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Effect of Electronic Tax Management System of Tax Collection in Rwanda: Case Study of Rwanda Revenue Authority (RRA)

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Abstract:
*The research aimed to examine the effects of electronic tax Management system on revenue collection by Rwanda Revenue Authority because Revenue collection was low and tax administration weak and this was believed to be due to manual system of tax administration characterized by low tax collection, delays and poor record keeping, this made Rwanda revenue authority to meet their targeted budgets. This research had three specific objectives namely; to analyze the effect of internet payment system on tax collection in Rwanda; to examine the effect of mobile payment system on tax collection in Rwanda and to examine the effect of electronic billing machine on tax collection in Rwanda. The researcher reviewed both and empirical literature on the effect of electronic Tax management system on revenue collection. The researcher used descriptive method of study based on qualitative and quantitative approach in order to get better analysis of the study. The population size was 120 and sample taken is 75 respondents. Both primary and secondary sources with their relevant tools like questionnaire and documentary analysis in order to come up with required data. In the findings it was established that both electronic tax management system which consist of Tax Payment System, Mobile Tax Payment System and electronic Billing Machine System contributes to timely tax payment and reduced operational cost for both RRA staffs and clients. The system has also made clients pay tax from any business location, has made communication collaboration between tax payers easier, has made tax auditing/accountability easier and lastly has increased Revenue collection. Table 4.14 gave the relationship between Electronic Tax Management System and Effectiveness of Revenue collection in Rwanda whereby the respondents N is 75 and the significant level is 0.01, the results indicate that independent variable has positive high correlation to dependent variable equal to .850** and the p-value is .000 which is less than 0.01. When p-value is less than significant level, therefore researchers conclude that variables are correlated and null hypothesis is rejected and remains with alternative hypothesis. This means that there is a significant relationship between Electronic Tax Management System and Effectiveness of Revenue collection in Rwanda. We can therefore conclude that Electronic Tax Management System contribute positively to Revenue collection in Rwanda.*

1. Introduction

Developing countries like Rwanda are faced with lots of challenges in tax administration hence affecting service delivery because they collect the tax below the planned budget. This chapter presents background to the study, problems statements, objective of the study, research questions, scope of the study, significance to the study and limitation of the study.

It is impossible to think of any organization without the need of information system in their entities. Information system has helped organizations to be highly efficient and to stay competitive in its environment; therefore, it has been widely used in public sector and business organizations (Gupta, 2012. Organizations invest in information system for many reasons. Business organizations for example, may invest in information system in order to reduce operating costs and to stay competitive in the market. They have shifted from traditional ways of doing business to modern technologies which offer more convenience and faster processing activities. In banking environment, traditional banking activities such as bill payments, funds transfer or even passbooks updating can be done within a few minutes.

Many governments and other public sector organizations invested billions of money in information system development in order to provide better delivery services to its citizens and offer more effective government management. Colesca and Liliana (2008) claim that an effective government management must portray less corruption, increased transparency, better delivery of government services, improved interactions with business and industry. However, there were reports that those systems were underutilized in some countries. In Malaysia, online tax payment system is provided to facilitate the taxpayers to pay their taxes electronically via the tax authority website. Yet, the taxpayers are not using the system despite of its two-year existence in the community hence this needs sensitization of the users.

The expansion of the tax base in Rwanda is increasingly recognized as an important policy goal, as an increase in domestic revenue sources promises to reduce aid dependence and reduce distortionary consequences of taxes on externally traded goods. E-filing is one of advanced e-governance system adopted in developed countries. It provides convenience to tax payers for tax assessment and payment (Agrawal, 2006). Internet allows consumers or tax payers to conduct transactions within a few mouse clicks (Jahirul, 2011). This convenience can serve as a key driver for e-filing adoption especially in developing countries like Rwanda. E-filing and e-payment provides many aspects of convenience to tax payers for example tax filing can be conducted at any time, filing can be done in any location, easy use of the system, information search and other online transactions that is not available in the traditional channels.
Electronic payment and filing also offers flexibility of time, reduces calculations of errors on tax return forms to the tax payers, taxpayer privacy and security (Agawal, 2006). Furthermore, e-filing also offers other benefits to the beneficiaries who are the tax authorities for example e-filing minimizes their work load and operational cost due to submission of tax returns on a paperless environment. It also reduces the costs processing, storing and handling tax return (Jayakumar and Nagalakshmi, 2006). The Rwanda revenue Authority has been operating below the national budget and it is believed that with introduction of electronic tax management system tax collection has been improving.
E-filing and e-taxation payment was introduced by RRA in 2012 with functioning e-filing system in place such as Mobile declaration, Electronic Single for domestic taxpayers Window (ESW) and Authorized Economic Operator (AEO) for importers and exporters (Gupta, 2012) in order to improve on tax collection and meet the targeted budget accordingly, and this was done to enable the taxpayers to deal with RRA electronically anywhere and anytime as well as to enhance tax administration to collect tax revenue in short term and as a measure to improve on tax compliance and efficiency. It offers an option to the clients to file taxes like VAT, PAYE, Excise duty and Withholding taxes electronically on RRA's website without having to visit a RRA premise especially if there is tax education, compliancy aspect is guaranteed.
All the reforms in Rwanda's tax base system were aimed at improving tax collections, administrations, and above all tax compliance. In a bid to improve tax compliance, Rwanda Revenue Authority (RRA) decided to opt for electronic tax management system which includes e payment, e filling and electronic tax education in order to improve on tax collection in the country. This research analyzed the effect of an electronic tax management system on tax collection in Rwanda.

2. Statement of the Problem

Revenue collection was low and tax administration weak and this was believed to be due to manual system of tax administration characterized by low tax collection, delays and poor record keeping, this made Rwanda Revenue authority to meet their targeted budgets. With introduction of e-filing in 2012 it is believed that electronic tax management system will improve tax revenue and bridge the gap of the budget but still the challenges persisted as the country fail to meet their expected budget due to poor tax management system. It is upon the above problem that this research study was prompted to analyze the effects of e filing and e payment on revenue collection by Rwanda Revenue Authority.

3. Objectives of the Study

The general objective of this study was to analyze the Effect of electronic tax management system of tax collection in Rwanda

3.1. Specific Objectives

i. To analyze the effect of internet payment system on tax collection in Rwanda
ii. To examine the effect of mobile payment system on tax collection in Rwanda
iii. To establish the effect of electronic billing machine on tax collection in Rwanda

3.2. Research Questions

1. What is the effect of internet payment system on tax collection in Rwanda
2. What is the effect of mobile payment system on tax collection in Rwanda
3. What is the effect of billing machine on tax collection in Rwanda

4. Materials and Methods

4.0. Introduction

This chapter shows how the research was conducted. It describes the research design, study population, sampling procedure and sample size, data sources and collection instruments, measurement of variables and data analysis.

4.1. The Research Design

Research design is the blue print on how one goes about answering the objectives of the study (Bryman and Bell, 2007). It refers to the way in which the study was designed and the method that were used in carrying out the research. The study was a descriptive design basing on both qualitative and quantitative approach. A quantitative approach is linked to deductive method of testing theories while qualitative approach is characterized with inductive testing (Saunders, et al., 2003). The study focused more on the qualitative approach but in some instances, quantitative approach was employed in order to get better understanding and more insightful interpretation of the results. For this study, the quantitative method investigated the effects of Electronic Tax Management System on

Revenue collection in Rwanda. The qualitative data collection method on the other hand investigated the extent to which the Electronic Tax Management System Effects Revenue collection in Rwanda.

4.2. Target Population and Sample Size Determination

Target population in statistics is the specific population about which information is desired. According to Ngechu (2004), a population is a well-defined or set of people, services, elements and events, group of things or households that are being investigated. This definition ensures that population of interest is homogeneous. And by population the researcher means complete census of the sampling frames.

The sample size was derived from a population of 120 people being targeted in the study. The researcher used Slovene's formula at a confidence interval of 95% and margin of error of 5% as described below.

Where; $n=\frac{N}{1+N(e)^2}$

n = the minimum sample size

N = the population from which the sample was drawn estimated at 705 members

e = the margin of error estimated at 10%.

$$n=\frac{120}{1+120(0.5)^2}=\frac{120}{1+120(0.0025)}=\frac{120}{1.6}$$

n=75

Therefore, 75 members were sampled

4.3. Sample Design

A sample design is a definite plan for obtaining a sample from a given population. It refers to the technique or the procedure the researcher would adopt in selecting items for the sample (Kothari, 2004).

4.4. Data Collection Instruments

Primary data was gathered through structured questionnaires. On the other hand, secondary data was collected from RRA reports. A semi-structured questionnaire was used to collect primary data. In order to ensure uniformity in response and to encourage participation, the questionnaire was kept short and structured with mostly multiple-choice selections in a Likert scale. The questionnaires were preferred in this study because respondents of the study are literate and quite able to answer questions asked adequately. According to Mugenda and Mugenda (2003), questionnaires are commonly used to obtain important information about a population under study. The researcher obtained an introductory letter from the University to collect data then personally deliver the questionnaires to the respondents and has them filled in and then collect later: the drop and pick later method.

4.5. Reliability and Validity

Closed questionnaire were developed in harmony with the guidelines specified by Sekaran (2000). First, an item analysis was done to see whether the items in the instrument belong there and a pre – test was carried out to check validity and reliability so as to minimize on vagueness of the results to be generated. The validity of the instrument was further measured using the Content Validity Index (CVI). Reliability (internal consistency and stability) of the instruments was tested using Cronbach's Alpha Coefficient. The researcher first tested inter-item consistency reliability to ensure that there was the consistency of respondents' answers to all items in the measure.

Variable	**Anchor**	**Cronbach Alpha Value**
Electronic Tax Management System	5-Point	.6832
Revenue collection	5-Point	.9134

Table 1: Validity and Reliability
Source: Primary data

4.6. Data Analysis Procedures

Data collected from the primary source was compiled, sorted, edited for accuracy and clarity, classified, coded into a coding sheet and analyzed using a Statistical Package for Social Science (SPSS 22.0). During data analysis, cross tabulations, and frequency tabulations, Pearson's correlation analysis and regression analysis were used to present the results of the study. The mean, standard deviation and frequency tabulations were used to present the results for the sample characteristics; the Spearman's correlation analysis was used to present the relationships between the study variables which are Electronic Tax Management System and effectiveness of Revenue collection in Rwanda.

5. Results and Interpretation

5.1. Internet Payment System on Tax Collection in Rwanda

5.1.1. Assessment of Internet Payment System on Tax Collection in Rwanda
Table 2 describes respondent's views on Internet Payment System in Rwanda

Internet Payment/filing System	Mean	Std. Deviation	Comments
Clients pay tax easily by use desk top computers either from home or office	4.2267	.55928	Strong Heterogeneity
Clients file tax from home by use of my desk top either from home or office	4.1867	.51184	Strong Heterogeneity
Clients check tax statement by use of desk top either from home or office	3.9333	.60030	Strong Heterogeneity
Clients get tax knowledge by use of internet without physical appearance	3.9733	.59214	Strong Heterogeneity
Clients get alert on email by use of internet	4.2000	.46499	Strong Homogeneity
Total	**4.1040**	**0.54571**	**Strong Heterogeneity**

Table 2: Assessment of Internet Payment System on Tax Collection
Source: Primary data, 2016

Table 2 describes the internet payment/filing system in Rwanda and their responses were as analyzed in details as below;
Clients pay tax easily by use desk top computers either from home or office: This was indicated by a strong mean of 4.2267 and a heterogeneity standard deviation of .55928. This implies that Clients pay tax easily by use desk top computers either from home or office by use of internet. Clients file tax from home by use of desk top either from home or office: This was indicated by a strong mean of 4.1867 and a heterogeneity standard deviation of .51184. This implies that Clients file tax from home by use of desk top either from home or office by use of internet.

Clients check tax statement by use of desk top either from home or office: This was indicated by a very mean of 3.9333 and a heterogeneity standard deviation of .60030. This implies that Clients check tax statement by use of desk top either from home or office by use of the internet. Clients get tax knowledge by use of internet without physical appearance: This was indicated by a strong mean of 3.9733 and a heterogeneity standard deviation of .59214. This implies that Clients get tax knowledge by use of internet without physical appearance. Clients get alert on email by use of internet: This was indicated by a very strong mean of 4.5652 and a Homogeneity standard deviation of .46499. This implies that Clients get alert on email by use of internet.
Overall assessment shows that internet payment/filing system in Rwanda is strong with a mean of 4.1040 and a heterogeneity standard deviation of 0. 54571.This implies that internet payment system is a tool used for tax payment in Rwanda.

5.1.2. Effects of Internet Payment System on Tax Collection in Rwanda
Table 3 indicates the effects of internet payment system on tax collection in Rwanda

Effects of Internet Payment System on Tax Collection in Rwanda	Mean	Std. Deviation	Comments
Internet payment/filing system has made clients pay tax in time	4.2400	.61160	Strong Heterogeneity
Internet payment/filing system has reduced on RRA/clients operational cost	4.2267	.55928	Strong Heterogeneity
Internet payment/filing system has made clients pay tax from anywhere	4.2800	.45202	Strong Homogeneity
Internet payment/filing system has made communication collaboration between tax payers easier	4.4267	.49792	Strong Homogeneity
Internet payment/filing system has made tax auditing/accountability easier	4.2533	.49575	Strong Homogeneity
Internet payment/filing system has increased Revenue collection	4.2933	.45836	Strong Homogeneity
Overall summary	4.2866	.51248	Strong Heterogeneity

Table 3: Effects of Internet Payment System on Tax Collection in Rwanda
Source: Primary data, 2016

Table 3 describes the effects of internet payment/filing system on tax collection in Rwanda and their responses were as analyzed in details as below;
Internet payment/filing system has made clients pay tax in time: This was indicated by a strong mean of 4.2400 and a heterogeneity standard deviation of .61160. This implies that Internet payment/filing system has made clients pay tax in time to RRA. Internet payment/filing system has reduced on RRA/clients operational cost: This was indicated by a strong mean of 4.2267 and a heterogeneity standard deviation of .55928. This implies that Internet payment/filing system has reduced on RRA/clients operational cost.
Internet payment/filing system has made clients pay tax from anywhere: This was indicated by a strong mean of 4.2800 and a Homogeneity standard deviation of .45202. This implies that Internet payment/filing system has made clients pay tax from anywhere. Internet payment/filing system has made communication collaboration between tax payers easier: This was indicated by a strong mean

of 4.4267 and a Heterogeneity standard deviation of .49792. This implies that Internet payment/filing system has made communication collaboration between tax payers easier.
Internet payment/filing system has made tax auditing/accountability easier: This was indicated by a strong mean of 4.2533 and a Homogeneity standard deviation of .49575. This implies Internet payment/filing system has made tax auditing/accountability easier.
Internet payment/filing system has increased Revenue collection: This was indicated by a strong mean of 4.2933 and a Homogeneity standard deviation of .45836. This implies that Internet payment/filing system has increased Revenue collection.
Overall assessment shows that internet payment/filing system has improved on tax collection by RRA, this was indicated by a mean of 4.2866 and a heterogeneity standard deviation of .51248. This implies that internet payment/filing system has improved on tax collection by RRA.

5.1.3. Relationship between Internet Payment system and tax collection in Rwanda.
Table 3 describes the Relationship between Internet Payment/filing System and Tax Collection in Rwanda.

			Internet Payment System	**Tax Collection in Rwanda**
Spearman's rho	Internet Payment System	Correlation Coefficient	1.000	.887**
		Sig. (2-tailed)	.	.000
		N	75	75
	Tax Collection in Rwanda	Correlation Coefficient	.887**	1.000
		Sig. (2-tailed)	.000	.
		N	75	75
**. Correlation is significant at the 0.01 level (2-tailed).				

Table 4: Relationship between Internet Payment System and Tax Collection

Table 4 is giving the Relationship between internet payment system and tax collection in Rwanda whereby the respondents N is 75 and the significant level is 0.01, the results indicate that independent variable has positive high correlation to dependent variable equal to .887** and the p-value is .000 which is less than 0.01. When p-value is less than significant level, therefore researchers conclude that variables are correlated. This means that there is a significant relationship between internet payment/filing system and tax collection in Rwanda. We can therefore conclude that internet payment system contribute positively to tax collection in Rwanda.

5.2. Mobile Payment System on Tax Collection in Rwanda
Analysis below shows assessment of Mobile Payment/filing System in Rwanda and its effects on tax collection.

5.2.1. Assessing Mobile Payment System in Rwanda
Table 5 describes Mobile Payment/filing System in Rwanda

	Mean	**Std. Deviation**	**Comments**
Clients pay tax easily from anywhere by use of their mobile phone	4.0667	.41373	Strong Homogeneity
Clients file tax easily from anywhere by use of their mobile phone	4.0933	.49792	Strong Homogeneity
Clients check tax statement easily from anywhere by use of their mobile phone	4.0400	.57984	Strong heterogeneity
Clients get tax knowledge easily from anywhere by use of their mobile phone	4.0667	.57735	Strong heterogeneity
Clients get alert message easily on their mobile	4.2533	.43785	Strong Homogeneity
Overall Assessment	**4.104**	**.50133**	**Strong heterogeneity**

Table 5: Mobile Payment/filing System in Rwanda
Source: Primary data, 2016

Table 5 describes the mobile payment/filing system in Rwanda and their responses were as analyzed in details as below;
Clients pay tax easily from anywhere by use of their mobile phone: This was indicated by a strong mean of 4.0667and a Homogeneity standard deviation of .41373. This implies that Clients pay tax easily from anywhere by use of their mobile phone especially if they have the applications on their phone and network is available. Clients file tax easily from anywhere by use of their mobile phone: This was indicated by a strong mean of 4.0933 and a Homogeneity standard deviation of .49792. This implies that Clients file tax easily from anywhere by use of their mobile phone.
Clients check tax statement easily from anywhere by use of their mobile phone: This was indicated by a strong mean of 4.0400 and a Heterogeneity standard deviation of .57984. This implies that Clients check tax statement easily from anywhere by use of their mobile phone. Clients get tax knowledge easily from anywhere by use of their mobile phone: This was indicated by a strong mean of 4.0667and a heterogeneity standard deviation of .57735. This implies that Clients get tax knowledge easily from anywhere by use of their mobile phone. Clients get alert message easily on their mobile: This was indicated by a strong mean of 4.2533and a homogeneity standard deviation of .43785. This implies that Clients get alert message easily on their mobile.
Overall assessment shows that Mobile Payment/filing System in Rwanda is highly used by tax payers for tax collection; this was indicated by a mean of 4.104 and a heterogeneity standard deviation of .50133. This implies that Mobile Payment/filing System is used for tax collection by RRA.

5.2.2. Effects Mobile Payment/filing System on Tax Collection in Rwanda
Table 6 shows the effects of Mobile Payment/filing System on Tax Collection in Rwanda

	Mean	Std. Deviation	Comments
Mobile payment system has made clients pay tax in time	4.1333	.50225	Strong heterogeneity
Mobile payment system has reduced on RRA/clients operational cost	4.0800	.42744	Strong Homogeneity
Mobile payment system has made clients pay tax from anywhere	4.0267	.54459	Strong heterogeneity
Mobile t payment system has made communication collaboration between tax payers easier	4.6267	.53960	Very Strong heterogeneity
Mobile payment system has made tax auditing/accountability easier	4.2800	.60538	Strong heterogeneity
Mobile payment system has increased Revenue collection	4.1600	.43620	Strong Homogeneity
Overall Assessment	**4.2177**	**.50924**	**Strong heterogeneity**

Table 6: Effects of Mobile Payment/filing System on Tax collection in Rwanda
Source: Primary data, 2016

Table 6 describes the effects of Mobile payment/filing system on tax collection in Rwanda and their responses were as analyzed in details as below;
Mobile payment system has made clients pay tax in time: This was indicated by a strong mean of 4.1333and a Heterogeneity standard deviation of .50225. This implies that Mobile payment system has made clients pay tax in time. Mobile payment system has reduced on RRA/clients operational cost: This was indicated by a strong mean of 4.0800and a Homogeneity standard deviation of .42744. Mobile payment system has reduced on RRA/clients operational cost.
Mobile payment system has made clients pay tax from anywhere: This was indicated by a strong mean of 4.0267and a Heterogeneity standard deviation of .54459. This implies that Mobile payment system has made clients pay tax from anywhere. Mobile payment system has made communication collaboration between tax payers easier: This was indicated by a very strong mean of 4.6267and a Heterogeneity standard deviation of .53960. This implies that Mobile t payment system has made communication collaboration between tax payers easier.
Mobile payment system has made tax auditing/accountability easier: This was indicated by a strong mean of 4.2800and a Heterogeneity standard deviation of .60538. This implies that Mobile payment system has made tax auditing/accountability easier. Mobile payment system has increased Revenue collection: This was indicated by a strong mean of 4.1600 and a homogeneity standard deviation of .43620. This implies that Mobile payment system has increased Revenue collection.
Overall assessment shows that Mobile Payment/filing System in Rwanda has improved on tax collection in Rwanda; this was indicated by a mean of 4.2177and a heterogeneity standard deviation of.50924. This implies that Mobile Payment/filing System has improved on tax collection by RRA.

5.2.3. Relationship between Mobile Payment/filing System and Tax Collection in Rwanda
Table 7 gives the relationship between Mobile Payment/filing System and Tax Collection in Rwanda

			Mobile Payment/filing system	Tax collection
Spearman's rho	Mobile Payment/filing system	Correlation Coefficient	1.000	.884**
		Sig. (2-tailed)	.	.000
		N	75	75
	Tax collection	Correlation Coefficient	.884**	1.000
		Sig. (2-tailed)	.000	.
		N	75	75
**. Correlation is significant at the 0.01 level (2-tailed).				

Table 7: Relationship between Mobile Payment System and Tax Collection

Table 7 is giving the relationship between mobile payment/filing system on tax collection in Rwanda whereby the respondents N is 75 and the significant level is 0.01, the results indicate that independent variable has positive high correlation to dependent variable equal to .884** and the p-value is .000 which is less than 0.01. When p-value is less than significant level, therefore researchers conclude that variables are correlated. This means that there is a significant relationship between mobile payment/filing system and tax collection in Rwanda. We can therefore conclude that mobile payment/filing system contribute positively to tax collection in Rwanda.

5.3. Effects of Mobile Payment System on Tax Collection in Rwanda
Analysis below shows assessment of Mobile Payment/filing System in Rwanda and its effects on tax collection.

5.3.1. Assessing Mobile Payment System in Rwanda

Table 8 describes Mobile Payment/filing System in Rwanda

	Mean	Std. Deviation	Comments
Clients pay tax easily from anywhere by use of their mobile phone	4.0667	.41373	Strong Homogeneity
Clients file tax easily from anywhere by use of their mobile phone	4.0933	.49792	Strong Homogeneity
Clients check tax statement easily from anywhere by use of their mobile phone	4.0400	.57984	Strong heterogeneity
Clients get tax knowledge easily from anywhere by use of their mobile phone	4.0667	.57735	Strong heterogeneity
Clients get alert message easily on their mobile	4.2533	.43785	Strong Homogeneity
Overall Assessment	**4.104**	**.50133**	**Strong heterogeneity**

Table 8: Mobile Payment/filing System in Rwanda
Source: Primary data, 2016

Table 8 describes the mobile payment/filing system in Rwanda and their responses were as analyzed in details as below;
Clients pay tax easily from anywhere by use of their mobile phone: This was indicated by a strong mean of 4.0667and a Homogeneity standard deviation of .41373. This implies that Clients pay tax easily from anywhere by use of their mobile phone especially if they have the applications on their phone and network is available. Clients file tax easily from anywhere by use of their mobile phone: This was indicated by a strong mean of 4.0933 and a Homogeneity standard deviation of .49792. This implies that Clients file tax easily from anywhere by use of their mobile phone.
Clients check tax statement easily from anywhere by use of their mobile phone: This was indicated by a strong mean of 4.0400 and a Heterogeneity standard deviation of .57984. This implies that Clients check tax statement easily from anywhere by use of their mobile phone. Clients get tax knowledge easily from anywhere by use of their mobile phone: This was indicated by a strong mean of 4.0667and a heterogeneity standard deviation of .57735. This implies that Clients get tax knowledge easily from anywhere by use of their mobile phone. Clients get alert message easily on their mobile: This was indicated by a strong mean of 4.2533and a homogeneity standard deviation of .43785. This implies that Clients get alert message easily on their mobile.
Overall assessment shows that Mobile Payment/filing System in Rwanda is highly used by tax payers for tax collection; this was indicated by a mean of 4.104 and a heterogeneity standard deviation of .50133. This implies that Mobile Payment/filing System is used for tax collection by RRA.

5.3.2. Effects Mobile Payment/filing System on Tax Collection in Rwanda
Table 9 shows the effects of Mobile Payment/filing System on Tax Collection in Rwanda

	Mean	Std. Deviation	Comments
Mobile payment system has made clients pay tax in time	4.1333	.50225	Strong heterogeneity
Mobile payment system has reduced on RRA/clients operational cost	4.0800	.42744	Strong Homogeneity
Mobile payment system has made clients pay tax from anywhere	4.0267	.54459	Strong heterogeneity
Mobile t payment system has made communication collaboration between tax payers easier	4.6267	.53960	Very Strong heterogeneity
Mobile payment system has made tax auditing/accountability easier	4.2800	.60538	Strong heterogeneity
Mobile payment system has increased Revenue collection	4.1600	.43620	Strong Homogeneity
Overall Assessment	**4.2177**	**.50924**	**Strong heterogeneity**

Table 9: Effects of Mobile Payment/filing System on Tax collection in Rwanda
Source: Primary data, 2016

Table 9 describes the effects of Mobile payment/filing system on tax collection in Rwanda and their responses were as analyzed in details as below;
Mobile payment system has made clients pay tax in time: This was indicated by a strong mean of 4.1333and a Heterogeneity standard deviation of .50225. This implies that Mobile payment system has made clients pay tax in time. Mobile payment system has reduced on RRA/clients operational cost: This was indicated by a strong mean of 4.0800and a Homogeneity standard deviation of .42744. Mobile payment system has reduced on RRA/clients operational cost.
Mobile payment system has made clients pay tax from anywhere: This was indicated by a strong mean of 4.0267and a Heterogeneity standard deviation of .54459. This implies that Mobile payment system has made clients pay tax from anywhere. Mobile payment system has made communication collaboration between tax payers easier: This was indicated by a very strong mean of 4.6267and a Heterogeneity standard deviation of .53960. This implies that Mobile t payment system has made communication collaboration between tax payers easier.

Mobile payment system has made tax auditing/accountability easier: This was indicated by a strong mean of 4.2800and a Heterogeneity standard deviation of .60538. This implies that Mobile payment system has made tax auditing/accountability easier.

Mobile payment system has increased Revenue collection: This was indicated by a strong mean of 4.1600 and a homogeneity standard deviation of .43620. This implies that Mobile payment system has increased Revenue collection.
Overall assessment shows that Mobile Payment/filing System in Rwanda has improved on tax collection in Rwanda; this was indicated by a mean of 4.2177and a heterogeneity standard deviation of.50924. This implies that Mobile Payment/filing System has improved on tax collection by RRA.

5.3.3. Relationship between Mobile Payment/filing System and Tax Collection in Rwanda
Table 10 gives the relationship between Mobile Payment/filing System and Tax Collection in Rwanda

			Mobile Payment/filing system	**Tax collection**
Spearman's rho	Mobile Payment/filing system	Correlation Coefficient	1.000	.884**
		Sig. (2-tailed)	.	.000
		N	75	75
	Tax collection	Correlation Coefficient	.884**	1.000
		Sig. (2-tailed)	.000	.
		N	75	75
**. Correlation is significant at the 0.01 level (2-tailed).				

Table 10: Relationship between Mobile Payment System and Tax Collection

Table 10 is giving the relationship between mobile payment/filing system on tax collection in Rwanda whereby the respondents N is 75 and the significant level is 0.01, the results indicate that independent variable has positive high correlation to dependent variable equal to .884** and the p-value is .000 which is less than 0.01. When p-value is less than significant level, therefore researchers conclude that variables are correlated. This means that there is a significant relationship between mobile payment/filing system and tax collection in Rwanda. We can therefore conclude that mobile payment/filing system contribute positively to tax collection in Rwanda.

5.4. Effects of Electronic Billing Machine on Tax Collection in Rwanda
This section analyses Electronic Billing Machine and its effect on tax collection in Rwanda

5.4.1. Assessing Electronic Billing Machine on Tax Collection in Rwanda
Table 11 assesses of Electronic Billing Machine on tax collection in Rwanda

	Mean	**Std. Deviation**	**Comments**
Clients pay tax easily from any business location by use of EBM	3.9333	.50225	Strong heterogeneity
Clients file tax easily from any business location by use of EBM	3.9467	.56696	Strong heterogeneity
Clients check tax statement easily from any business location by use of EBM	3.8933	.58294	Strong heterogeneity
Clients get alert message easily from any business location by use of EBM	3.8800	.56854	Strong heterogeneity
Overall Assessment	**3.9133**	**.55517**	**Strong heterogeneity**

Table 11: Electronic Billing Machine on tax collection in Rwanda
Source: Primary data, 2016

Table 11 describes the Electronic Billing Machine on Tax Collection in Rwanda responses were as analyzed in details as below;
Clients pay tax easily from any business location by use of EBM: This was indicated by a strong mean of 3.9333and a Heterogeneity standard deviation of .50225. This implies that Clients pay tax easily from any business location by use of EBM. Clients file tax easily from any business location by use of EBM: This was indicated by a strong mean of 3.9467and a Heterogeneity standard deviation of .56696. This implies that Clients file tax easily from any business location by use of EBM.

Clients check tax statement easily from any business location by use of EBM: This was indicated by a strong mean of 3.8933and a heterogeneity standard deviation of .58294. This implies that Clients check tax statement easily from any business location by use of EBM. Clients get alert message easily from any business location by use of EBM: This was indicated by a strong mean of 3.8800 and a Heterogeneity standard deviation of .56854. This implies that Clients get alert message easily from any business location by use of EBM.
Overall assessment shows that EBM in Rwanda is used for tax collection in Rwanda; this was indicated by a mean of 3.9133 and a heterogeneity standard deviation of .55517. This implies that EBM is used for tax collection by RRA.

5.4.2. Effects of Electronic Billing Machine on Tax Collection in Rwanda
Table 12 assesses the effects of Electronic Billing Machine on Tax Collection in Rwanda

	Mean	Std. Deviation	Comments
EBM system has made clients pay tax in time	3.8800	.51883	Strong heterogeneity
EBM payment system has reduced on RRA/clients operational cost	4.2267	.53457	Strong heterogeneity
EBM payment system has made clients pay tax from any business location	3.8400	.52091	Strong heterogeneity
EBM payment system has made communication collaboration between tax payers easier	4.2000	.51988	Strong heterogeneity
EBM payment system has made tax auditing/accountability easier	4.1200	.43371	Strong homogeneity
EBM payment system has increased Revenue collection	4.2667	.50225	Strong heterogeneity
Overall Assessment	**4.0889**	**.50502**	**Strong heterogeneity**

Table 12: Effects of Electronic Billing Machine on Tax Collection in Rwanda
Source: Primary data, 2016

Table 12 describes the effects of Electronic Billing Machine on Tax Collection in Rwanda and their responses were as analyzed in details as below;
EBM system has made clients pay tax in time: This was indicated by a strong mean of 3.8800 and a Heterogeneity standard deviation of .51883. This implies that EBM system has made clients pay tax in time. EBM payment system has reduced on RRA/clients operational cost: This was indicated by a strong mean of 4.2267and a Heterogeneity standard deviation of .53457. EBM payment system has reduced on RRA/clients operational cost.
EBM payment system has made clients pay tax from any business location: This was indicated by a strong mean of 3.8400and a Heterogeneity standard deviation of .52091. This implies that EBM payment system has made clients pay tax from any business location. EBM payment system has made communication collaboration between tax payers easier: This was indicated by a strong mean of 4.2000 and a Heterogeneity standard deviation of .51988. This implies that EBM payment system has made communication collaboration between tax payers easier.

EBM payment system has made tax auditing/accountability easier: This was indicated by a strong mean of 4.1200 and a Homogeneity standard deviation of .43371. This implies that EBM payment system has made tax auditing/accountability easier. EBM payment system has increased Revenue collection: This was indicated by a strong mean of 4.2667 and a Heterogeneity standard deviation of .50225. This implies that EBM payment system has increased Revenue collection.

Overall assessment shows that EBM System in Rwanda has improved on tax collection in Rwanda; this was indicated by a mean of 4.0889 and a heterogeneity standard deviation of .50502. This implies that EBM System has improved on tax collection by RRA.

5.4.3. Relationship between of Electronic Billing Machine and Tax Collection in Rwanda
Table 13 describes the Relationship between Electronic Billing Machine and Tax Collection in Rwanda

			Electronic Billing Machine	Tax Collection
Spearman's rho	Electronic Billing Machine	Correlation Coefficient	1.000	.781**
		Sig. (2-tailed)	.	.000
		N	75	75
	Tax Collection	Correlation Coefficient	.781**	1.000
		Sig. (2-tailed)	.000	.
		N	75	75
**. Correlation is significant at the 0.01 level (2-tailed).				

Table 13: Relationship between Electronic Billing Machine and Tax Collection

Table 3 is giving the relationship between Electronic Billing Machine and Tax Collection in Rwanda whereby the respondents N is 75 and the significant level is 0.01, the results indicate that independent variable has positive high correlation to dependent variable equal to .781** and the p-value is .000 which is less than 0.01. When p-value is less than significant level, therefore researchers conclude that variables are correlated. This means that there is a significant relationship between Electronic Billing Machine and Tax Collection in Rwanda. We can therefore conclude that Electronic Billing Machine contribute positively to Tax Collection in Rwanda.

5.5. Relationship between Electronic Tax Management System of Revenue collection in Rwanda
Table 14 indicates the Relationship between Electronic Tax Management System on effectiveness of Revenue collection in Rwanda

			Electronic Tax Management System	Revenue collection in Rwanda
Spearman's rho	Electronic Tax Management System	Correlation Coefficient	1.000	.850**
		Sig. (2-tailed)	.	.000
		N	75	75
	Revenue collection in Rwanda	Correlation Coefficient	.850**	1.000
		Sig. (2-tailed)	.000	.
		N	75	75
**. Correlation is significant at the 0.01 level (2-tailed).				

Table 14: Relationship between Electronic Tax Management System on Revenue collection in Rwanda

Table 14 is giving the relationship between Electronic Tax Management System and Effectiveness of Revenue collection in Rwanda whereby the respondents N is 75 and the significant level is 0.01, the results indicate that independent variable has positive high correlation to dependent variable equal to .850** and the p-value is .000 which is less than 0.01. When p-value is less than significant level, therefore researchers conclude that variables are correlated. This means that there is a significant relationship between Electronic Tax Management System and Effectiveness of Revenue collection in Rwanda. We can therefore conclude that Electronic Tax Management System contribute positively to Revenue collection in Rwanda.

6. Conclusion and Recommendations

6.0. Introduction

The chapter covers the summary, conclusion and recommendation of the findings. The summary covers the findings in relation to the objective of the study. The summary is followed by the conclusion which is based on the findings of the study. And recommendations to the challenges facing the Tax Management System

6.1. Summary of Findings

The study was mainly concerned about the Effect of Electronic Billing Machine on tax collection in Rwanda. This summary was based on the objectives of the study which are effects of internet tax payment system on tax collection, effects of mobile payment system on tax collection and effects of EBM on tax collection.

6.1.1. Effects of Internet Tax Payment System on Tax Collection

Findings on the Clients Tax Payment System on Tax Collection show that tax payment is done by use desk top computers either from home or office, clients file tax from home by use of desk top either from home or office, clients check tax statement by use of desk top either from home or office, clients get tax knowledge by use of internet without physical appearance and clients get alert on email by use of internet. The respondents further stated that Internet payment/filing system has made clients pay tax in time. Internet payment/filing system has reduced on RRA/clients operational cost. Internet payment/filing system has made clients pay tax from anywhere. Internet payment/filing system has made communication collaboration between tax payers easier. Internet payment/filing system has made tax auditing/accountability easier and Internet payment/filing system has increased Revenue collection. Analysis gave the Relationship between internet payment/filing system and tax collection in Rwanda whereby the respondents N is 75 and the significant level is 0.01, the results indicate that independent variable has positive high correlation to dependent variable equal to .887** and the p-value is .000 which is less than 0.01. When p-value is less than significant level, therefore researchers conclude that variables are correlated. This means that there is a significant relationship between internet payment/filing system and tax collection in Rwanda. We can therefore conclude internet payment/filing system contribute positively to tax collection in Rwanda.

6.1.2. Effects of Mobile Payment System on Tax Collection

The finding shows that Clients pay tax easily from anywhere by use of their mobile phone, clients file tax easily from anywhere by use of their mobile phone, clients check tax statement easily from anywhere by use of their mobile phone, clients get tax knowledge easily from anywhere by use of their mobile phone and clients get alert message easily on their mobile. The respondents further stated that Mobile payment system has made clients pay tax in time, mobile payment system has reduced on RRA/clients operational cost, Mobile payment system has made communication collaboration between tax payers easier, Mobile payment system has made tax auditing/accountability easier and Mobile payment system has increased Revenue collection. Analysis gave the relationship between mobile payment/filing system on tax collection in Rwanda whereby the respondents N is 75 and the significant level is 0.01, the results indicate that independent variable has positive high correlation to dependent variable equal to .884** and the p-value is .000 which is less than 0.01. When p-value is less than significant level, therefore researchers conclude that variables are correlated. This means that there is a significant relationship between mobile payment/filing system and tax collection in Rwanda. We can therefore conclude mobile payment/filing system contribute positively to tax collection in Rwanda.

6.1.3. Effects of Electronic Billing Machine on Tax Collection

The finding shows that clients pay tax easily from any business location by use of EBM, clients file tax easily from any business location by use of EBM, Clients check tax statement easily from any business location by use of EBM and clients get alert message easily from any business location by use of EBM. Respondents further stated that EBM system has made clients pay tax in time, EBM payment system has reduced on RRA/clients operational cost, EBM payment system has made clients pay tax from any business location, EBM payment system has made communication collaboration between tax payers easier, EBM payment system has made tax auditing/accountability easier and EBM payment system has increased Revenue collection. Analysis gave the relationship between Electronic Billing Machine and Tax Collection in Rwanda whereby the respondents N is 75 and the significant level is 0.01, the results indicate that independent variable has positive high correlation to dependent variable equal to .781** and the p-value is .000 which is less than 0.01. When p-value is less than significant level, therefore researchers conclude that variables are correlated. This means that there is a significant relationship between Electronic Billing Machine and Tax Collection in Rwanda. We can therefore conclude Electronic Billing Machine contribute positively to Tax Collection in Rwanda.

6.2. Conclusion

In the findings it was established that both electronic tax management system which consist of Tax Payment System, Mobile Tax Payment System and electronic Billing Machine System contributes to timely tax payment and reduced operational cost for both RRA staffs and clients. The system has also made clients pay tax from any business location, has made communication collaboration between tax payers easier, has made tax auditing/accountability easier and lastly has increased Revenue collection. Analysis gave the relationship between Electronic Tax Management System and Effectiveness of Revenue collection in Rwanda whereby the respondents N is 75 and the significant level is 0.01, the results indicate that independent variable has positive high correlation to dependent variable equal to .850** and the p-value is .000 which is less than 0.01. When p-value is less than significant level, therefore researchers conclude that variables are correlated. This means that there is a significant relationship between Electronic Tax Management System and Effectiveness of Revenue collection in Rwanda. We can therefore conclude that Electronic Tax Management System contribute positively to Revenue collection in Rwanda.

6.3. Recommendation

i. RRA and clients should subscribe to reliable internet providers for effective and efficient service delivery.
ii. RRA should employ skilled personnel with more experience on network management in order to ensure the reliability of network.
iii. RRA management should ensure that there is country wide training to clients on usage of various e tax applications for efficient revenue collection. For example, training on mobile application and EBM usage.
iv. RRA management should keep on upgrading their e tax technology in order to have an up to date system for effective service delivery
v. EBM should be provided to different business enterprises across the country for easy accessible by customers, so that quick service and convenience is maintained hence improving revenue collection. At the same time constantly serviced should be ensured in order to provide reliability of the services.
vi. Constant power back up should be ensured on order to solve the problems of power interruptions and fluctuations.

6.4. Areas of Further Studies

Researcher has observed the following areas for further studies:

i. Effects of network reliability on electronic tax management
ii. Effect of technical knowhow on electronic tax management
iii. Effect of attitudes and culture on electronic tax management

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