment on revenue collection among taxpayers of RRA in Kicukiro District, Rwanda

(ii) To examine the contribution of EBM tax payment on revenue collection among taxpayers of RRA in Kicukiro District, Rwanda.

(iii) To analyze the effect of e-tax payment on revenue collection in Kicukiro District, Rwanda.

Table 1. 1: Operationalization Table

The operationalization table is the table that compares the objectives of the study and the well-defined variables that are measures within study. Thus, the e-tax payment and revenue collection related objectives are compared here in the table below.

Objectives	**Variables**	**Indicators**	**Methodology**
(1) To assess the role of mobile tax payment on revenue collection among taxpayers of RRA in Kicukiro District, Rwanda	Mobile tax payment (IV) and revenue collection (DV)	Mobile tax payment (1) Saving time for other business (2) Saves money for transport (3) Facilitates to pay on due time	Descriptive
(2) To examine the contribution of EBM tax payment on revenue collection among taxpayers of RRA in Kicukiro District, Rwanda.	EBM tax payment (IV) and revenue collection (DV)	EBM tax payment (1) Records keeping for tax compliance (2) Help business to comply with tax requirements (4) Help to report business income	Descriptive
(3) To analyse the effect of e-tax payment on revenue collection in	e-tax payment (IV) and	E- tax payment	Descriptive

Kicukiro District, Rwanda.	revenue collection (DV)	(1) Help to pay tax regularly (2) Eases process of revenue collection (3) Facilitate tax compliance	

Source: Primary Data, 2020

The table 2.1 indicates that the three specific objectives of the study are operationalized about in the variables that construct the objectives, the indicators of those variables and their measurements.

1.6 Scope of the Study

This study focused on analyzing the contribution of online tax payment/ e-tax payment on revenue collection among taxpayers of RRA in Kicukiro District, Rwanda. This study has only focused on SMEs taxpayers in Kicukiro District. Since, the introduction of online tax payment in 2012 up to 2020.

1.7 Significance of the Study

1.7.1 Government

The study findings and recommendations are of value to the Rwandan government on explaining the impact of e-tax on revenue collection among the taxpayers by Rwanda Revenue Authority. Hence, the government will use the study result in more implementing as well as policy formulation. The study also pinpoints on the strengths and weaknesses related to e-tax services and suggest the possible solutions to the challenges for the efficient and effective tax administration to all parties. The study is also likely to reveal the strengths or weaknesses associated with implementation of new technology and its benefits not only to the authority but also to taxpayers thereby, enriching knowledge to other government institutions planning to embark on similar modernization programs.

1.7.2 Researchers and Scholars

This study is of value to the scholars and researchers interested in adding value to the existing body of knowledge on information systems and revenue collection. The study analysis on the

aspects of e-tax and revenue collection may be further demonstrated in a thematic concept by inferring to the literature. The recommendations were made to become a great help to RRA and the small taxpayers in carrying out a cost-benefit analysis on the use of technology in efficient tax administration. This may aid in future policy formulation on the same.

1.7.3 Taxpayers

The effect of e-tax and revenue collection among the taxpayers by Rwanda Revenue Authority provide a detailed summary of the empirical analysis on the study variables and present innovative ideas that can be adopted to streamline revenue administration and collection in an effective manner.

1.8 Organization of the Study

This study is articulated in five chapters; including the chapter one that deals with introduction of the study and it focuses on the background, motivation, statement of the problem, hypothesis of the study, research objectives, research significance, scope and organization of the study. The chapter two of this study focuses on review of related literatures while the chapter three focuses on research methodology which include research design, target population and sample size, data collection instrument and data analysis. The chapter four of the study focuses on research findings and discussion while the chapter five emphasizes on summary of research findings, conclusion and recommendations.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter begins with introducing to the study relevant literature reviews on the general and specific objectives. The chapter expands on the study variables by an in-depth analysis on the factors that influences on the revenue collection by Rwanda Revenue Authority on Taxpayers. Literature is an important component of any research work as it provides a solid background to back one's investigation. It involves reviewing existing literature and justifying how someone's work fits into the existing body of literature. Literature reviews helps to justifies the research,

highlight faults present in previous research and show that the work is adding to the knowledge and understanding in the field. It helps the researcher to avoid duplications and to identify the gaps present in a research area and focus on doing further research with the goal of filling such gaps.

2.1 Theoretical Review

2.1.1 Online Tax payment

The online tax payment is a facility provided to the taxpayers to make income tax payments through internet using net-banking facility. Payment can be made electronically at convenience time and place where an internet facility is available such as in office, and residence. For a government to match its performance with the growth and expectations of its citizens, it must be able to increase productivity and efficiency of its business without incurring recurring overhead costs. Automated systems have been proved to increase efficiency to business processes which can result to increased revenue. Tax collection systems in Sub-Saharan Africa unlike in the western countries are still developing. The World Customs Organization (WCO) has helped in setting up standards that averagely need to be adopted by almost every country in order to combat tax vices that exists in almost all countries (IMF, 2005). There are numerous research studies both international and local that have been carried out regarding the effects of online tax system on revenue collection. The following shows some of the studies that have been conducted regarding online tax systems and their effect on tax compliance.

When it comes to making online tax payment there are a handful of options available to people, primarily: checks, Electronic Funds Transfer (EFT), Automated Teller Machine (ATM), cards (debit, credit and smart), Electronic Purses/Wallets, mobile money (Mobile Banking and Money Transfer), Telephone Banking, Personal Computer Banking (Home Banking), Digitized 'E-Cash' Systems, Electronic Cheque, Online/Internet Payments and Digital Person to Person (P2P) Payments (Wahab, 2012). The content of P2P exchange is usually the form of digital financial instrument such as encrypted credit card numbers, electronic checks, or digital cash that is backed by a bank or an intermediary, or by a legal tender.

In the case of this study, online tax payment consists of mobile tax payment and the electronic billing system which consists of an electric powered typewriter, a calculator in a contemporary accounting machine, a minicomputer, a programmed manipulate device, and a unit for recording

the facts of an auxiliary carrier. Electronic invoicing is used, for example, in computer consoles, in the accounting departments of agencies and industrial companies, in taxpayers, in massive warehouses and in improvement and assembly departments. The use of these machines extensively speeds up the processing of accounting and financial documentation. With the safety of automated control systems, billing machines have been used as input terminals for these systems.

Online tax payment is a payment by direct credit, Electronic Transfer of credit card details, or some other electronic means, as opposed to payment by cheque and cash (Agimo, 2004). Onile tax payment is a payer's transfer of a monetary claim on a party acceptable to the beneficiary, a financial exchange that takes place online between the buyer and the seller. The process of cashless transactions plays a big role in ensuring that the revenue concerned government board collects enough revenue to fund its projects. Online tax payment has been designed to help individual customers and companies as well as the banks itself in eliminating or reducing some of the problems inherent in the settlement and payment process. Customers can pay their bills without having to actually move to the bank's premises (Wahab, 2012). They may also have access to their account information and even transfer money to other accounts in the comfort of their homes.

The various electronic billing system modes levels from the width of typewriter transport, the set of computational operations performed, and the automation diploma. Machines are broadly used in the Soviet Union (Jahirul, 2011). A system for processing alphanumeric files, such as accounts, electronic billing system billing requirements, payroll, and development estimates that require handy calculations, such as addition, subtraction, multiplication, division, and proportion calculation. The laptop machine additionally mechanically prints the result of a paper processing operation with the help of the potential of a typewriter and concurrently files the result on a service of auxiliary facts, such as a magnetic tape, a punch tape or a punch.

2.1.2 Revenue collection

Revenue collection frequently refers to a government agency billing the public or a member of the public for fines, taxes or any other fees. However, revenue collection is also the general collection of revenue for debts owed or owed revenue by persons or businesses. Tax authorities highlight policies regarding the type of tax and recommended time of payment to bring in efficiency in tax commitment by taxpayers. It is expected that all taxpayers must be aware of when to pay tax,

where to pay and how much to be paid to establish clear information on the certainty of tax liability earlier. This is relevant in the understanding of any amount that is due at specific time and can be well established and be of help to the taxpayers and tax administrators by establishing any concern that would arise in case of uncertainty in revenue collection (Njenga, 2019).

Electronic tax payment was first coined and implemented in the US in 1986. Today, electronic taxation has been extended too many countries. Electronic differs among countries hence the name of system also differs from country to country. Electronic declaration is named electronic tax filing in International literature. E-tax payment is also called online taxation payment (UN, 2007) or e-tax lodgment. Revenue collection is very important for every government globally as it enables the government to acquire assets which are not liable to debt and which the government uses to develop its economy. So, revenue is collected by the government upon its citizens for support or for the purpose of facilitating the Service Delivery in a country (Aamir et al., 2011). It is neither a voluntary payment by the tax payer nor like a donation. Rather it is an enforced payment to the government (Garner, 1999). Governments therefore collect revenue for investment, Socio-Economic development and growth at the grassroots (Olatunji, 2009) and service delivery. Thus collection of adequate revenue by County Government is essential for economic development, growth, and improved service delivery at the County level (Clegg & Greg, 2010).

Reima Soumi has discussed the meaning of e-taxation and deals with the best practices in technology which would further help in the development of tax administration system. Dr. Dimitris Gousco discussed about the concept of e-government, strategic objectives for electronic services, business planning for electronic services, technologies for delivering electronic services and evaluating the performance of electronic services. Subhash Bhatnagar, has discussed about the different perceptions and delivery models of e-government and also about the cases resulting in multiple benefits: improved service delivery; reduced corruption; increased transparency; increased revenue; cost reduction; and empowerment. Sanjiv K Chaudary in his article discussed about the advantages of E-Taxation and to provide clarity and certainty on various tax related issues to assess (Haryani *et al*, 2015).

Revenue collection is very important for every government in the world as it enables the government to acquire assets which are not liable to debt and which the government uses to develop its economy (Ngotho & Kerongo, 2014). More importantly, high revenue collection

performance is vital to promote efficiency in the service delivery and economic development at the counties. However, studies and other journal publication have shown that most governments face serious challenges in their revenue collection performance (Balunywa, 2014), where governments are not able to collect sufficient funds to cover their budget expectations. For years revenue collectors have not been channeling all the amount of money they collect to the County Treasury (Ngotho & Kerongo, 2014).

The field shows that the implementation of this online tax payment encountered several obstacles. First, the online tax system has not been fully accessible by all levels of society, especially people who fall into the category of conventional society and have not been touched by technological advances. Secondly, public awareness related to tax compliance is still low. This is evident in the research conducted in 2015, in which as many as 27-30% of motor vehicle owners in West Java did not pay taxes (Bestari et al., 2015). Thirdly, most of the people are not aware of the latest tax policy launched by the government, which shows ineffective and non-simultaneous promotion of tax services (Prayoga *et al*, 2019).

2.1.3 Tax compliance

Tax compliance means abiding by taxpaying expectations and tax law (James and Alley, 2004). Non-compliance is the payment of less tax than due or outright failure to pay (Muturi & Kiarie, 2015). The major causes of this difference are contributed hugely by overstating of expenses and deductions, and understating income. Robben *et al.* (1990) and Webley (2004) argue that non-tax compliance encompasses premeditated tax evasion and unintentional noncompliance, these resulting from calculation errors and poor appreciation of tax laws.

On the other hand, OECD (2008) divides compliance into administrative and technical categories. Administrative compliance refers to following tax reporting procedures and regulatory frameworks while technical compliance refers to following the technical dictates on payment of taxes. However, Dome (2013) identifies four key tax compliance dimensions which are: Registering a taxpayer when criteria are met; Submission of tax returns on or before due date, Payment of tax due on or before due date and; Reporting tax liability accurately e.g. declaring correct income, expenditure and tax relief.

Dome (2013) further adds the dimension of a taxpayer having to register with the tax authorities when required to do so. He also highlights that one pillar of tax compliance is registration as a taxpayer when one meets criteria set by the Revenue Authority. He also states the major areas of non-compliance being the avoidance of registration and filing taxes wrongly. Therefore, note that the dream of all governments is getting all its citizens to pay their taxes painlessly without complaints. The task has however, never been simple, until the introduction of the modern information technology which has simplified this task.

Therefore, the implementation of online payment is paramount in ensuring compliance to revenue collection. Various ICT based revenue collection applications are available for use in the modern world today. Thus, it is very crucial to mentioned that the revenue collection compliance due to the ICT infrastructure and other available facilities of ICT. These are simply referred to as Electronic Payment (Epayment) system (Ndunda, Ngahu & Wanyoike, 2015), integrated into revenue collection. The E-payment system is accessible online through Point of Sale (PoS) terminal devices and physical agents (such mobile phones, debit cards, agents, mobile money). The online payment of tax is intended to help the companies using it to eliminating or reducing and minimizing corruption (some of the problems inherent in the settlement and payment process), by allowing customers to pay their bills without having to actually move to the firm premises.

The customers have access to their account information and even transfer money to other accounts in the comfort of their homes (Wahab, 2012).The advancement of tax compliance has pointed at improvements in administration fiscal of systems (Teltscher, 2002). Tax compliance is mainly achieved when majority of taxpayers voluntarily file their tax returns and pay resultant tax liabilities as stipulated in the tax laws, without the intervention of the tax authorities through enforcement. However, if the voluntary compliance is low, then enforcement measures like audit and collection are resorted to. In a bid to embrace the developments in the ICT world, tax authorities have introduced various online systems that have led to the introduction of online electronic submission of returns, online payments and online viewing of returns (Sifile *et al*, 2018).

2.2 Empirical review

Several studies on e-Tax and revenue collection have been presented in the global context, regionally and locally. Fan, Qi an and Wen (2017) studied the short and medium run effects of

computerized VAT invoices on tax revenues in China, the study result indicated an increase in tax revenues to the government as a result of VAT invoices computerization and recommended electronic systematization of business transactions. Lee (2016) researched on electronic tax invoicing and compliance of Republic of Korea's. This was as result of mandatory electronic tax invoicing by the government to curb tax evasion and bringing transparency. The study findings indicated that 72.9% agreed that electronic invoicing has improved taxpayer service by providing convenience of tax filing and automation of issuance invoices. The study recommended that automation of business transactions materially facilities tax compliance, increases revenue collection and brings positive perception on tax administration.

The study by *Ndunda et al.* (2015) revealed that level of tax payment (compliance) affected optimal revenue collection. The study a regression model, which established am marginal relationship between tax compliance and revenue collection. It was established revenue clerks and 14 tax officials were corrupt and the staff lacked adequate training facilities and opportunities led to inexperienced employees in the County Government. The recommendations by the study were that county governments needed to increase competence of revenue clerks and other County officials and attract skilled and competitive employees for the purpose of increasing revenue collection performance. However, this study has not put much emphasis of the use of online tax payment on revenue collection though it has brought in concerns of compliance to revenue collection.

Canares (2016) stated that expounding on the concept of enabling environment for a more transparent and better resources local government in Philippines e-taxation system. The study assessed 15 municipalities using e-taxation; the study analysis showed that the use of ICT can make possible more transparent and accountable revenue generation systems that benefit government and taxpayers. The study recommended that ICT can be adopted, scaled and used by sub-national government to attain better governance (Njenga, 2019). Another study conducted by Noronaa (2016) on automation of tax collection by Ghana Revenue Authority involving 20 officials. The study findings indicated on interview of staff of GRA's experiences with automation indicated an efficient and effective means of tax administration. The evidence suggests a positive effect of automation system usage and the cost of tax administration, and effective means of revenue collection. Additionally, automation was significantly related with tax clearance time. The research makes significant empirical contribution to analyzing tax automation and administration

cost, time efficiency and effectiveness of revenue collection. The research recommended on a strong emphasis to have automation in revenue administration.

The study of Kinuthia and Akinnusi (2014) has found that the barriers to e-commerce development were; economic, social, telecommunications infrastructure barrier, legal/political, individual and organizational barriers. The first three variables are positively but moderately correlated with each other, while with the exception of telecommunications infrastructure, others are poorly correlated with individual and organizational barriers. As expected, the latter two correlate moderately with each other. The regression analysis suggests that telecommunications infrastructure barriers hold the key to unlocking the expansions of e-commerce in Kenya, as a decrease in this area would have multiplier effects on the other barriers. The study recommended that the government has a vital role to play in reducing the first four barriers, which are all external to organizations, while at the organizational level, organizations should set (ecommerce) goals and objectives that are well spelt out; build human organizational capital structures to facilitate good working relationships and provide training on e-commerce to minimize resistance and blocking of new changes in organizations. This study tracked really the challenges that the less developed country like Rwanda has faced during this transmission of analog to digital or improved use of technology in all services including tax payment and revenue collection.

Olaoye and Kehinde (2017) analyzed the impact of Information Communication Technology on tax administration in South West Nigeria. The study result indicated that online tax filing, online tax registration and online tax remittance had a positive correlation to tax productivity. The study concluded that information technology enhances the level of tax productivity and administration. It is therefore recommended that the respective agencies (federal, state and local government) responsible for tax collection should conduct awareness one by one in the form of seminars and sensitization of the process and suitability of information technology on tax administration. The study recommended that respective tax agencies should promote awareness and sensitize citizens on suitability of information technology on tax (Njenga, 2019)

The study of Nyongesa (2014) recommended for decentralized ICT based tax collection systems and offices in the sub-counties in adoption of differentiation strategies in 15 revenue collection role in Mombasa County. Among other strategies was; the remission of cash to the nearest bank and not to the cash offices, improved tax rates, widened the tax base, devolution of tax base to

county government departments, improved controls on management of cash. However, the use of automation of revenue collection system would widely increase the revenue collection. The study recommends that the County Government of Mombasa needs to automate its revenue collection, through partnering with the regional banks whereby the tax payers will be given option of paying county fees through mobile money or branded credit cards via new revenue collection system. The study also recommends the development of revenue management capacity by training qualified personnel, established proper revenue management mechanisms), so as for the County to provide quality services to the people.

In developed countries, institutional settings embedded create a conducive environment for better e-government implementation that is difficult to import in a developing country. In turn, higher rates of failure in the implementation of e-government initiatives have been reported in developing countries over time (Heeks, 2003; Dada, 2006; Gunawong & Gao, 2017). Those failures can be attributed to political, social-economic, technological and organizational issues which are prevalent in that context. Furthermore, Heeks (2002) observation indicate that those failures are mainly attributed to the gap between e-government design in developing counties and the reality of the public sector in such contexts. About this problem, Doherty and King (1998) had earlier pointed out those failures of e-government initiatives are more due to social and information issues than technical ones.

Kamana (2016) stated that the goal of any tax authority is to establish a system of tax administration that allows for the collection of required taxes at minimum cost. A tax authority engages in many activities, such as processing returns and related information from tax payers, entering tax return data into a database, matching returns against filing requirements, processing tax payments and matching them against assessments, and issuing assessments and refunds (Geetha and Sekar, 2012). A study conducted in India shows, one way to boost a tax authority's efficiency is by expanding its use of information and communication technology. Such technology can facilitate a broad range of services, including registering taxpayers, filing returns, processing payments, issuing assessments and checking against third-party information.

Kayaga (2010) study showed that new technology alone is not sufficient if the government does not recognize the need for skilled tax officials. The scholar further avers that, effective tax administration requires qualified tax personnel with requisite skills to maintain these systems and

operate them to their fullest potential. Simiyu's (2010) study indicated established that, tax officers accepted bribes when offered to reduce tax liability and demand for bribes when they visited, a situation that hugely affected revenue collection in Nairobi County, Kenya. Gikandi and Bloor (2010) study found that some factors tended to inhibit the adoption of e-commerce in Kenya. These include; lack of resources, constant change in technology, time available to develop systems, the lack of spread of accessibility and use of Internet by the general population, especially in the rural areas. Organizational, governmental and developmental issues were also identified as constraints to the adoption of ecommerce in the banking sector in Kenya. The study observed that e-banking introduced new risks requiring new risk management strategies, including internet security, customer and legal related issues. Thus, the new system of online tax payment needs vigilant control and the common man should be taught about the use and benefit of using the online tax payment and revenue collection to ensure its success.

E-filing systems increase the quality and quantity of information available to tax officers, enabling them to complete transactions faster and more accurately (Jahirul, 2011). Returns filed electronically have much lower error rates than paper returns and substantially cut the need to impose penalties and other punitive measures to foster compliance. The more efficient handling provided by electronic returns allows tax officers to issue assessments and refunds more quickly, and taxpayers know right away if their returns have been accepted by the tax authorities. The more billing system that is processed electronically, the less money is spent on paper and postage. Offering electronic payment can also help businesses improve customer retention and reduce tax defaulters. Electronic billing system can thus lower transaction costs stimulate higher consumption and GDP, increase government efficiency boost financial intermediation and improve financial transparency (Taddesse & Kidan (2005).

E-filing lowers the cost of handling returns allowing administrative resources to be reallocated to other tasks such as auditing, customer services and tracking non-compliance (Geetha and Sekar, 2012). The benefits of e-filing and e-payment systems extend to other electronic processes in the tax authority. E-filing and e-payment allow for better, safer data storage that can be used to implement a risk management system for auditing and enforcement (Delali, 2010). Automation helps establish a good system for tracking case files, which is essential for effective auditing and increases the speed and quality of data provided to auditors. In addition, a study conducted in India

shows that e-filing systems are usually complemented by software that standardizes and facilitates processes for taxpayers, making compliance easier (Gupta, 2012).

Khan *et al.,* (2011) stated that many institutions are coping with implementing the same ICTs emerging from developed countries, hoping to make e-government and the economic development journey faster. In such a race, decision makers and professionals in Rwandan institutions are often inspired and influenced by e-government literature and best practices in developed countries. But, from the beginning developed countries have been developing their institutions using ICT all along in enabling conditions. On the other hand, the advancing by developing counties which adopt ICTs from developed context is a good move towards the development advancement in the context of developing country (Kimenyi & Moyo, 2011).

2.3 Theoretical framework

This study is guided by activity theory articulated by Hardman (2005) focusing on framework of examining and reworking of interacting pastime systems; and the ability to pay theory developed by Smith and Pigou (1903) that focuses on philosophical understanding and thought grounded on the ability of individuals to share burden of supporting government through revenue collection. This study is also guided by the theory of Wicksell (1896) which is benefit theory which is grounded on philosophical ideas of contributing to that support of revenue from the benefit.

2.3.1 Activity Theory (AT)

Activity Theory is used as a framework for examining and reworking networks of interacting pastime systems (Hardman, 2005). The activity structures radically change one circumstance to another, for this reason is viewed to be the contraptions of agency of activities (Engeström, 2007). The fundamental components of pastime system are comprised of the subject, object, mediating artefacts, rules, neighborhood and division of labor (ibid). The problem is a man or woman or entity (actor or actors) from whose standpoint an object is to be considered (Daniels, 2004).

In the case of this study, an actor is Rwanda Revenue Authority, provides electronic computer for this reason IT is used as mediation between RRA and taxpayers to enhance tax compliance. Mediation refers to the use of tools to mediate human recreation (Vygotsky, 2008). The device is the artefact to be created and converted for the duration of the protection of the undertaking itself

taken as financial protection in this case (Uden & Da-miani, 2007). Rules are the norms and regulations that are both implicit and explicit; however influential in the things to do that take place (Engeström, 2009).

The hassle with goal implementations in a multi-level and complicated activity machine such as the digital billing device method is that it needs clear regulations and pointers throughout specific actors if it is succeeded. Whilst implicit tips maybe ambiguous, concern to misinterpretation and manipulation, the worst situation would be a whole lack of rules or hints and enforcement approaches to impose penalties to tax noncompliant in this case. Activity Theory is a descriptive framework, a thought and a theoretical approach or a viewpoint (Mursuet al., 2007). In most instances AT is used to analyze human pastime from a needs-based and aim oriented viewpoint, hence human beings are driven by using needs and therefore have dreams to achieve (Mlitwa, 2011).

Consequently, it is used to understand human interplay via mediated equipment and artefacts (Hashim &; Jones, 2007). An activity is considered as a factor that ties the moves to the context, consequently an undertaking is a fundamental unit of evaluation in Activity Theory (Engeström, 2007). Since human moves derive their which means from the context, moves besides context are meaningless (Mursu, et al., 2007), hence actions must be viewed within a context (Leontev, 1978). This is a typical case of RRA in tracking the online payment of taxes by use of electronic billing machine which has reduced tax avoidance and evasion. This allows RRA to track the activity network especially indicating where the taxes were paid from and the amount paid in comparison to the total amount expected to be paid. The network also allows RRA to track defaulters by using sophisticated decision support system which sends warnings and penalties to the clients.

2.3.2 Ability to Pay Theory

This theory was developed by Smith and Pigou (1903); the subjects of every state ought to contribute towards the support of the government, as nearly as possible, in proportion to their respective abilities; that is, in proportion to the revenue which they respectively enjoy under the protection of the state." The ability-to-pay principle requires that the total tax burden will be distributed among individuals according to their capacity to bear it, considering all of the relevant personal characteristics. This is the most popular and commonly accepted principle of equity or

justice in taxation as citizens of a country pay taxes to the government in accordance with their ability to pay. It seems that if the taxes are levied on this principle as stated above, then justice can be achieved. The most suitable taxes from this standpoint are personal levies such as income, net worth, consumption, and inheritance taxes (Wasao 2014).

The economists are not unanimous as to what should be the exact measure of a person's ability or faculty to pay. The main viewpoints advanced in this connection are as follows:

Income as the Basics: Most of the economists are of the opinion that income should be the basis of measuring a man's ability to pay. It appears very just and fair that if the income of a person is greater than that of another, the former should be asked to pay more towards the support of the government than the latter. That is why in the modern tax system of the countries of the world, income has been accepted as the best test for measuring the ability to pay of a person (Muturi, 2015).

The theory states that taxes need to be paid according to a taxpayer's ability to pay (Muturi and Kiarie, 2015). It highlights that individuals who earn more money can afford to pay more in taxes (Muturi and Kiarie, 2015). The theory also advances the following views on factors that determine bases for taxation: which are; Ownership of property which is the ability to pay can be evidenced by ownership of property. Thus it suggests that those who buy property should be taxed more, which is a nullity because ownership of property is a choice. Using expenditure as a basis for tax: Fochmann and Kroll (2016) believe that the quantum of expenditure should determine tax. This seems absurd given that expenditure depends on factors like size of family. Use of income as basis for tax: A widely held view is that income is the best determinant of tax. In the case of this study, the ability to pay tax is handled online and the taxpayers are urged to comply with revenue collection system by filling the real code of the product so that the tax for the product displays correct in the system to hence e-tax payment and revenue collection for the sake of both government and the tax payers of RRA in Kicukiro District, Rwanda.

2.3.3 Benefit theory

This was developed by Wicksell (1896). It upholds that the state ought to tax its people according to the benefits it confers on them. It implies that taxes should be paid by those people who obtain direct benefit of government programs and projects derived from taxes paid. However, this theory

faces major criticisms as explained below. Mogeni (2012) argues that the vulnerable get more benefits like free education and food among others. While they get the largest benefits, they are the least in capacity to pay taxes (Sifile et al, 2018).

In the case of this study, this theory is very supportive because the targeted population of this study is only taxpayers who conduct business in Kicukiro District. Hence, this theory shows the philosophical point of view why the taxpayers should be compliant to tax collection systems that is done online as they are paying from the benefits acquired

2.3.4 Economic Theory

The economic the precept of tax compliance is recognized as a principle of deterrence, which suggests that taxpayers are ethical, maximizes of utility because taxpayers are influenced by way of monetary elements such as revenue maximization and profitability. Detection and emphasizes incentives for compliance. Taxpayers analyze alternative avenues of compliance when evading or no longer evading taxes, the probability of being detected and the consequences that follow, and then select the alternative that maximizes their expectations after the tax return after adjusting. If at risk. This manner is recognized as the audit lottery game (Trivedi and Shehata, 2005).

Taxpayer's non-compliance and default introduced thru the Allingham-Sandmo mannequin via the use of Allingham and Sandmo (2019) is based totally completely on planned income maximization schemes via taxpayers. Taxpayers have been assumed to be utility maximizers in tax information and compliance selections, meaning that taxpayers saw tax evasion as profitable if the tremendous monetary aspects genuinely outweighed the expenses / financial penalties. Similarly, the taxpayer can smash the law until the penalties or deterrence's supplied for the crime delivered the extra revenue that may want to be produced to sidestep taxes. Theories advise that taxpayer behavior is influenced by means of the use of economic reasons such as income maximization and chance of detection based totally specifically on audit possibilities and penalties as a solution to compliance problems.

According to Devos (2012), to improve compliance, audits and penalties for non-compliance should be increased. This theory believes that governments are aggressively searching to stabilize economic security based totally mainly on charge judgment, have the capability to improve financial security. This idea helps the government's contribution to count on a higher role in

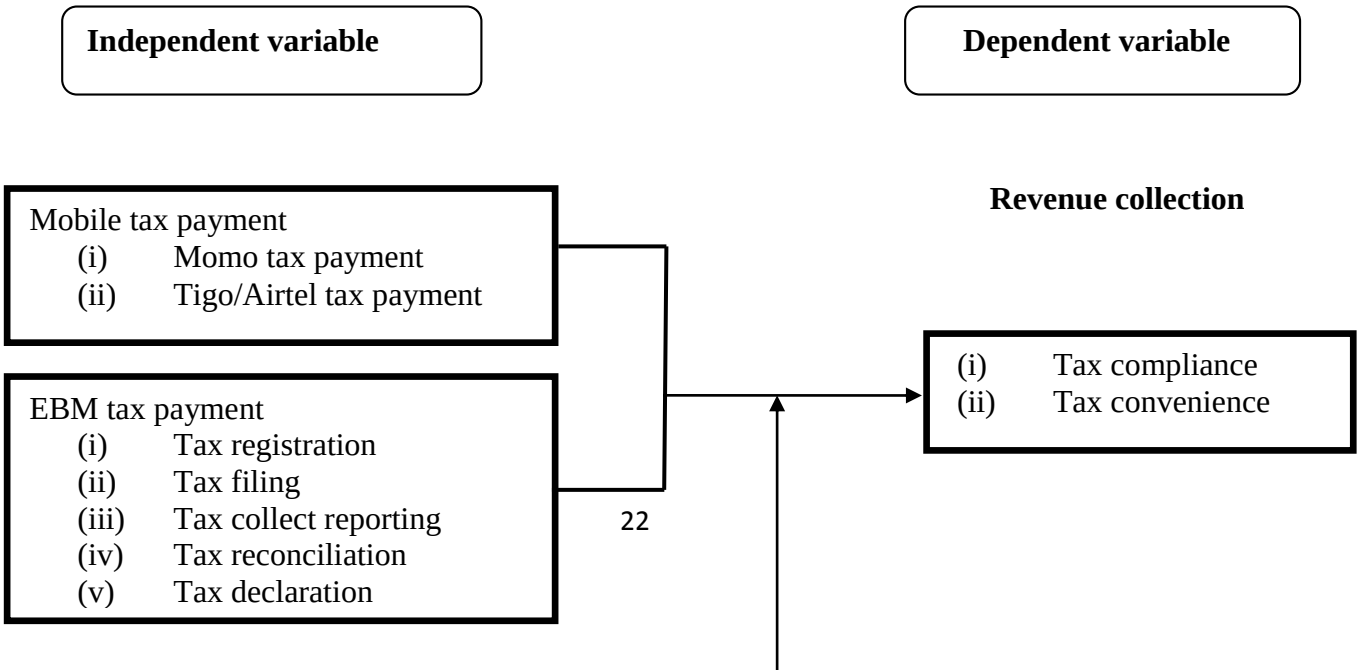
economic safety and larger safety that is considered in the possibility that the authorities can intervene and manipulate effectively. Despite this fascination with uncertainty and their speculative intelligence in the market, the thinking presumes that the authorities apprehend that they have been extra tremendous than the market. Hence, in this case, the superiority of the government / RRA to impose penalties on tax non-compliance influences tax compliance and economic security when there is effective use of electronic billing machine to ease detect such tax evasions. Thus, it implies the relevancy of this theory in this study.

2.4 Conceptual Framework

Conceptual framework refers to a diagram or an analytical tool demonstrating the relationship between the variables of the study including independent variable, dependent variable and intervening variable (Mugenda, 2010). Hence, this diagram demonstrates that there is a relationship between online tax payment as an independent variable measured by predictors such as mobile tax payment that is done through momo tax payment and tigo/airtel money tax payment; and EBM tax payment that includes tax registration, tax filling, and correct reporting; and revenue collection as dependent variable measured by indicators such as tax compliance and tax convenience; and the intervening variables such network availability or internet, and taxation policy that can falsify or cause change on revenue collection if not well controlled.

Figure 1: Showing the relationship between the variables

Below is the conceptual frame work showing the contribution of online tax payment system on revenue collections.



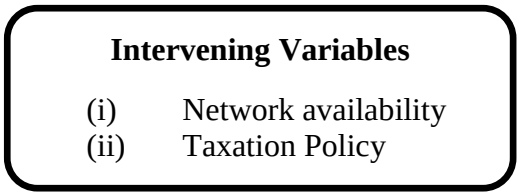


Figure 1: Conceptual Framework

This figure 1 demonstrates that there is correlation between online tax payment as an independent variable and revenue collection as dependent variable and the intervening variables such, network availability, taxation policy that can falsify or cause change on economic security if not well controlled. The online tax payment system which is an independent variable have focused on the mobile tax payment as the common used that is usually used in Rwanda such as mobile money tax payment and tigo or airtel money tax payment to ensure compliance to revenue collection and revenue convenience to enhance the development of the country where the revenue collection is the dependent variable in this study.

Another key sub-independent variable or indicator for online tax payment system is EBM tax payment which has facilitated the tax registration, tax filing, tax collect reporting, tax reconciliation and tax declaration in an easy and favorable manner in Rwanda. Thus, this process facilitates revenue collection through tax compliance and tax convenience. It is in this regard this study has put a lot of emphasis on study each of the contribution of mobile tax payment, EBM tax payment and other means of online tax payment in detail to examine how effective they affect revenue collection in Rwanda.

CHAPTER THREE: RESEARCH METHODOLOGY

3.0 Introduction

Chapter three of this study comprises all methods, procedures and techniques that are applied in this study to collect and analyze the collect information of this study in a very meaningful way. Hence, this chapter outlines the research methodology that was used in carrying out the study. This included the research design, population, sampling design, data collection tools and technique and data analysis methods. Research Questionnaires were used in data gathering and primary data online interviews. The population of the study was consisted of Rwanda Revenue Authority employees mostly in the department of taxpayer's services and small & medium taxpayers in kicukiro District. This research methodology aims in ensuring the researcher obtains enough data for data analysis.

3.1 Research Design

This study used descriptive research design with a mixed approach of both qualitative and quantitative data. Hence, it is supported by Njenga (2019) who asserted that research design specifies the methods and procedures for collecting and analyzing the needed information.

Descriptive research design indicates a framework or blueprint for the research as well as research methods chosen to determine the information needed. This descriptive research design defines the sampling method, sample size, measurement and data analysis processes. Ondara *et al.* (2016), viewed a research design as the explanation of the method adopted in carrying out of the research and is thus a plan or structure of any aspect of the research procedure. The descriptive research technique was used in the study. The study adapted use of a descriptive research design because of the nature of the study population and the relationship of the study variables in play.

Nassaji (2015) defined descriptive research design is a statement of affairs on the study variable that the has no control, it is aimed at casting light on the present challenges by involving data collection and analysis to enable or describe the situation than employing a method in a phenomenon. It is in this view that researcher wants to include the total number of 3,307 small and medium businesses registered in this study to provide both quantitative and qualitative information for this study. The researcher applied the formula of Yamane (1967) and simple random sampling to ease the process of selecting the sample or the informants of this study whereby each business were presented by one respondent or informant.

3.2 Target population

According to Mugenda and Mugenda (2003), a population is a well-defined set of people, services, elements and events, group of things or households that are being investigated. Population can further be defined as entire group of individuals, events or objects having a common observable characteristic that the researcher intends to find out and generalize the results of its characteristics for decision making.

In this case, the unit of analysis for the study is 3,307 small and medium taxpayers registered in Kicukiro District by Rwanda Revenue Authority and 22 employees of Rwanda Revenue Authority in Kicukiro District who make the total number of target population 3,307 SMEs and people. The 3,307 SMEs Taxpayers and 22 employees are suited for the study because they stand to gain more by adoption electronic tax payment since it saves them on cost and time used in tax compliance.

3.3 Sample Design

A sample design is certain plan for obtaining a sample from a given population. It refers to the technique or the procedure the researcher would embrace in selecting items for the sample. Thus the sample size is drawn from 3,307 SMEs and 22 employees of RRA.

3.3.1 Sampling Frame and sample determination

Sampling frame is said to involve all the study elements that are accessible to the researcher at the time of carrying out a research study (Mugenda & Mugenda, 2003). It consists of a set of information that is generally applied to identify a sample population for statistical behavior in the study by including a numerical identifier for each individual, characteristics and more details of analysis. This comprises of a list of all those within a population who can be sampled, for instance individuals, organizations or institutions. The sampling frame for the research study encompassed taxpayers and employees from Rwanda Revenue Authority taxpayer's department and some of the taxpayers from Kicukiro district. The slovin's formula is calculated as follows:

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

$$n = \frac{3307}{1 + 3307\ (0.05)^2}$$

$$n = 357$$

N= the 3307 total small and medium enterprises (SMEs) registered in RRA, Kicukiro District, Rwanda, while n is the 357 sample of respondents who were selected for this study as taxpayer respondents, e is the margin error which is 0.05, hence to have the total sample the researcher added the staff of RRA in Kicukiro District who are 22 employees.

Table 3. 1: Determination of sample size

Respondents	Target population	Sample	Sampling technique	Data collection tool
SMEs Taxpayers	3307	357	Random sampling	Questionnaire
RRA employees	22	22	Purposive	Interview

Total	3329	379

Source: Author, 2020

Table 3.1 indicates that the total population of the study is 3,329 which gave 379 respondents including 357 respondents who were selected using random sampling by convenience and they have been given questionnaire online to fill during online data collection procedure and 22 employees who were selected using purposive and they have been also given online interviews in relation to the same questions given to 379 respondents (RRA, 2020).

3.2.2. Sampling Techniques

The researcher has selected 357 taxpayer respondents using random sampling by convenience technique which were used in order to avoid bias and reduce the chances of errors. The 22 respondents who were selected from employees of Rwanda Revenue Authority who are concerned with electronic tax payment especially the accountants and IT officers in order to get reliable information. The 379 respondents were selected from the 22 employees of RRA in Kicukiro and 3,307 SMEs.

3.4 Data collection instruments

The researcher used an online questionnaire and an interview guide as the major data collection instruments.

3.4.1 Questionnaire

Questionnaires were deployed by both email and hard copies to collect data from 357 taxpayer respondents. The method is more suitable because some of the respondents were more familiar with using emails and others fill the hard questionnaire and the researcher come to pick them at the respect officers after two weeks of getting the questionnaire copy. The respondents were given two weeks to fill in the questionnaire before sending data for analysis. The questionnaires contained both the structured and semi- structures questions. This allowed the respondents to give their views freely without hastening them.

3.4.2 Interview Guide

An interview guide was used to collect information from 22 employees of RRA. This method is significant since it gives room for first-hand information and a chance for the respondents to express their opinions. The researcher in this case interacted with respondents through telephone and face to face interview. The researcher has also recorded the interaction in order to help him during data analysis procedure.

3.4.3. Validity and Reliability of the Study

Validity is a degree to which results obtained from the analysis of the data represent the phenomenon under study (Mugenda & Mugenda, 2003). It is the accuracy and meaningfulness of inferences which are based on research pilot study results. Validity is quantified by comparing measurements with values that are as close to the true values as possible. Poor validity reduces the ability to characterize relationships between variables of data in research. Mugenda and Mugenda (2003) further argues that validity of an instrument is demonstrated when that instrument performs its designed purpose. Validity answers the question, "Are the findings true?" The research used content validity which refers to the extent to which a measure represents all facets of a given social construct. The validity was quantified by experts. The researcher had the experts to go through the questions in the questionnaire to quantify if the questions are valid.

Reliability is a measure of the degree to which a research yields consistent results or data after repeated trials. It is a degree of constituency that the research instruments or procedures demonstrate. It is the reproducibility of a measurement. It is qualified by taking several measurements on the same subjects. Poor reliability degrades the precision of a single measurement and reduces the ability to track changes in measurement studies. The reliability of data collection instruments was determined from a pilot study where the researcher administered the research instruments to the respondents of SMEs which are not included in the actual sample.

To measure the validity and reliability of data collection instrument the researcher has also conducted a preliminary study. The results of this pilot study were analyzed using Cronbach Apha to measure the content validity index and he found 0.76 CVI which is above the 0.70 standard of CVI. Thus, this shows the questionnaire and interview guide used in the pilot study are valid. The researcher has also conducted such study twice to measure the repeatability and consistency of the

information whereby the second round of pilot study gave 0.82 of content validity index. Since, the results are also correctly repeatable and consistent the data collection instruments are reliable.

3.5 Data collection procedure

Data collection procedures refer to the process that the researcher undertook in order to get the required information (Kothari, 2008). In simple terms it is the procedure that the researcher followed in undertaking the field work. Before collecting the data, the researcher sent a letter to the respondents requesting to be allowed to collect the data. This letter was attached to the permit obtained from the University of Rwanda. These letters were sent at least three weeks before the actual day of data collection. It enabled the respondents to be prepared for the same. The researchers then visited the authority and administered the questionnaires to the respondents. Some of the questionnaires were filled in the presence of the researcher so that the researcher can give clarification on unclear items in the questionnaires. However, the researcher left some of the questionnaires with the respondents to allow the respondents to fill at their own time. After a week the researcher then returned to the authority to collect the questionnaires that were left.

3.6 Data analysis

Both qualitative and quantitative data were collected in this survey using questionnaire and interview guide that are administered through online filling and zoom and telephone interview were possible. Both quantitative and qualitative data were compiled, sorted, edited for accuracy and clarity, classified, coded into a coding sheet and fed into the Statistical Package for Social Science (SPSS 25.0) with the quantitative data for analysis. SPSS was chosen because it's simple to use and generates both statistical and inferential statistics. The frequency tables, correlation tables and regression tables adopted from regression model which is $Y=\beta_0 + \beta_1X_1+\beta_2X_2+\beta$ whereby β_0 is constant, X_1 is mobile tax payment, X_2 is EBM tax payment. Correlation and regression analysis were employed to show the extent in which the independent variables influence dependent variable and inferential statistics to show the nature of the existing relationship between independent and dependent variables.

3.7. Ethical Matters

The goal of ethics in research is to ensure that no one is harmed or suffers adverse consequences from research activities (Creswell, 2003). The researcher tried to observe good ethical principles in undertaking this study. Byrne (2002) states that a researcher should under all circumstances report the truth and should never present the truth in a biased manner. Permission to conduct the research was sought from relevant RRA management using introductory letter given by University of Rwanda. Naoum (2008) indicates that interested parties often claim access to information obtained during research. Jackson (2012) argues that regardless of how well such requests are intended, it would be unethical to disclose such information to them.

CHAPTER FOUR: DATA ANALYSIS RESEARCH FINDINGS AND INTERPRITATIONS

4.0 Introduction

The findings of the study are based on the views and perceptions of the respondents that were collected from the field whereby 379 respondents were given questionnaires and interviews and responded 100% meaning there is no questionnaire that missed. The collected data are in relation to the online tax payment on revenue collection among the taxpayers in Rwanda Revenue Authority, the contribution of EBM tax payment on revenue collection among the taxpayers in Rwanda Revenue Authority, and the relationship between online tax payment and revenue collection among the taxpayers in Rwanda Revenue Authority.

4.1 Demographic Information of Respondents

The demographic information of the respondents facilitates the researcher to better interpret the findings of the researcher. They include gender of respondent, level of education of respondent, age of respondent, number of employees, the time spent by respondents in the business.

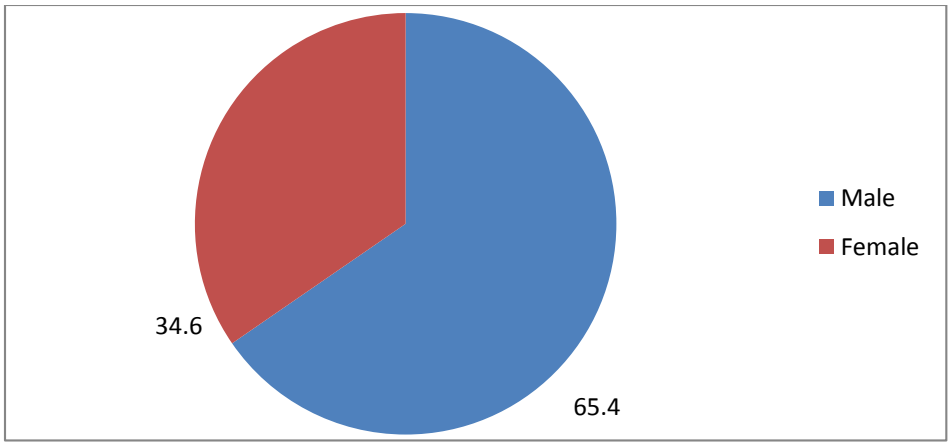


Figure 4. 1: Gender of the respondents

Source: Primary Data, 2020

The results in Figure 4.1 indicate that 131 (34.6%) of respondents are females, while 248 (65.4%) of respondents are males. Hence, it implies that a big number of respondents that pay online tax in Rwanda Revenue Authority are males; it may also mean most of the businesses are males owned in Kicukiro District, Rwanda.

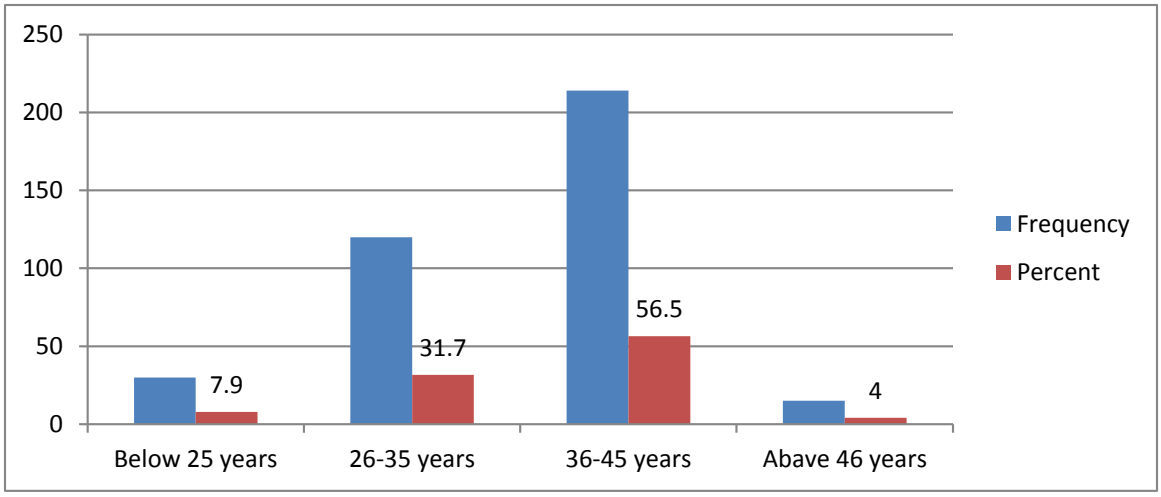


Figure 4. 2: Age of the respondents

Source: Primary Data, 2020

The results in Figure 4.2 indicate that 30 (7.9%) of respondents are below 25 years, 120 (31.7%) of respondents are between 26-35 years, 214 (56.5%) of respondents are between 36-45 years, while 15 (4.0%) of respondents are above 46 years. Thus, it implies that a big number of respondents who pay tax online are between 36-35 years.

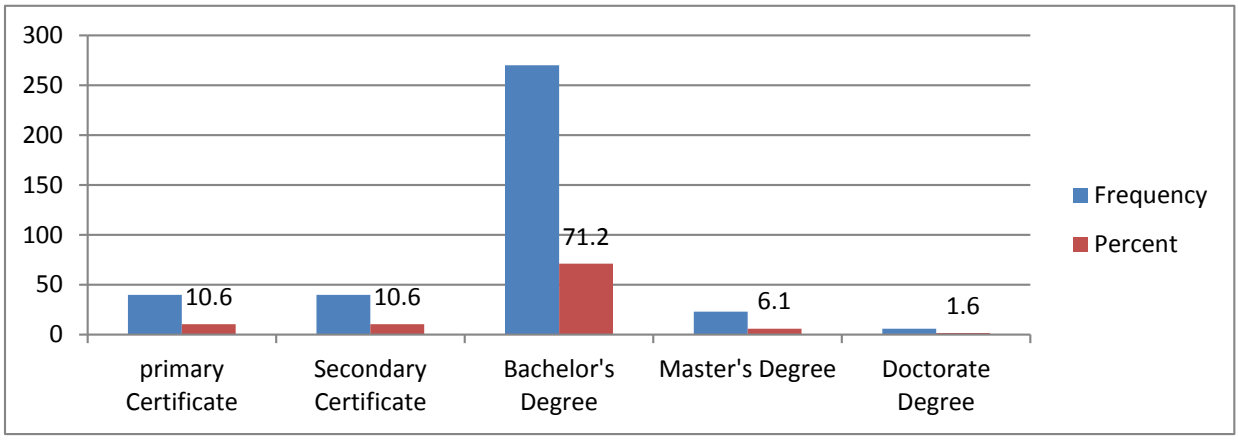


Figure 4. 3: Education level of the respondents

Source: Primary Data, 2020

The results in Figure 4.3 indicate that 40 (10.6%) of respondents have completed primary levels, 40 (10.6%) of respondents hold secondary certificates, 270 (71.2%) of respondents have bachelor's degrees, 23 (6.1%) of respondents have master's degree, while 6 (1.6%) of respondents have doctorate degree. Hence, the results indicate that a big number of respondents have bachelor's degree, implying that most of the people who own businesses that do online tax payment in Kicukiro District have bachelor's degree.

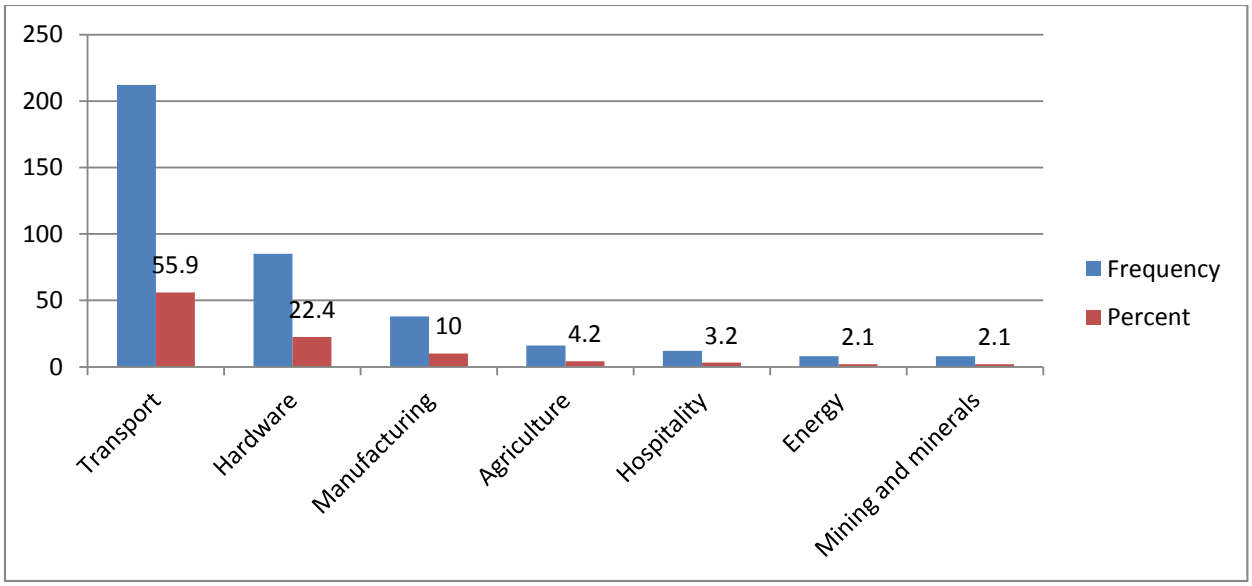


Figure 4. 4: Sector of the respondents

Source: Primary Data, 2020

The results in Figure 4.4 indicate that 212 (55.9%) of respondents conduct business in Transport, 85 (22.4%) of respondents conduct businesses in hardware, 38 (10.0%) of respondents conduct businesses in manufacturing, 16 (4.2%) of respondents conduct businesses in agriculture, 12 (3.2%) of respondents conduct business in hospitality, 8 (2.1%) of respondents conduct business in energy, 8 (2.1%) of respondents conduct business in mining and minerals. Hence, the results show that a big number of respondents conduct general trading businesses.

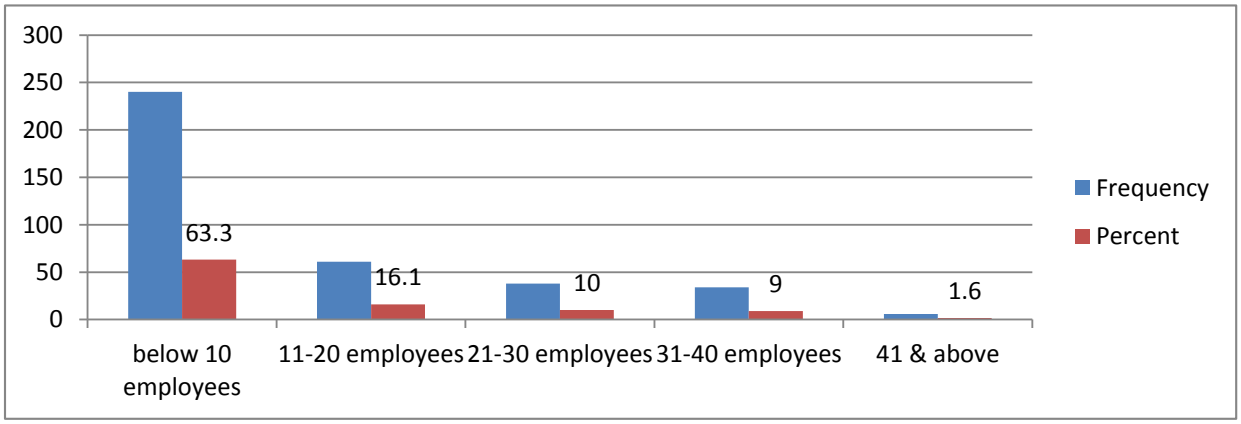


Figure 4. 5: Number of employees in SMEs

Source: Primary Data, 2020

The results in Figure 4.5 indicates that 240 (63.3%) of respondents who participated in this study are below 10 employees, while 61 (16.1%) of respondents who participated in this study are 11.20 employees, while 38 (10.0%) of respondents who participated in this study are 21-30 employees, while 34 (9.0%) of respondents who participated in this study are 31-40 employees, while 6 (1.6%) of respondents who participated in this study are 41 & above. Thus, implies that a big number of SMEs have less than 10 employees.

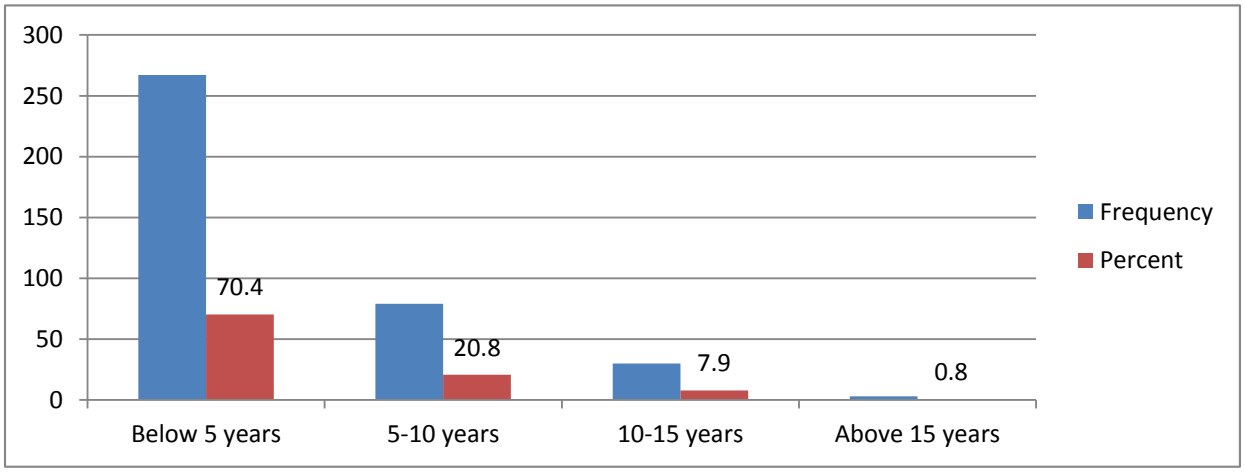


Figure 4. 6: Time the business spent in existence

Source: Primary Data, 2020

The results in Figure 4.6 indicates that 267 (70.4%) of respondents asserted that their business have spent below 5 years in existence, 79 (20.8%) of respondents asserted that their business have spent between 5-10 years in existence, 30 (7.9%) of respondents asserted that their businesses have spent 10-15 years in existence, while only 3 (.8%) of respondents asserted that their business have spent above 15 years in existence. Thus, implies that the big number of the businesses registered in Kicukiro District with online tax payment have spent below 5 years in existence.

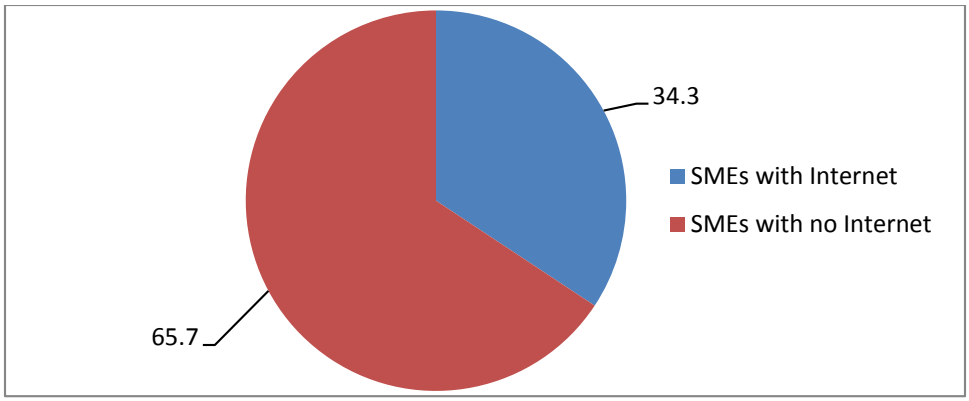


Figure 4. 7: SMEs that have internet connectivity

Source: Primary Data, 2020

The results in Figure 4.7 indicates that 235 (65.7%) of respondents accepted that they don't have internet connectivity, while only 123 (34.3%) of respondents asserted that they have internet connectivity. Hence, this implies that a big number of SMEs in Kicukiro District don't have capacity to pay Rwanda Revenue taxes online freely while at workplace without looking for cyber cafe and internet connectivity from other means.

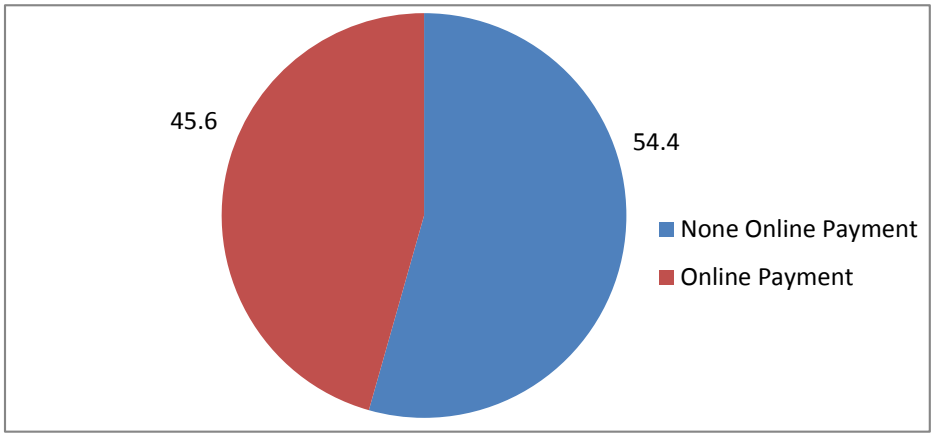


Figure 4. 8: Both None online tax payment, and online tax payment SMEs

Source: Primary Data, 2020

The results in Figure 4.8 indicate that 193 (54.4%) of respondents have accepted that they don't pay taxes online, while only 163 (45.6%) of respondents pay taxes online. This means that a big number of SMEs in Kicukiro District don't pay tax online which implies that there is still gap of online payment which requires mobilization and awareness on use of ICT in tax payment.

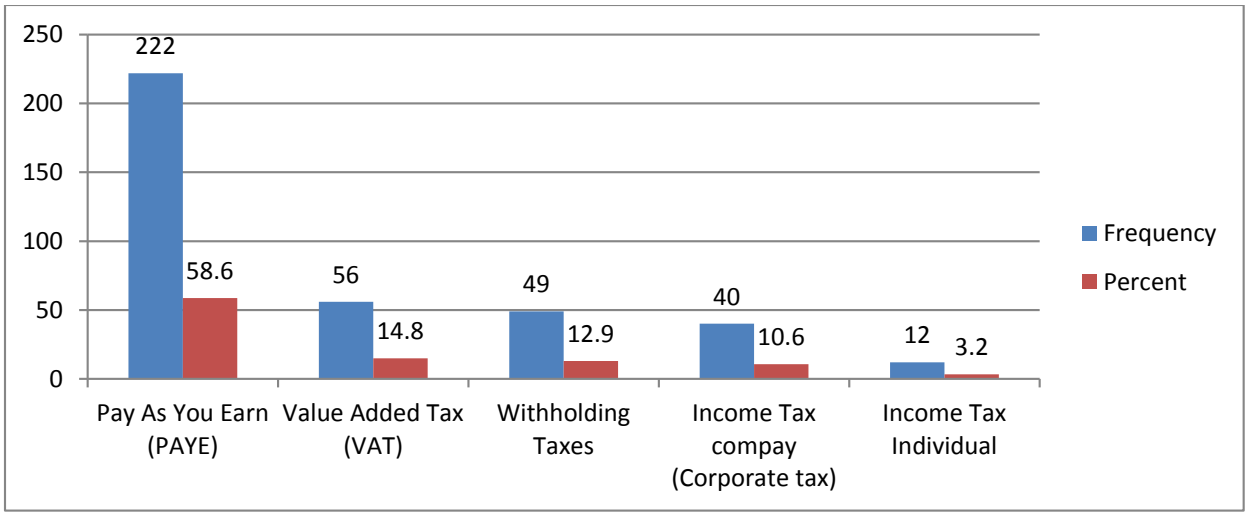


Figure 4. 9: The taxes companies are registered for paying online

Source: Primary Data, 2020

The results in Figure 4.9 indicates that 222 (58.6%) of respondents asserted that they pay as you earn (PAYE), 56 (14.8%) of respondents asserted that they pay value added tax (VAT), 49 (12.9%) of respondents asserted that they pay withholding tax, 40 (10.6%) of respondents pay income tax company (corporate tax), and 12 (3.2%) of respondents pay income tax individual through online tax payment. Thus, it implies that a big number of businesses pay as you earn (PAYE) through online tax payment in Kicukiro District.

4.2.Presentation of Research Findings

4.2.1. The role of mobile tax payment on revenue collection

The results presented in this subsection are extracted from the views and perceptions of respondents regarding the role of mobile tax payment and revenue collection.

Table 4. 1: The role of mobile tax payment on revenue collection

The results in Table 4.10 are presented in Likert scale data from the views and perceptions of respondents regarding the role of online tax payment on revenue collection and the range scale is Strongly Agree (1), Agree (2), Not Sure (3), Disagree (4) and Strongly Disagree (5)

Statement	5	4	3	2	1	Mean	Std.

Mobile tax payment is more accurate	6(1.6%)	54(14.2%)	98(25.9%)	130(34.3%)	91(24.0%)	2.3509	1.04442
Mobile tax payment saves time for other business	6(1.6%)	36(9.5%)	26(6.9%)	49(12.9%)	262(69.1%)	1.6148	1.06627
Mobile tax payment saves money for transport	6(1.6%)	26(6.9%)	40(10.6%)	52(13.7%)	255(67.3%)	1.6174	1.02550
Mobile tax payment assures save on payments	6(1.6%)	22(5.8%)	44(11.6%)	64(16.9%)	243(64.1%)	1.6385	1.00195
Mobile tax payments updates ledger on time	6(1.6%)	26(6.9%)	40(10.6%)	42(11.1%)	265(69.9%)	1.5910	1.02819
Mobile tax payment facilitates to pay on due date	6(1.6%)	22(5.8%)	50(13.2%)	66(17.4%)	235(62.0%)	1.6755	1.01194
Mobile tax enhances tax compliance	6(1.6%)	36(9.5%)	51(13.5%)	46(12.1%)	240(63.3%)	1.7388	1.10690
Total Mean						1.7467	

Source: primary data, 2020

The results in Table 4.1 indicate that [mean = 2.3509 and std. D =1.04442] showing the stronger tendency together with 130(34.3%) of total respondents agreed mobile tax payment is more accurate. The [mean = 1.6148 and std. D =1.06627] showing the stronger tendency together with 262(69.1%) of total respondents strongly agreed that mobile tax payment saves time for other business. The [mean = 1.6174 and std. D =1.02550] showing the stronger tendency together with 255(67.3%) of total respondents strongly agreed that mobile tax payment saves money for transport. The [mean = 1.6385 and std. D =1.00195] demonstrating the stronger tendency together with 243(64.1%) of total respondents strongly agreed that mobile tax payment assures save on payments. The [mean = 1.6385 and std. D =1.00195] showing the stronger tendency together with 265(69.9%) of total respondents who strongly agreed that mobile tax payments updates ledger on time. The [mean = 1.6755 and std. D =1.01194] showing the stronger tendency together with 235(62.0%) of total respondents strongly agreed that mobile tax payment facilitates to pay on due date. The [mean = 1.7388 and std. D =1.10690] showing the stronger tendency together with 240 (63.3%) of total respondents strongly agreed mobile tax payment enhances tax compliance. Hence, the total mean is 1.7467 which tends to strongly agree and implying that mobile tax payment plays

a significant role on revenue collection for Rwanda Revenue Authority in Kicukiro District, Rwanda.

In an interview with one of the employees of RRA, he stated that he worked in RRA for more than 10 years; he also asserted the e-tax started when he was working with RRA. In His own words " *the online tax payment have made the payment of taxpayers more easier, but for us it is really nice compare the traditional way of collecting tax where we have to available with each and all taxpayers with hand written receipts and sometimes we suffered looking for the coins to give them back. Now, the system is accurate, and it is a matter of having internet and then we monitor how the taxes are being paid and the fines are automatically added to defaulters*".

The findings of this study confirmed that mobile tax payment is more accurate by 66 (33.8%) of respondents. To assert that payment is accurate it means it is done in an accountable and transparent manner. Hence, this study it is supported by the study of Canares (2016) who asserted that use of ICT in tax payment make possible more transparent and accountable revenue generation systems that benefit both government and taxpayers.

Table 4. 2: Mobile tax payment and revenue collection

The results in Table 4.2 are presented in 1- 5 Likert scale data from the views and perceptions of respondents regarding the relationship between mobile payment and revenue collection among taxpayers of RRA and the range scale is strongly agree (1), agree (2), not sure (3), disagree (4) and strongly disagree (5) as represented here below.

Statement	5	4	3	2	1	Mean	Std.
Paying tax through MOMO saves time for a taxpayer	6(1.6%)	36(9.5%)	51(13.5%)	46(12.1%)	240(63.3%)	1.7388	1.10690
Paying tax through MOMO save money for a taxpayer	6(1.6%)	28(7.4%)	53(14.0%)	64(16.9%)	228(60.2%)	1.7335	1.05420
Paying tax through Tigo-cash eases revenue collection process	6(1.6%)	32(8.4%)	45(11.9%)	48(12.7%)	248(65.4%)	1.6807	1.07444
Paying tax through Airtel-money helps to comply with tax requirement	6(1.6%)	28(7.4%)	55(14.5%)	72(19.0%)	218(57.5%)	1.7652	1.05171
Paying tax through MOMO eases the process of paying tax regularly	6(1.6%)	36(9.5%)	51(13.5%)	46(12.1%)	240(63.3%)	1.7388	1.10690

Total Mean	1.7314

Source: Primary Data, 2020

The results in Table 4.2 indicate that [mean = 1.7388 and std. D =1.10690] showing the stronger tendency together with 240(63.3%) of total respondents strongly agreed that affect paying tax through MOMO saves time for a tax payer and [mean = 1.7388 and std. D =1.10690] showing the stronger tendency together with 240(63.3%) of total respondents strongly agreed that affect paying tax through MOMO saves time for a tax payer. The [mean = 1.6807 and std. D =1.07444] showing the stronger tendency together with 248(65.4%) of total respondents strongly agreed that Paying tax through Tigo-cash eases revenue collection process. The [mean = 1.7388 and std. D =1.10690] showing the stronger tendency together with 240(63.3%) of total respondents have strongly agreed that paying tax through MOMO eases the process of paying tax regularly. The [mean = 1.7652 and std. D =1.05171] showing the stronger tendency together with 218(57.5%) of total respondents have strongly agreed paying tax through Airtel-money helps to comply with tax requirement and [mean = 1.7335 and std. D =1.05420] showing the stronger tendency together with 228(60.2%) of total respondents have strongly agreed that paying tax through MOMO save money for a tax payer. The total mean is 1.7314 which tends to strongly agree and shows that the mobile tax payment has relationship with revenue collection to Rwanda Revenue Taxpayers in Kicukiro District, Rwanda. In an interview with the second employee of RRA, she stated that paying taxes through mobile tax payment is an ease process but we encourage businesses to own Electronic Billing Machine especially version two because it helps to record the stock and all transactions that are made in order to ensure tax compliance. She stated in her own words: "I *encourage tax payers to use EBM machine version two because it is more accurate and it keeps the stock, for the businesses were the bosses are not always around it shows every transaction made on it so that no employee who can cheat his/ her boss because it has all records*.

The findings of this study are supported by the study of Noronaa (2016) who asserted that the evidences of his study suggests that there is positive effect of automation system usage and the cost of tax administration and effective means of revenue collection because the results have shown that mobile tax payment as an automation tax system has a moderate effect on revenue collection to Rwanda Revenue Taxyers in Kicukiro District, Rwanda.

4.2.2. The contribution of EBM tax payment on revenue collection among the taxpayers in Rwanda Revenue Authority

Table 4. 3: Electronic Billing Machine tax payment and revenue collection

The results in Table 4.3 are presented in 1- 5 Likert scale data from the views and perceptions of respondents in regard to the EBM tax payment on revenue collection and the range scale is strongly agree (1), agree (2), not sure (3), disagree (4) and strongly disagree (5) as represented here below.

Statement	5	4	3	2	1	Mean	Std.
EBM tax payment of revenue facilitate the process of tax payment	6(1.6%)	22(5.8%)	48(12.7%)	58(15.3%)	245(64.6%)	1.6438	1.01172
EBM tax payment records keeping helps for tax compliance	6(1.6%)	38(10.0%)	51(13.5%)	44(11.6%)	240(63.3%)	1.7493	1.11885
EBM tax payment agents are helping business to comply with tax requirement	6(1.6%)	22(5.8%)	44(11.6%)	64(16.9%)	243(64.1%)	1.6385	1.00195
EBM tax payment receipts hep to pay tax honestly	6(1.6%)	26(6.9%)	40(10.6%)	42(11.1%)	265(69.9%)	1.5910	1.02819
EBM tax payment helps business to report business income	6(1.6%)	22(5.8%)	50(13.2%)	66(17.4%)	235(62.0%)	1.6755	1.01194
EBM tax payment help taxpayers to pay tax regularly	6(1.6%)	36(9.5%)	51(13.5%)	46(12.1%)	240(63.3%)	1.7388	1.10690

Total Mean	1.6728

Source: primary data, 2020

The results in Table 4.3 indicate that [mean = 1.6438 and std. D =1.01172] showing the stronger tendency together with 245(64.6%) of total respondents strongly agreed that EBM tax payment of revenue facilitate the process of tax payment. The [mean = 1.7493 and std. D =1.11885] showing the stronger tendency together with 240(63.3%) of total respondents strongly agreed that EBM tax payment records keeping helps for tax compliance. The results also show that [mean = 1.6385 and std. D =1.00195] showing the stronger tendency together with 243(64.1%) of total respondents strongly agreed that EBM tax payment agents are helping business to comply with tax requirement. The [mean =1.5910 and std. D =1.02819] showing the stronger tendency together with 265(69.9%) of total respondents strongly agreed that EBM tax payment receipts help to pay tax honestly, and [mean = 1.6755 and std. D =1.01194] showing the stronger tendency together with 235(62.0%) of total respondents strongly agreed that EBM tax payment helps business to report business income. The [mean = 1.7388 and std. D =1.10690] showing the stronger tendency together with 240(63.3%) of total respondents strongly agreed that EBM tax payment help tax payers to pay tax regularly. The total mean is 1.6728 which tends to strongly agree, and it implies that EBM tax payment contributes to revenue collection of Rwanda Revenue Authority in Kicukiro District, Rwanda.

In an interview with the third employee of Rwanda revenue, she stated that EBM tax payment have made more accurate the computerisation of VAT invoices which has a great contribute to the development of the country. She stated in her own words: "*EBM tax payment has facilitated the process of tax payment and the compliance of businesses to tax payment because EBM has eased the process of all computerising all taxes include VAT invoices*". The findings of the study and the passage of interview are supported by the findings of Fan Qi and Wen (2017), who conducted a study in china and concluded that the increase in tax revenues to the government is the results of VAT invoices computerisation.

Table 4. 4: The EBM tax payment on promotion of tax compliance

The results in Table 4 are presented in 1- 5 Likert scale data from the views and perceptions of respondents in regard to the role of electronic billing machine to promote tax compliance and the range scale is strongly agree (1), agree (2), not sure (3), disagree (4) and strongly disagree (5) as represented here below.

Statement	5	4	3	2	1	Mean	Std.
I ask for EBM receipt whenever I buy items	6(1.6%)	22(5.8%)	48(12.7%)	58(15.3%)	245(64.6%)	1.6438	1.01172
I receive EBM invoices in my business	6(1.6%)	38(10.0%)	51(13.5%)	44(11.6%)	240(63.3%)	1.7493	1.11885
I buy most of the items from businesses which are registered for tax	6(1.6%)	22(5.8%)	44(11.6%)	64(16.9%)	243(64.1%)	1.6385	1.00195
I have seen businesses that do not give EBM receipt	6(1.6%)	26(6.9%)	40(10.6%)	42(11.1%)	265(69.9%)	1.5910	1.02819
I buy my items to business that have EBM to help government to acquire taxes	6(1.6%)	22(5.8%)	50(13.2%)	66(17.4%)	235(62.0%)	1.6755	1.01194
Total Mean						1.6596	

Source: primary data, 2020

The results in Table 4.4 indicate that [mean = 1.6438 and std. D =1.01172] showing the stronger tendency together with 245(64.6%) of total respondents strongly agreed that they ask for EBM

receipt whenever they buy items to promote tax compliance, [mean = 1.7493 and std. D =1.11885] showing the stronger tendency together with 240(63.3%) of total respondents strongly agreed that they receive EBM invoices in my business, [mean = 1.6385 and std. D =1.00195] showing the stronger tendency together with 243(64.1%) of total respondents strongly agreed that they buy most of the items from businesses which are registered for tax to promote tax compliance, [mean = 1.5910 and std. D =1.02819] showing the stronger tendency together with 265(69.9%) of total respondents strongly agreed that they have seen businesses that do not give EBM receipt which hinder tax compliance, [mean = 1.6755 and std. D =1.01194] showing the stronger tendency together with 235(62.0%) of total respondents strongly agreed that I buy my items to business that have EBM to help government to acquire taxes. The total mean is 1.6596 which tends to strongly agree and implies that EBM tax payment promotes tax compliance in Businesses conducted in Kicukiro District, Rwanda.

Table 4. 5: The electronic billing machine in tax compliance

The results in Table 4.5 are presented in 1- 5 Likert scale data from the views and perceptions of respondents regarding the role of EBM tax payment to promote tax compliance and the range scale is strongly agree (1), agree (2), not sure (3), disagree (4) and strongly disagree (5) as represented here below

Statement	5	4	3	2	1	Mean	Std.
EBM records keeping helps for tax compliance	6(1.6%)	38(10.0%)	51(13.5%)	44(11.6%)	240(63.3%)	1.7493	1.11885
EBM helps business to comply with tax requirement	6(1.6%)	22(5.8%)	44(11.6%)	64(16.9%)	243(64.1%)	1.6385	1.00195
EBM receipts hep to pay tax honestly	6(1.6%)	26(6.9%)	40(10.6%)	42(11.1%)	265(69.9%)	1.5910	1.02819
EBM helps our business to report business income	6(1.6%)	22(5.8%)	50(13.2%)	66(17.4%)	235(62.0%)	1.6755	1.01194
EBM help taxpayers to pay tax regularly	6(1.6%)	36(9.5%)	51(13.5%)	46(12.1%)	240(63.3%)	1.7388	1.10690
Total Mean						1.67862	

Source: primary data, 2020

The results in Table 4.5 indicates that the [mean = 1.7493 and std. D =1.11885] showing the stronger tendency together with 240(63.3%) of total respondents have strongly agreed that EBM records keeping helps for tax compliance. The [mean = 1.6385 and std. D =1.00195] showing the stronger tendency together with 243(64.1%) of total respondents have strongly agreed that EBM helps business to comply with tax requirement. The [mean = 1.5910 and std. D =1.02819] showing the stronger tendency together with 265(69.9%) of total respondents have strongly agreed that EBM receipts help to pay tax honestly. The [mean = 1.6755 and std. D =1.01194] showing the stronger tendency together with 235(62.0%) of total respondents have strongly agreed that EBM helps our business to report business income. The [mean = 1.7388 and std. D =1.10690] showing the stronger tendency together with 240(63.3%) of total respondents have strongly agreed that EBM help tax payers to pay tax regularly. The total mean is 1.67862 which tends to strongly agree, and it implies that a big number of business owners have impact of electronic billing machine in tax compliance with Rwanda Revenue Authority in Kicukiro District, Rwanda.

In fourth interview conducted the employee of RRA stated that EBM has become the key to tax compliance in Rwanda because it has come as the solution to tax declaration, reconciliation, online tax payment and tax filling, he also mentioned that to conduct business honestly citizens and specifically the residents of Kicukiro District are encouraged to own EBM in order to ease the process of revenue collection and tax compliance. The above statement from interview and the findings of the study are supported by the findings of Olaoye & Kehinde (2017) who revealed that online tax filling; online tax registration and online tax remittance have a positive correlation with tax productivity.

4.2.3. The relationship between online tax payment on revenue collection among the taxpayers in Rwanda Revenue Authority

Table 4. 6: The online tax payment and revenue collection

The results in Table 4.6 are presented in 1- 5 Likert scale data from the views and perceptions of respondents regarding the relationship between online tax payment and revenue collection among taxpayers of RRA and the range scale is strongly agree (1), agree (2), not sure (3), disagree (4) and strongly disagree (5) as represented here below.

Statement	5	4	3	2	1	Mean	Std.

Online tax registration facilitates during revenue collection	6(1.6%)	22(5.8%)	48(12.7%)	58(15.3%)	245(64.6%)	1.6438	1.01172
Online tax filling eases the process of revenue collection	6(1.6%)	38(10.0%)	51(13.5%)	44(11.6%)	240(63.3%)	1.7493	1.11885
EBM facilitates to report correct tax related records and revenue collection	6(1.6%)	28(7.4%)	48(12.7%)	70(18.5%)	227(59.9%)	1.7230	1.04389
EBM eases the process of online tax payment and revenue collection	6(1.6%)	32(8.4%)	45(11.9%)	48(12.7%)	248(65.4%)	1.6807	1.07444
Online tax payment enhances the economic development thru revenues	6(1.6%)	28(7.4%)	55(14.5%)	72(19.0%)	218(57.5%)	1.7652	1.05171

Source: Primary Data, 2020

The results in Table 4.6 indicates that [mean = 1.6438 and std. D =1.01172] showing the stronger tendency together with 245(64.6%) of total respondents have strongly agreed that Online tax registration facilitates during revenue collection, [mean = 1.7493 and std. D =1.11885] showing the stronger tendency together with 240(63.3%) of total respondents have strongly agreed that online tax filling eases the process of revenue collection, [mean = 1.7230 and std. D =1.04389] showing the stronger tendency together with 227(59.9%) of total respondents have strongly agreed that EBM facilitates to report correct tax related records and revenue collection, [mean = 1.6807 and std. D =1.07444] showing the stronger tendency together with 248(65.4%) of total respondents have strongly agreed that EBM eases the process of online tax payment and revenue collection, [mean = 1.7652 and std. D =1.05171] showing the stronger tendency together with 218(57.5%) of total respondents have strongly agreed that online tax payment enhances the economic development thru revenues. The results have also indicated that the highest mean is 1.6438 of online tax payment enhances the economic development thru revenues while the lowest is 1.7652 of online tax registration facilitates during revenue collection. Thus, it means that online tax payment influences revenue collection among the taxpayers of Rwanda Revenue Authority in Kicukiro District, Rwanda.

The fifth interview with one of the employees of RRA, she stated that online tax registration have increased the number of tax payers because all the taxpayers that are registered online pay tax or get some financial penalties of not paying tax on time. She also mentioned that RRA conduct seminars and public awareness on revenue collection and online tax payment so that the citizens and taxpayers should be familiar with the process. Hence, the findings of this study is in agreement

with the recommendations made by Njenga (2019) after conducting his study, he recommended that respective tax agencies should promote awareness and sensitize citizens on sustainability of information technology on tax payment.

Table 4. 7: Correlation Analysis between online tax payment and revenue collection

		Tax compliance	Tax convenience
EBM Tax Payment	Pearson Correlation	.559**	.618**
	Sig. (2-tailed)	.000	.000
	N	379	379
Mobile tax payment	Pearson Correlation	.581**	.972**
	Sig. (2-tailed)	.000	.000
	N	379	379

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

Source: Primary Data, 2020

The findings in Table 4.7 prove that there is a relationship between EBM tax payment and tax compliance (p=.559 and sig=.000), between EBM tax payment and tax convenience (p=.618 and sig=.000), between mobile tax payment and tax compliance (p=.581 and sig=.000), between mobile tax payment and tax convenience (p=.972 and sig=.000) because all calculated p- values are less than 0.01 level of significance. Thus, implies that there is a positive and significant relationship between predictors of online tax payment and revenue collection in RRA.

Table 4. 8: Model Summary of online tax payment and tax compliance in RRA

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.638a	.407	.404	.85477

a. Predictors: (Constant), Mobile payment, EBM

Source: Primary Data, 2020

The results in Table 4.8 indicate that that the R coefficient .638 reveals that online tax payment has a positive relationship with tax compliance. The coefficient of determination .407 R square also indicates that online tax payment explains 40.7 % the progress variability in tax compliance. Thus, it implies that predictors of online tax payment such as mobile tax payment, EBM tax affect the progress of tax compliance by 40.7 % in RRA.

Table 4.9: Analysis of Variance (ANOVA) of online tax payment and tax compliance in RRA

Model	Sum of Squares	DF	Mean Square	F	Sig.
Regression	188.422	2	94.211	128.944	.000
Residual	274.718	376	.731		
Total	463.140	378			

a. Dependent Variable: Tax compliance

b. Predictors: (Constant), Mobile payment, EBM

Source: Primary Data, 2020

The findings in Table 4.9 indicate that there is significant relationship between online tax payment and tax compliance because the calculated significance value .000 is less than 0.05 level of significance (calculated sig. value .000 < critical level of significance 0.05). Thus, the statistical model predicting the relationship between online tax payment and tax compliance is significant.

Table 4. 10: Coefficients of Online tax payment and tax compliance in RRA

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.457	.091		5.011	.000
EBM Tax Payment	.339	.051	.329	6.616	.000
Mobile payment	.404	.052	.384	7.724	.000

a. Dependent Variable: Tax compliance

Source: Primary Data, 2020

The results in table 4.10 reveal that predictors of online tax payment have positive coefficients that enhance positive effect on the progress of tax compliance in RRA. The regression analysis indicates that there is a positive significant relationship between online tax payment and tax compliance because all the calculated p-values are less than 0.05 each. Thus, the coefficient gives regression model, $Y=\beta0+\beta1x1+\beta2x2$. Therefore, the model becomes $Y=.457+.339x1+.404x2$, this regression equation indicates that there is a positive significant between predictors of online tax payment and tax compliance of RRA.

The first objective of establishing the relationship between EBM tax payment and tax compliance has a positive and significant relationship (b=.339 and p=.000). The second objective of establishing the relationship between mobile tax payment and tax compliance has a positive and significant relationship (b=.404 and sig=.000). Thus, implies that there is a positive significant relationship between online tax payment and tax compliance in RRA.

Table 4.11: Model Summary of online tax payment and tax convenience in RRA

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.973[a]	.946	.946	.24492

a. Predictors: (Constant), Mobile payment, EBM

Source: Primary Data, 2020

The results in Table 4.11 indicate that that the R coefficient .973 reveals that online tax payment has a positive relationship with tax convenience. The coefficient of determination .946 R square also indicates that online tax payment explains 94.6% the progress variability in tax convenience. Thus, it implies that predictors of online tax payment such as mobile tax payment, EBM tax payment affect the progress of tax convenience by 94.6% in RRA.

Table 4. 12: Analysis of Variance (ANOVA) of online tax payment and tax convenience in RRA

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	397.530	2	198.765	3313.640	.000
Residual	22.554	376	.060		
Total	420.084	378			

a. Dependent Variable: Tax convenience

b. Predictors: (Constant), Mobile payment, EBM

Source: primary data, 2020

The findings in Table 4.12 indicate that there is significant relationship between online tax payment and tax convenience because the calculated significance value .000 is less than 0.05 level of significance (calculated sig. value.000< critical level of significance 0.05). Thus, the statistical model predicting the relationship between online tax payment and tax convenience is significant.

Table 4. 25: Coefficients of online tax payment and tax convenience in RRA

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-.018	.026		-.678	.498
EBM Tax Payment	.053	.015	.054	3.620	.000
Mobile Tax Payment	.942	.015	.939	62.844	.000

a. Dependent Variable: Tax convenience

Source: Primary Data, 2020

The results in table 4.24 reveal that predictors of online tax payment have positive coefficients that enhance positive effect on the progress of tax convenience in RRA. The regression analysis indicates that there is a positive significant relationship between online tax payment and tax convenience because all the calculated p-values are less than 0.05 each. Thus, the coefficient gives regression model, $Y=\beta 0+\beta 1x1+\beta 2x2$ Therefore, the model becomes $Y=-.018+.053x1+.942x2$, this regression equation indicates that there is a positive significant between predictors of online tax payment and tax convenience of RRA.

The first objective of establishing the relationship between mobile tax payment and tax convenience has a positive and significant relationship (b=.053 and p=.000). The second objective of establishing the relationship between EBM tax payment and tax convenience has a positive and significant relationship (b=.942 and sig=.000). Thus, implies that there is a positive significant relationship between online tax payment and tax convenience in RRA.

Table 4. *25*: Challenges faced by online payment services

The results in Table 4.25 are presented in 1- 5 Likert scale data from the views and perceptions of respondents regarding the challenges faced by businesses during online payment services and the range scale is strongly agree (1), agree (2), not sure (3), disagree (4) and strongly disagree (5) as represented here below.

Challenge faced	5	4	3	2	1	Mean	Std.
RRA server is most of the time down during online tax payment	6(1.6%)	22(5.8%)	48(12.7%)	58(15.3%)	245(64.6%)	1.6438	1.01172
No internet connectivity during online tax payment	6(1.6%)	38(10.0%)	51(13.5%)	44(11.6%)	240(63.3%)	1.7493	1.11885
Online tax payment is too slow	6(1.6%)	22(5.8%)	44(11.6%)	64(16.9%)	243(64.1%)	1.6385	1.00195
Online tax payment is too costly for the company	6(1.6%)	38(10.0%)	51(13.5%)	44(11.6%)	240(63.3%)	1.7493	1.11885
Online tax payment needs to well train staffs	6(1.6%)	22(5.8%)	44(11.6%)	64(16.9%)	243(64.1%)	1.6385	1.00195
RRA Server downtime makes Online payments a nightmare	6(1.6%)	26(6.9%)	40(10.6%)	42(11.1%)	265(69.9%)	1.5910	1.02819
Online tax payments during due dates is very hectic	6(1.6%)	22(5.8%)	50(13.2%)	66(17.4%)	235(62.0%)	1.6755	1.01194
Online VAT payment by due date is hectic	6(1.6%)	36(9.5%)	51(13.5%)	46(12.1%)	240(63.3%)	1.7388	1.10690

Source: Primary Data, 2020

The results in Table 4.25 indicate that [mean = 1.6438 and std. D =1.01172] showing the stronger tendency together with 245(64.6%) of total respondents strongly agreed that RRA server is most of the time down during online tax payment, [mean = 1.7493 and std. D =1.11885] showing the stronger tendency together with 240(63.3%) of respondents have strongly agreed that No internet connectivity during online tax payment, [mean = 1.5910 and std. D =1.02819] showing the stronger tendency together with 265(69.9%) of total respondents strongly agreed that most of the time RRA server downtime makes online payments a nightmare, [mean = 1.6385 and std. D =1.00195] showing the stronger tendency together with 243(64.1%) of total respondents strongly agreed that online tax payment is too slow, [mean = 1.6385 and std. D =1.00195] showing the stronger tendency together with 243(64.1%) of total respondents have strongly agreed that Online

tax payment needs to well train staffs, [mean = 1.7493 and std. D =1.11885] showing the stronger tendency together with 240(63.3%)of respondents have strongly agreed that Online tax payment is too costly for the company, [mean = 1.6755 and std. D =1.01194] showing the stronger tendency together with 235(62.0%) of respondents have strongly agreed that Online tax payments during due dates is very hectic and the [mean = 1.7388 and std. D =1.10690] showing the stronger tendency together with 240(63.3%)of total respondents have strongly agreed that online VAT payment by due date is hectic. The results also show that the highest mean is 1.5910 of no internet connectivity during online tax payment while the lowest is 1.7493 of RRA Server downtime makes online payments a nightmare. Thus, it implies that a big challenge facing online tax payment service is all about no connectivity during online tax payment in Rwanda Revenue Authority, Kicukiro District, Rwanda.

The findings of this study showed that the most frequent challenges are related to connectivity which is in contrast with the study of Heeks (2002) who found that the challenges facing tax payment services are related to e-government design in developing countries and the reliability of public sector; and failures of e-government initiatives are more due to social and information issues that lead to technical ones.

CHAPTER FIVE: SUMMARY OF RESEARCH FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0. Introduction

The chapter five of this study deals with summary of research findings, conclusion and recommendation that are extracted from the findings of the study that are related to study objectives including effect of mobile tax payment on revenue collection among the taxpayers in Rwanda Revenue Authority, the contribution of EBM tax payment on revenue on revenue collection among the taxpayers in Rwanda Revenue Authority, and the relationship between online tax payment and revenue collection among the taxpayers in Rwanda Revenue Authority.

5.1. Summary of Research Findings

5.1.1. The role of mobile tax payment on revenue collection

The results that show that [mean = 1.6385 and std. D =1.00195] indicating the stronger tendency together with 265(69.9%) of total respondents who strongly agreed that mobile tax payments updates ledger on time. The [mean = 1.6148 and std. D =1.06627] showing the stronger tendency together with 262(69.1%) of total respondents strongly agreed that mobile tax payment saves time for other business. The [mean = 1.6174 and std. D =1.02550] showing the stronger tendency together with 255(67.3%) of total respondents strongly agreed that mobile tax payment saves money for transport. The [mean = 1.6385 and std. D =1.00195] demonstrating the stronger tendency together with 243(64.1%) of total respondents strongly agreed that mobile tax payment assures save on payments, [mean = 1.7388 and std. D =1.10690] showing the stronger tendency together with 240(63.3%) of total respondents strongly agreed mobile tax payment enhances tax compliance. The [mean = 1.6755 and std. D =1.01194] showing the stronger tendency together with 235(62.0%) of total respondents strongly agreed that mobile tax payment facilitates to pay on due date, [mean = 2.3509 and std. D =1.04442] showing the stronger tendency together with 130(34.3%) of total respondents agreed mobile tax payment is more accurate. Hence, the total mean is 1.7467 which tends to strongly agreed and implying that mobile tax payment plays a significant role on revenue collection for Rwanda Revenue Authority in Kicukiro District, Rwanda.

The results have also demonstrated that [mean = 1.6807 and std. D =1.07444] showing the stronger tendency together with 248(65.4%) of total respondents strongly agreed that Paying tax through

Tigocash eases revenue collection process, and [mean = 1.7388 and std. D =1.10690] showing the stronger tendency together with 240(63.3%) of total respondents strongly agreed that affect paying tax through MOMO saves time for a tax payer. The [mean = 1.7388 and std. D =1.10690] showing the stronger tendency together with 240(63.3%) of total respondents have strongly agreed that paying tax through MOMO eases the process of paying tax regularly, and [mean = 1.7335 and std. D =1.05420] showing the stronger tendency together with 228(60.2%) of total respondents have strongly agreed that paying tax through MOMO save money for a tax payer, [mean = 1.7652 and std. D =1.05171] showing the stronger tendency together with 218(57.5%) of total respondents have strongly agreed paying tax through Airtel-money helps to comply with tax requirement. The total mean is 1.7314 which tends to strongly agree and shows that the mobile tax payment has relationship with revenue collection to Rwanda Revenue Taxpayers in Kicukiro District, Rwanda. The results from the results have given qualitative data where the interviewee stated that he worked in RRA for more than 10 years; he also asserted the e-tax started when he was working with RRA. In His own words " *the online tax payment have made the payment of taxpayers more easier, but for us it is really nice compare the traditional way of collecting tax where we have to available with each and all taxpayers with hand written receipts and sometimes we suffered looking for the coins to give them back. Now, the system is accurate, and it is a matter of having internet and then we monitor how the taxes are being paid and the fines are automatically added to defaulters*".

5.1.2. The contribution of EBM tax payment on revenue collection among the taxpayers in Rwanda Revenue Authority

The results show that [mean =1.5910 and std. D =1.02819] showing the stronger tendency together with 265(69.9%) of total respondents strongly agreed that EBM tax payment receipts help to pay tax honestly, and [mean = 1.6438 and std. D =1.01172] showing the stronger tendency together with 245(64.6%) of total respondents strongly agreed that EBM tax payment of revenue facilitate the process of tax payment. The results also show that [mean = 1.6385 and std. D =1.00195] showing the stronger tendency together with 243(64.1%) of total respondents strongly agreed that EBM tax payment agents are helping business to comply with tax requirement, [mean = 1.7493 and std. D =1.11885] showing the stronger tendency together with 240(63.3%) of total respondents strongly agreed that EBM tax payment records keeping helps for tax compliance. The [mean = 1.7388 and std. D =1.10690] showing the stronger tendency together with 240(63.3%) of

total respondents strongly agreed that EBM tax payment help tax payers to pay tax regularly, [mean = 1.6755 and std. D =1.01194] showing the stronger tendency together with 235(62.0%) of total respondents strongly agreed that EBM tax payment helps business to report business income. The total mean is 1.6728 which tends to strongly agree, and it implies that EBM tax payment contributes to revenue collection of Rwanda Revenue Authority in Kicukiro District, Rwanda.

The results prove that [mean = 1.5910 and std. D =1.02819] showing the stronger tendency together with 265(69.9%) of total respondents strongly agreed that they have seen businesses that do not give EBM receipt which hinder tax compliance, [mean = 1.6438 and std. D =1.01172] showing the stronger tendency together with 245(64.6%) of total respondents strongly agreed that they ask for EBM receipt whenever they buy items to promote tax compliance, [mean = 1.6385 and std. D =1.00195] showing the stronger tendency together with 243(64.1%) of total respondents strongly agreed that they buy most of the items from businesses which are registered for tax to promote tax compliance, [mean = 1.7493 and std. D =1.11885] showing the stronger tendency together with 240(63.3%) of total respondents strongly agreed that I receive EBM invoices in my business, [mean = 1.6755 and std. D =1.01194] showing the stronger tendency together with 235(62.0%) of total respondents strongly agreed that I buy my items to business that have EBM to help government to acquire taxes. The total mean is 1.6596 which tends to strongly agree and implies that EBM tax payment promotes tax compliance in Businesses conducted in Kicukiro District, Rwanda.

The results indicates that [mean = 1.5910 and std. D =1.02819] showing the stronger tendency together with 265(69.9%) of total respondents have strongly agreed that EBM receipts help to pay tax honestly, [mean = 1.6385 and std. D =1.00195] showing the stronger tendency together with 243(64.1%) of total respondents have strongly agreed that EBM helps business to comply with tax requirement. The [mean = 1.7493 and std. D =1.11885] showing the stronger tendency together with 240(63.3%) of total respondents have strongly agreed that EBM records keeping helps for tax compliance, [mean = 1.7388 and std. D =1.10690] showing the stronger tendency together with 240(63.3%) of total respondents have strongly agreed that EBM help tax payers to pay tax regularly. The [mean = 1.6755 and std. D =1.01194] showing the stronger tendency together with 235(62.0%) of total respondents have strongly agreed that EBM helps our business to report business income. The total mean is 1.67862 which tends to strongly agree, and it implies that a big

number of business owners have impact of electronic billing machine in tax compliance with Rwanda Revenue Authority in Kicukiro District, Rwanda.

The results from interview have revealed that EBM tax payment have made more accurate the computerisation of VAT invoices which has a great contribute to the development of the country. She stated in her own words: "*EBM tax payment has facilitated the process of tax payment and the compliance of businesses to tax payment because EBM has eased the process of all computerising all taxes include VAT invoices*". The findings of the study and the passage of interview are supported by the findings of Fan Qi and Wen (2017), who conducted a study in china and concluded that the increase in tax revenues to the government is the results of VAT invoices computerisation.

5.1.3. The relationship between online tax payment on revenue collection among the taxpayers in Rwanda Revenue Authority

The results show that [mean = 1.6807 and std. D =1.07444] showing the stronger tendency together with 248(65.4%) of total respondents have strongly agreed that EBM eases the process of online tax payment and revenue collection, [mean = 1.6438 and std. D =1.01172] showing the stronger tendency together with 245 (64.6%) of total respondents have strongly agreed that Online tax registration facilitates during revenue collection, [mean = 1.7493 and std. D =1.11885] showing the stronger tendency together with 240 (63.3%) of total respondents have strongly agreed that online tax filling eases the process of revenue collection, [mean = 1.7230 and std. D =1.04389] showing the stronger tendency together with 227 (59.9%) of total respondents have strongly agreed that EBM facilitates to report correct tax related records and revenue collection, [mean = 1.7652 and std. D =1.05171] showing the stronger tendency together with 218(57.5%) of total respondents have strongly agreed that online tax payment enhances the economic development thru revenues. The results have also indicated that the highest mean is 1.6438 of online tax payment enhances the economic development thru revenues while the lowest is 1.7652 of online tax registration facilitates during revenue collection. Thus, it means that online tax payment influences revenue collection among the taxpayers of Rwanda Revenue Authority in Kicukiro District, Rwanda.

The results reveal that predictors of online tax payment have positive coefficients that enhance positive effect on the progress of tax compliance in RRA. The regression analysis indicates that there is a positive significant relationship between online tax payment and tax compliance because

all the calculated p-values are less than 0.05 each. Thus, the coefficient gives regression model, $Y=\beta 0+\beta 1x1+\beta 2x2$. Therefore, the model becomes Y=.457+.339x1+.404x2, this regression equation indicates that there is a positive significant between predictors of online tax payment and tax compliance of RRA. The first objective of establishing the relationship between EBM tax payment and tax compliance has a positive and significant relationship (b=.339 and p=.000). The second objective of establishing the relationship between mobile tax payment and tax compliance has a positive and significant relationship (b=.404 and sig=.000). Thus, implies that there is a positive significant relationship between online tax payment and tax compliance in RRA. The same results from regression analysis findings indicated that all calculated sig. values are less than .05 which implies that null hypothesis should be rejected whereas the alternative hypothesis stating that there is a relationship between e-tax payment and revenue collections among the taxpayers of RRA in Kicukiro District, Rwanda is accepted

5.2. Conclusion

Most of the empirical literatures related to this field of the study of online tax payment and revenue collection, have shown that there is positive correlation between online tax filling, online tax registration, online tax remittance with tax productivity (Olaoye & Kehinde, 2017). The more billing system that is processed electronically, the less money is spent on paper and postage. Offering electronic payment can also help businesses improve customer retention and reduce tax defaulters. Electronic billing system can thus lower transaction costs stimulate higher consumption and GDP, increase government efficiency boost financial intermediation and improve financial transparency (Taddesse & Kidan (2005).

In conclusion, the findings have revealed that there is a relationship between online tax payment and revenue collection, because there is a relationship between EBM tax payment and tax compliance (p=.559 and sig=.000), between EBM tax payment and tax convenience (p=.618 and sig=.000), between mobile tax payment and tax compliance (p=.581 and sig=.000), between mobile tax payment and tax convenience (p=.972 and sig=.000) because all calculated p- values are less than 0.01 level of significance. Thus, implies that there is a positive and significant relationship between predictors of online tax payment and revenue collection in RRA.

5.3. Recommendations

Basing on the study findings, the researcher would like to recommend to Small and Medium Enterprises, taxpayers and RRA employees in Rwanda.

5.3.2. Recommendations to SMEs

The researcher would also like to recommend to Small and Medium Enterprise to always pay tax regularly to ensure tax compliance and revenue collection, to ensure that their businesses pay tax honestly to ensure tax compliance, to register business to ensure effective monitoring of formal business transactions, to pay taxes to offer potential improvement to VAT compliance through online tax payment that enhances revenue collection.

5.3.1. Recommendations to Taxpayers

The researcher would like to recommend to taxpayers to always ask for EBM receipts to contribute to the revenue collection, the citizens and residents of Rwanda should also facilitate business owners to make sure that they comply with taxes and avoid tax invasions to enhance revenue collection. Citizens should also help taxpayers to pay taxes regularly for the safe of revenue and taxes.

5.3.3. Recommendations to RRA employees

The researcher would like to recommend to RRA employees to always monitor and control businesses whether they pay taxes online, to do regular audits to ensure tax compliance through online tax payment, to monitor whether all formal businesses have Electronic Billing Machine to ensure tax compliance and revenue collection and to ensure all the people to buy with people who has EBM to enhance tax compliance and revenue collection.

The employees of RRA are also recommended to increase public awareness and mobilization in regard to online tax payment. This awareness is required to decrease the number of the people who seek for online tax payment in an internet café though they have telephone and internet to use while paying for taxes.

5.4. Suggestion for Further Studies

The results of the study have shown that there an effect of online tax payment on revenue collection in Kicukiro District. Hence, that gears the researcher to recommend to the future researchers to conduct studies in the same field of study in the following areas:

(i) To examine the effect of online tax income on economic security of Rwanda

(ii) To assess the impact of electronic billing machine on national economy development

(iii) To find out the effect of online tax invasion on national economic security

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APPENDICES

APPENDIX A: QUESTIONNAIRE

Section A: Demographic Information (Please tick where appropriate)

1. **Gender of the respondent**
   (1) Male [ ]
   (2) Female [ ]
2. **Age of the respondent**
   (1) Below 25yrs [ ]
   (2) 26-35 yrs [ ]
   (3) 36 – 45 yrs [ ]
   (4) above 46 yrs [ ]
3. **Level of education of the respondent**
   (1) Primary Certificate [ ]
   (2) Secondary Certificate [ ]
   (3) Bachelor's Degree [ ]
   (4) Master's Degree [ ]
   (5) Doctorate Degree [ ]
4. **Kindly tick against your sector as listed below or specify where necessary**
   (1) Transport [ ]
   (2) General Trading e.g. Hardware [ ]
   (3) Manufacturing [ ]
   (4) Agriculture [ ]
   (5) Hospitality [ ]
   (6) Energy [ ]
   (7) Mining and Minerals [ ]
   (8) Others (please specify) …….
5. **Number of Employees**
   (1) below 10 employees [ ]

(2) 11-20 employees [ ]

(3) 21-30 employees [ ]

(4) 31-40 employees [ ]

(5) 41& Above [ ]

6. **How long your business was in existence**

(1) Below 5 years [ ]

(2) 5 – 10 years [ ]

(3) 10-15 years [ ]

(4) Above 15 years [ ]

7. Does your Business have Internet connectivity?

(1) Yes [ ]

(2) No [ ]

8. Have you been paying for your taxes online?

(1) Yes [ ]

(2) No [ ]

9. If yes above, please tick against the taxes you/your company are/is currently registered for with RRA and paying online.

Taxes	Kindly Tick
Turnover Tax (TOT)	
Pay As You Earn (PAYE)	
Value Added Tax (VAT)	
Withholding Taxes	
Income Tax Company (Corporate Tax)	
Income Tax Individual	

Section B: The role of mobile tax payment on revenue collection among the taxpayers in Rwanda Revenue Authority.

10. Please state your level of agreement with the following statements regarding the role of online tax payment on revenue collection. The range scale is from Strongly Agree (1), Agree (2), Not Sure (3), Disagree (4) and Strongly Disagree (5)

Statement	**1**	**2**	**3**	**4**	**5**
Mobile tax payment is more accurate					
mobile tax payment saves time for other business					
Mobile tax payment saves money for transport					
Mobile tax payment assures save on payments					
Mobile tax payments updates ledger on time					
Mobile tax payment facilitates to pay on due date					
Mobile tax payment enhances tax compliance					

11. Indicate your level of agreement regarding the relationship between mobile payment and revenue collection among taxpayers of RRA (1- Strongly Agree, 2- Agree, 3- Don't know, 4- Disagree, 5- Strongly Disagree).

Statement regarding mobile payment and revenue collection	**1**	**2**	**3**	**4**	**5**
Paying tax through MOMO saves time for a tax payer					
Paying tax through MOMO save money for a tax payer					
Paying tax through Tigocash eases revenue collection process					
Paying tax through Airtelmoney helps to comply with tax requirement					

Paying tax through MOMO eases the process of paying tax regularly					

Section C: The contribution of EBM tax payment on revenue collection among the taxpayers in Rwanda Revenue Authority.

12. Please state your level of agreement in regard to EBM tax payment and revenue collection in the following statements. The scale ranges from Strongly Agree (1), Agree (2), Not Sure (3), Disagree (4) and Strongly Disagree (5)

Statement regarding EBM and revenue collection	**1**	**2**	**3**	**4**	5
EBM tax payment of revenue facilitate the process of tax payment					
EBM tax payment records keeping helps for tax compliance					
EBM tax payment agents are helping business to comply with tax requirement					
EBM tax payment receipts hep to pay tax honestly					
EBM tax payment helps business to report business income					
EBM tax payment help tax payers to pay tax regularly					

13. Indicate your level of agreement regarding the role of electronic billing machine to promote tax compliance (1- Strongly Agree, 2- Agree, 3- Don't know, 4- Disagree, 5- Strongly Disagree).

Statement on the impact of online tax system stability of online tax payment in tax compliance	1	2	3	4	5
I ask for EBM receipt whenever I buy items					
I receive EBM invoices in my business					

I buy most of the items from businesses which are registered for tax					
I have seen businesses that do not give EBM receipt					
I buy my items to business that have EBM to help government to acquire taxes					

14. Indicate your level of agreement regarding the role of EBM tax payment to promote tax compliance (1- Strongly Agree, 2- Agree, 3- Don't know, 4- Disagree, 5- Strongly Disagree).

Statement regarding impact of electronic billing machine in tax compliance	1	2	3	4	5
EBM records keeping helps for tax compliance					
EBM helps business to comply with tax requirement					
EBM receipts hep to pay tax honestly					
EBM helps our business to report business income					
EBM help tax payers to pay tax regularly					

Section D: The relationship online tax payment on revenue collection among the taxpayers in Rwanda Revenue Authority.

15. Indicate your level of agreement regarding the relationship between online tax payment and revenue collection among taxpayers of RRA (1- Strongly Agree, 2- Agree, 3- Don't know, 4- Disagree, 5- Strongly Disagree).

Statement regarding online tax payment and revenue collection	**1**	**2**	**3**	**4**	**5**

Online tax registration facilitates during revenue collection					
Online tax filling eases the process of revenue collection					
EBM facilitates to report correct tax related records and revenue collection					
EBM eases the process of online tax payment and revenue collection					
Online tax payment enhances the economic development thru revenues					

16. Which of the following challenges to do you ever experience with online payment services? Please! Ticket from the following Likert scale measurement of 1-5 which are Strongly Agree (1), Agree (2), Not Sure (3), Disagree (4) and Strongly Disagree (5)

Challenge faced	**1**	**2**	**3**	**4**	**5**
RRA server is most of the time down during online tax payment					
No internet connectivity during online tax payment					
Online tax payment is too slow					
Online tax payment is too costly for the company					
Online tax payment needs to well train staffs					
RRA Server downtime makes online payments a nightmare					
Online tax payments during due dates is very hectic					
Online VAT payment by due date is hectic					

Thank you for your participation

INTERVIEW GUIDE

1. What is the role of online tax payment on revenue collection?
2. What is the relationship between mobile payment and revenue collection?
3. What is the contribution of EBM tax payment and revenue collection?
4. What is the role of EBM tax payment to promote tax compliance?
5. What is the relationship between online tax payment and revenue collection among taxpayers of RRA?
6. What are the challenges do online payment services faces?

Thank you for your participation