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Effect of Value Added Tax Reforms on Revenue Performance in Rwanda Revenue Authority

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Abstract

Globally, taxation is an important element in the management of the national economy. Among the major taxes imposed by the government is the Value added tax (VAT) which is a consumption tax, levied at each stage of the consumption chain and borne by the final consumer of the product or service. The purpose of taxation in Rwanda is to finance government planned activities. However, collecting different revenues is a major challenge due to narrow tax base and cases of non-compliance among taxpayers. The Authority in charge of collection of tax put in place different reforms to mitigate those challenges. This purpose of this study is to investigate the effect of value added tax reforms on revenue performance in Rwanda.

The study used descriptive survey design. The target population is 2791 small taxpayers and 109 medium active taxpayers registered on VAT tax under the domestic taxes department Kicukiro block and the 6 staff from RRA Kicukiro block. A sample of 352 persons was determined. The study used both primary and secondary data collection methods. The findings demonstrate that a unit increase in use of EBM increases VAT collection performance by 0.576 units, while other variables remain constant. One unit increase in administrative fines would increase the VAT collection performance by 0.289 units if other variables remain constant. Finally, a unit change in taxpayers training would increase VAT collection performance by 0.130 units, while other variables stay constant. These findings provided a practical and useful tool for RRA to establish barriers to compliance and put in place proper and adequate mechanisms to encourage voluntary compliance and minimize non-compliance cases.

Keywords: Value Added Tax; Tax Reforms; Revenue Performance

Introduction

Value added tax (VAT) is a widely accepted indirect taxation system across the globe. It has now been implemented in more than 150 countries [1]. The dramatic acceptance and rise of VAT across the globe are due to the reason that VAT is a good way to raise resources and modernize the overall tax system [2]. At present, VAT is the third important source of tax revenue for the governments in the world, behind social security contributions and personal income taxes [3]. There is a growing recognition among developing countries of the crucial role of Value added tax revenue as an instrument of economic development. Value added tax (VAT) revenues are increasingly accounting for significant proportion of government revenue to finance the required level of public expenditure. Value added tax as a consumption tax has been embraced by many countries worldwide. Because it is a consumption tax, it is relatively easy to administer and difficult to evade.

VAT reforms in Europe are designed so that collection could improve cross-border compliance for business. At the end of 2011, the EU published a communication on the future of the VAT

system across member states. The aim of the proposal is to reduce collection and compliance costs, provide flexibility for member states and protect against fraud. It also seeks to reduce the burdens for businesses, thereby increasing the competitiveness of the EU. The Commission has identified various questions for consideration, such as how VAT should be accounted for on cross-border transactions, whether reduced rates are still needed, how to minimize administrative burdens and how to combat fraud. China's value-added tax contributes with a large percentage to China's annual tax revenue [4]. One of the most comprehensive reforms is the VAT reform, which has been initiated in January 2012 in Shanghai. In terms of indirect taxation, the VAT was converted from a production-based tax into a consumption-based one. The production-based tax explicitly prohibited the deduction of the input VAT on fixed assets, which made the tax base broader than it otherwise would have been. Since the reform in 1994 there was a split system of turnover taxes. The coexistence of business tax and VAT forced taxpayers to pay VAT for their manufacture revenue and business tax for their service providing income. Since business tax does not provide credit for

input tax and is imposed repeatedly for each transaction, it is accused of a cascading taxation and of bringing overburden to service industries. To create a level playing field for all economic sectors, and especially to promote the development of a modern service industry, the reform of combining VAT and business tax has been initiated.

Most sub-Saharan countries face a dilemma with respect to taxation: There is an urgent and obvious need for more revenues to enable resource poor states to provide and maintain even the most basic public services.; The reality is, however, that those with political power and economic ability are few and do not want to pay tax; Moreover, those without political power are many, have almost nothing to tax, and do also resist paying taxes. Nowadays, many countries in the world have made VAT part of their tax system, where Rwanda's standard VAT rate is 18%, Nigeria and Algeria have the minimum and maximum standard VAT rate in Africa with 5% and 21% respectively.

Objectives

The general objective of the study was to establish the effect of value added tax Reforms on Revenue Performance in Rwanda.

The paper was guided by the following specific objectives:

- a. To examine the different VAT reforms at Rwanda revenue authority.
- b. To assess the level of revenue performance at Rwanda revenue authority.
- c. To establish a relationship between VAT reforms and revenue performance at Rwanda revenue authority.

Literature Review

Muriithi and Moyi carried out a study to analyze the productivity of Kenya's tax structure in the context of the tax reforms. The findings suggest that tax reforms had a positive impact on the overall tax structure and on the individual tax handles, even though the impact of the reforms was not always uniform. The reforms had a bigger impact on direct taxes than on indirect taxes, suggesting that revenue leakage is still a major problem for indirect taxes. The better responsiveness of direct taxes can be attributed to the relative effectiveness of the reforms in direct taxes, which not only made the tax system simpler but also reduced avenues for evasion and corruption. Such reforms include the introduction of PIN, lower rates, reduction of exemptions and a shift away from multiple rates across many categories.

Adam and Johnson in a study in the UK that focuses on reforms that could increase national income in the medium term, not on possible short-term stimulus to promote economic recovery. Emphasis that economic growth (i.e. increases in national income) and increases in welfare are not synonymous. There are many welfare-enhancing reforms to the tax system which should be pursued even if they don't promote growth. And there are growth-promoting but welfare-reducing reforms which should not be pursued. In general, a tax system that is significantly more neutral than the current one would do less to distort economic activity, would involve lower administration and compliance costs, and would increase both national income and welfare. The scope for reform in this direction is substantial.

There exists some anecdotal evidence about the implementation of tax reforms to enhance tax compliance,

especially in African countries. Generally, tax reform deals with welfare improvement by making marginal changes in tax design and structure in fact there has been a growing concern over mobility of capital across international frontiers, Europe countries. For example, Scandinavian countries such as Norway have operated a dual tax system in which all personal and corporate income is taxed at 28% OECD [5]. Taxpayers who are mistakenly accused to cheat on their taxes may perceive the intervention by the tax office to be controlling. Therefore, their tax morale decreases or even erases. Similarly, increasing monitoring and penalties for noncompliance, individuals notice that extrinsic motivation has increased, which on the other hand crowds out intrinsic motivation to comply with taxes.

Onoja and Iwarere carried out a study to investigate the impact of tax reforms that have been undertaken in Income tax, Excise duty, import duty and sales/Value added tax on revenue productivity. The study sort to specifically estimate the effect of tax reforms on buoyancy of Income tax and Value added tax, as well as estimating the effect of the reforms on elasticity of the tax system. Published secondary data was used to analyze the relationship between tax reforms and revenue productivity and before, after piecemeal/policy and during the comprehensive reform buoyancy and elasticity were estimated using regression analysis. The regression result showed that total tax in Kenya was inelastic during the three periods, but it was buoyant during the pre-reform and piecemeal reform periods.

Previously literature have shown that tax system that seeks to facilitate growth need to reduce cost of operation in formal sectors while increasing cost of operating in informal sector Bird [6] recognize the value of having an effective revenue collection strategy. It is important to note putting in place effective revenue collection measures plays a critical role in enhancing tax and revenue collection. Accordingly accounting for revenue loss has been of great concern among tax authorities. One critical pre-requisite for sustainable market economy is perhaps adequate financial resources therefore, in addition to supplementing local resources through establishing central-local revenue transfers many governments around the world are searching for ways to mobilize and improve revenue sources, indeed in enhancing its revenue collection government adopt various strategies.

OECD [5] carried out a study in North East Brazil and outlined the challenge for the design of any tax system is the challenge provided by the trade-off between equity, efficiency and growth. While taxation is necessary to finance public goods and redistribute income, the process through which a government collects tax can entail substantial costs in terms of efficiency, challenges to increasing the tax base, particularly in low income countries. First, structural factors often limit the number of taxpayers and the tax base. These include: a large share of (subsistence) agriculture in total output and employment; large informal sector and occupations; many small establishments; small share of wages in total national income; and small share of total consumer spending made in large, modern establishments. Thus a main challenge of policy-makers is to achieve a pro-poor widening of the tax and the number of taxpayers. How tax is raised matters, as well as how much. The challenge is to tax a larger number of citizens and enterprises more consensually. This is not an easy task. The dominant approach to improving tax collection has been to focus on enhancing administrative capacity.

Methodology

Qualitative and quantitative approach was used. In quantitative approach the researcher employed data in form of numbers collected from employees in RRA. Qualitative is used through interviews in order to establish the effect of Value added tax Reforms on Revenue Performance in Rwanda. The target population is 2791 small taxpayers and 109 medium active taxpayers registered on VAT tax under the domestic taxes department Kicukiro block, and the 6 staff from RRA Kicukiro block. Hence the total target population is 2906 respondents.

Table 1: Sample size determination.

Category	Number	%	Sample size(n)
Small taxpayers	2791	96.0	338
Medium taxpayers	109	3.8	13
RRA Kicukiro block staff	6	0.2	1
Total	2906	100	352

Source: Primary data, 2020

Data collection instruments

Primary data was collected through scheduled interviews with the identified managers. The researcher also employs the use of email questionnaires to fit into the need for convenience for the busy managers. A structured questionnaire with both closed ended and open-ended questions is used to use to guide the interview. Secondary data was obtained from a desk top analysis that reviewed published reports, newspapers, financial journals industry regulatory laws and investor briefing reports. The study collected secondary data on revenues generated by online filing, use of EBM and VAT refund for the period 2015 to 2019.

Results and Discussion

This chapter presents data analysis as obtained from the field survey. Presentations are given in terms of tables of means and standard deviations in case of descriptive statistics. Inferential statistics was carried out with Statistical Package for Social Science (SPSS) Version 21. Thereafter a brief description of the findings and discussion of findings per objective will follow.

i. Data presentation

The study administered 352 questionnaires to the targeted respondents. The response rate of the respondents is expressed and as indicated, the number was sufficient enough to support requisite analysis of data and could be relied upon to make accurate findings and conclusions. According to Mugenda & Mugenda [7], a response rate of above 70% is acceptable in research. Babbie asserted that return rates of 50% are acceptable to analyze and publish, 60% is good while Fowler stated that 70% is very good. Hence the 100% response rate is deemed the best response.

ii. VAT reforms on the use of EBM

The analysis concerned the VAT payment, running regression analysis to see patterns of adoption and the impact of EBMs on receipts to the revenue authority. This was complemented with a small-scale 'mystery shopper' study, where the behavior of firms with active EBMs was observed to capture compliance, price effects, and reasons for non-compliance.

Among the contacted respondents, 26.7% of respondents agreed that EBM helped a lot in VAT collection, 40.5% of respondents strongly agreed because of promises of employment

Table 2: The use of EBM.

Use of EBM	1	2	3	4	5	M	Std. Dev
EBM helped a lot in VAT collection.	26.7%	40.5%	16.4%	4.1%	12.3%	2.35	1.26
The use of EBM helped in clearing	23.6%	50.3%	21.5%	1.5%	3.1%	2.10	0.89
Before use of EBM it was very difficult to collect revenue.	29.7%	45.6%	12.3%	6.7%	5.6%	2.13	1.08
VAT clearance was difficult to comply before the introduction of EBM	43.1%	48.2%	0.5%	4.6%	3.6%	1.77	0.95

Source: Primary data, 2020

and good education; 16.4% disagreed with the statement that EBM helped a lot in VAT collection, 4.1% strongly disagreed that youth in Rwanda are mostly lured into trafficking by promises of good education and employment, 12.3% remained indifferent; and the standard deviation at 2.35 to show the heterogeneity of responses. Evidence from Brazil suggests that such a consumer audit can significantly increase receipt issuing, and that this initiative increased VAT yields by around 22% over four years. However, provision of such incentives can be expensive, and their functionality will depend strongly on the appropriate policy design. In addition, among the contacted respondents, 23.6% of respondents agreed that The use of EBM helped in clearing, 50.3% of respondents strongly agreed that the use of EBM helped in clearing, 21.5% disagreed that the use of EBM helped in clearing, 1.5% strongly disagreed that the use of EBM helped in clearing, 3.1% remained indifferent; and the standard deviation at 2.10 to show the heterogeneity of responses.

Among the contacted respondents, 29.7% of respondents agreed that before use of EBM it was very difficult to collect revenue, 45.6% of respondents strongly agreed with the statement that before use of EBM it was very difficult to collect revenue. 12.3% disagreed that the majority with the statement that before use of EBM it was very difficult to collect revenue. 6.7% strongly disagreed that before use of EBM it was very difficult to collect revenue 5.6% remained indifferent. The standard deviation was at 2.13 to show the heterogeneity of responses.

Lastly, among the contacted respondents, 43.1% of respondents agreed that VAT clearance was difficult to comply before the introduction of EBM. 48.2% of respondents strongly agreed that VAT clearance was difficult to comply before the introduction of EBM. 0.5% disagreed that VAT clearance was difficult to comply before the introduction of EBM. 4.6% strongly disagreed with therefore mentioned statement. 3.6% were indifferent. The standard deviation was at 1.77 to show the heterogeneity of responses. These results are in harmony with those of Nada [8] regarding the incidence and impact of EBM for VAT in Rwanda; they concluded that the adoption of an EBM has a statistically and economically significant impact on VAT payments, raising these by an average of 6.5%. The study finds that adoption has spread quickly and reached 77.8% of tax-paying firms but was slowing. The average impact of EBM on firms' VAT payments was estimated at 5.4%. Estimated impacts vary substantially by sector and size. The mystery shopper study found that - at least for low-cost goods in Kigali retail stores - EBM utilization is low, but utilization increased substantially when consumers requested a receipt – and with utilization revenues increased. Taken together, the findings suggest that future strategies could appropriately

be focused on concentrating the expansion of EBM coverage on specific sectors where both adoption rates are low and potential impacts are highest, while building on existing policies to strengthen firms' incentives to report transactions through EBMs.

iii. The use of EBM versus Revenue Performance

The study was conducted to empirically determine whether use of EBM was a significant determinant of Revenue Performance in Rwanda. From the findings, it could then be concluded that there is a moderate positive linear relationship between the two variables since the correlation coefficient is between 0.4 and 0.6 according to Dancy and Reidy's categorization.

Table 3: The use of EBM versus Revenue Performance.

		Use of EBM	Revenue Performance
Use of EBM	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	352	
Revenue Performance	Pearson Correlation	0.518**	1
	Sig. (2-tailed)	0.000	
	N	0352	352
**Correlation is significant at the 0.01 level (2-tailed).			

The results indicate that Use of EBM is significantly correlated to the Revenue Performance in Rwanda ($r=0.518$, $p<0.01$). There is a Strong positive relationship between Use of EBM and Revenue Performance in Rwanda as indicated by correlation of 0.518. This shows that the sampled data can be applied to the general population across RRA at 95% confidence level. Use of EBM was a significant determinant of Revenue Performance in Rwanda. Regression results in Table 8 indicate the goodness of fit

Table 4: Model summary.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.442 ^a	0.301	0.312	0.65724
a. Predictors: (Constant), Use of EBM				
Source: Primary data, 2020				

for the regression between use of EBM and Revenue Performance in Rwanda was satisfactory in the linear regression. An R squared of 0.312 indicates that 31.2% of the variances use of EBM and Revenue Performance in RRA are explained by the variances in use of EBM in the linear model. The correlation coefficient of 51.8% indicates that the combined effect of the predictor variables has a positive correlation with Revenue Performance in Rwanda.

Result review that use of EBM is statistically significant in explaining Revenue Performance in Rwanda Revenue authority. An F statistic of 5.020 indicated that the combined model was significant. From the analysis, a p-value less than 0.05 (p-value =0.0000) was obtained. This implies that the simple linear model with use of EBM as the only independent variable is significant.

Table 5: The effect of use of EBM on Revenue Performance.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	12.14	1	12.14	5.020	0.000 ^a
	Residual	28.684	49	0.476		
	Total	40.824	50			
b. Dependent Variable: Revenue Performance						
c. Predictors: (Constant), use of EBM						
Source: Primary data, 2020						

The results show that use of EBM (X_1) is significant (p-value = 0.0000) in influencing Revenue Performance (Y). The results of the analysis are shown in Table 4.8 and the fitted model from this analysis is shown below:

$$Y = 2.487 + 0.342X_1$$

Table 6: The relationship between the use of EBM and Revenue Performance.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.487	0.270		7.169	0.000
	Use of EBM	0.342	0.062	0.444	2.241	0.000
a. Dependent variable: Revenue Performance						

iv. Administrative fines

The aggregate data relating to VAT revenue collected from employing techniques such as audits, imposing penalties and instituting legal sanctions for fraudulent taxpayers was regressed against VAT revenue collections as a measure of the GDP. There is a strong significant relationship between the predictor variables (Audit rate penalties, criminal sanctions, contribution of imports to VAT).

Table 7: The administrative fines.

Administrative fines	1	2	3	4	5	M	Std. Dev
Because of administrative fine the VAT is paid on time	28.7%	41.5%	25.6%	3.6%	0.5%	2.06	0.86
Electronic bill is issued to customers because of fear of administrative fine	49.2%	44.1%	4.1%	2.1%	0.5%	1.61	0.71
The account books are kept up to date because of fear of administrative fine.	55.9%	34.4%	6.2%	3.6%	0.0%	1.61	0.89
Administrative fine is so high that nobody can't mess with VAT no-compliance.	48.7%	43.1%	2.1%	5.1%	1.0%	1.67	0.84

The 28.7% of respondents agreed that because of administrative fine the VAT is paid on time, 41.5% of respondents strongly agreed that because of administrative fine the VAT is paid on time. 25.6% disagreed that because of administrative fine the VAT is paid on time. 3.6% strongly disagreed that because of administrative fine the VAT is paid on time. 0.5% were indifferent. The standard deviation was at 2.06 to show the heterogeneity of responses. These findings are consistent with Keen & Mansour [9] research that looked at the current challenges in revenue mobilization; Improving tax compliance. The research found a close relationship between audits as an enforcement strategy for tax compliance. The 49.2% of respondents agreed that electronic bill is issued to customers because of fear of administrative fine, 44.1% of respondents strongly agreed that electronic bill is issued to customers because of fear of administrative fine. 4.1% disagreed that electronic bill is issued to customers because of fear of administrative fine, 2.1% strongly disagreed electronic bill is issued to customers because of fear of administrative fine. 1.0% were indifferent. The standard deviation was at 1.61 to show the heterogeneity of responses.

The 55.9% of respondents agreed that account books are kept up to date because of fear of administrative fine, 34.4% of respondents strongly agreed that account books are kept up to date because of fear of administrative fine, 6.2% disagreed that account books are kept up to date because of fear of administrative fine, 3.6% strongly disagreed that account books are kept up to date because of fear of administrative fine, 0.0% were indifferent. The standard deviation was at 1.61 to show the heterogeneity of responses. The 48.7% of respondents agreed that Administrative fine is so high that nobody can't mess with VAT no-compliance, 43.1% of respondents strongly agreed that Administrative fine is so high that nobody can't mess with VAT no-compliance. 2.1% disagreed that Administrative fine is so high that nobody can't mess with VAT no-compliance. 5.1% strongly disagreed that Administrative fine is so high that nobody can't mess with VAT no-compliance. 1.0% were indifferent. The standard deviation was at 1.67 to show the heterogeneity of responses. These results are somehow in line with those of Kirchler who found that deterrence is effective when there is a combination of effective imposition of fines and frequent audits to detect cases of non-compliance and to conclude that penalties and audit probabilities have a strong impact on tax compliance.

Table 8: The analysis of administrative fines on the revenue performance.

		Administrative fines	Revenue Performance
Administrative fines	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	352	
Revenue Performance	Pearson Correlation	0.681**	1
	Sig. (2-tailed)	.000	
	N	352	352
**Correlation is significant at the 0.01 level (2-tailed).			
Source: Primary data, 2020			

The results show that the Administrative fines is significantly correlated to the Revenue Performance in Rwanda ($r=0.681$, $p<0.01$). There is a Strong positive relationship between Administrative fines and Revenue Performance in Rwanda as indicated by correlation of 0.681. This shows that the sampled data can be applied to the general population across RRA at 95% confidence level. Compared to prior studies the result is not unexpected. Prior studies have set forth conflicting relationships between penalties and VAT revenue. The study of Eissa & Jack [10] also found no significant variations in the various tax compliance measures on VAT revenue for large and small firms in Kenya. Administrative fine was a significant determinant of Revenue Performance in Rwanda. Regression results indicate the goodness of fit for the regression between Administrative fines and Revenue Performance in Rwanda was satisfactory. An R squared of 0.282 indicates that 28.2% of the variance's Administrative fines and Revenue Performance in RRA are explained by the variances in Administrative fines in the linear model. The correlation coefficient of 68.1% indicates that the combined effect of the predictor variables has a positive correlation with Revenue Performance in Rwanda.

Table 9: Model summary.

Model R	R Square	Adjusted R Square	Std. Error of the Estimate
0.209 ^a	0.0298	0.282	0.65724
a. Predictors: (Constant), Administrative fines			
Source: Primary data, 2020			

Results review that Administrative fines is statistically significant in explaining Revenue Performance in Rwanda Revenue Authority. An F statistic of 4.17 indicated that the combined model was significant. From the analysis, a p-value less than 0.05 (p-value =0.0000) was obtained. This implies that the simple linear model with Administrative fines as the only independent variable is significant.

Table 10: Administrative fines on Revenue Performance.

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	12.14	1	12.14	4.17	0.0000 ^a
Residual	28.684	49	0.476		
Total	40.824	50			
b. Dependent Variable: Revenue Performance					
c. Predictors: (Constant), Administrative fines					
Source: Primary data, 2020					

The results show that Administrative fines (X_2) is significant (p-value = 0.0000) in influencing Revenue Performance (Y). The results of the analysis are shown in Table 19 and the fitted model from this analysis is shown below:

$$Y = 0.755 + 0.331X_2$$

v. Taxpayers Training

In this section, the study sought to determine the extent in which the respondents agree with aspects on taxpayers training on revenue performance. The findings are presented below.

Table 11: Taxpayers training.

Taxpayers training	1	2	3	4	5	M	Std. Dev
All taxpayers are trained in VAT filing	37.90%	52.80%	4.10%	5.10%	0.00%	1.76	0.76
The training in the use of EBM has been dispensed to all VAT taxpayers who have it.	30.80%	44.60%	5.10%	7.20%	12.30%	2.26	1.3
All VAT taxpayers are familiar with the VAT clearing.	24.10%	63.10%	9.20%	3.60%	0.00%	1.92	0.69
VAT taxpayers has been trained in the role of paying tax and the fine that incurs in case of no-compliance	40.50%	36.40%	16.90%	1.50%	4.60%	1.93	1.03

Source: Primary data, 2020

The results indicated that among the contacted respondents, 37.9% of respondents agreed with the statement that All taxpayers are trained in VAT filing, 52.8% of respondents strongly agreed with therefore mentioned statement. 4.1% disagreed with the statement, 5.1% strongly disagreed while none was indifferent. The standard deviation was at 0.76 to show the heterogeneity of responses. In addition, 30.8% of respondents agreed that the training in the use of EBM has been dispensed to all VAT taxpayers who have it, 44.6% of respondents strongly agreed to the afore mentioned statement while 5.1% disagreed with the statement as 12.3 strongly disagreed with the statement and 2.26% were indifferent. The standard deviation was at 1.30 to show the heterogeneity of responses. Furthermore, among the contacted respondents, 24.1% of respondents agreed that All VAT taxpayers are familiar with the VAT clearing, 63.1% of respondents strongly agreed that those who fall victims of human trafficking are peasants while 9.2% disagreed with the afore mentioned statement, 3.6% strongly disagreed with the statement while none were indifferent. The standard deviation was at 0.69 to show the heterogeneity of responses.

The contacted respondents, 40.5% of respondents agreed that VAT taxpayers has been trained in the role of paying tax and the fine that incurs in case of no-compliance, 36.4% of respondents strongly agreed with the statement while 16.9% disagreed with the statement, 1.5% strongly disagreed with the statement, 4.6% were indifferent and the standard deviation was at 1.03 to show the heterogeneity of responses. The same Table 4.42 showed that 36.4% of respondents strongly agreed, 40.5% of respondents agreed; the mean was very high at 1.93 and confirmed the strong evidence of the fact; the standard deviation at 1.03 to show the heterogeneity of responses.

According to Fjeldstad and Ranker, taxpayer education exists to encourage voluntary compliance through service delivery to taxpayers. Low levels of voluntary tax compliance will compel revenue authority to use costly and coercive methods to enforce compliance. These findings have similarity with those of Singh who viewed tax knowledge as one of the key factors in tax compliance hence has a very close relationship with the taxpayers' ability to understand the tax law & regulations, and their ability to comply.

Taxpayers Training versus Revenue Performance

The analysis was conducted to empirically determine whether Taxpayers training was a significant determinant of Revenue Performance in Rwanda.

Table 12: Taxpayers training versus revenue performance.

		Taxpayers training	Revenue Performance
Taxpayers training	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	352	
Revenue Performance	Pearson Correlation	0.656**	1
	Sig. (2-tailed)	0.000	
	N	352	352

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

Source: Primary data, 2020

The findings indicate that Taxpayers training is significantly correlated to the Revenue Performance in Rwanda ($r=0.656$, $p<0.01$). There is a Strong positive relationship between Taxpayers training and Revenue Performance in Rwanda as indicated by correlation of 0.656. This shows that the sampled data can be applied to the general population across RRA at 95% confidence level. Taxpayers training were a significant determinant of Revenue Performance in Rwanda. Regression results in Table 18 indicate the goodness of fit for the regression between Taxpayers training and Revenue Performance in Rwanda was satisfactory in the linear regression. An R squared of 0.285 indicates that 28.5% of the variances Taxpayers training and Revenue Performance in RRA are explained by the variances in Taxpayers training in the linear model. The correlation coefficient of 65.6% indicates that the combined effect of the predictor variables has a positive correlation with Revenue Performance in Rwanda.

Table 13: Model summary on Taxpayers training versus revenue performance.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.321 ^a	0.294	0.285	0.65724
a. Predictors: (Constant), Taxpayers training				

Source: Primary data, 2020

Table 14: Taxpayers training versus revenue performance.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Use of EBM	195	3	5	4.4148	0.55919
Administrative fines	195	3	5	4.3352	0.66428
Taxpayers training	195	3	5	4.4432	0.62988
VAT collection performance	195	2	5	4.3807	0.66545
Valid N (listwise)	195				

Source: Primary data, 2020

Result review that Taxpayers training is statistically significant in explaining Revenue Performance in Rwanda Revenue authority. An F statistic of 4.854 indicated that the combined model was significant. From the analysis, a p-value less than 0.05 (p-value =0.0000) was obtained. This implies that the simple linear model with Taxpayers training as the only independent variable is significant.

The mean for those three variables varies from 4.33 to 4.44 which means that many of the respondents agreed and strongly agreed with the statement regarding each variable. For the variable VAT collection performance, the min was 2 and the max was 5; this implies that among respondents some disagreed with the statement and some were undecided. The mean in this case was 4.38 which show that a great number agreed and strongly agreed with the statement regarding project sustainability. The standard deviation varies from 0.56 to 0.66. This means that there was a certain low degree of heterogeneity in the answers of respondent.

Revenue performance

Since the introduction of EBM, the revenue from VAT has been increased, the payment of VAT has been facilitated by using EBM, since the introduction of high administrative fine, the revenue increased and the knowledge of taxpayers contributed in increasing revenue.

Table 5.7: Overall domestic taxes department collection in RRA.

Scale desc	Cal Year	Total paid
LARGE	2014	69,403,455,709
	2015	89,450,893,038
	2016	129,179,151,727
	2017	154,558,760,018
	2018	162,562,888,108
	2019	202,919,980,686
Large Total		808,075,129,286
MEDIUM	2014	11,278,439,034
	2015	14,263,721,983
	2016	20,010,791,902
	2017	19,906,124,065
	2018	23,667,265,619
2019	28,069,784,074	
Medium Total		117,196,126,677
MICRO	2018	360,000
	2019	1,400,046
Micro Total		1,760,046
SMALL	2014	33,332,516,942
	2015	45,465,370,027
	2016	56,349,493,924
	2017	44,472,735,487
	2018	49,137,667,078
2019	60,066,617,040	
Small Total		288,824,400,498
Total	2014	
	2015	42,372
	2016	1,111,541
	2017	110,926
	2018	160,327
	2019	308,925
Total		1,734,091

Source: Secondary data, 2020

The study relates to a study done by Asirigwa where she looked at determinants of revenue and analyzed that increase in rate of tax does not lead to increase in revenue as consumers don't react according to how the economy wants them to but according to their purchasing power this relates to the study as VAT refunds though are seen as an improvement to collecting more revenue ends up causing a decline in revenue as money is going out and its main aim is maintain the confidence of the taxpayer in respect to transparency.

Table 23: Rwanda Revenue Authority performance Kicukiro block.

Scale desc	Cal Year	# of Cumulative Active VAT Registrations	Total paid
MEDIUM	2014	92	2,559,968,318
	2015	101	1,962,225,257
	2016	109	2,536,725,174
	2017	109	2,636,726,443
	2018	108	2,885,981,129
2019	109	3,254,376,300	
Medium Total			15,836,002,621
SMALL	2014	1,144	3,187,702,721
	2015	1,351	4,238,363,097
	2016	1,676	7,238,529,076
	2017	1,739	3,487,253,966
	2018	2,195	3,942,665,556
2019	2,791	5,019,983,554	
Small Total			27,114,497,970

Source: Secondary data, 2020

Tax knowledge has been identified as the main determinant of tax compliance. Previous research found that the tax knowledge is positively correlated with taxpayers' ability to understand that tax laws and other financial regulations hence their ability to comply with them. On the hand, Ericson, and Fallan found that knowledge of tax is correlated with taxpayers' attitude and perception and positive tax behaviour can be improved by better understanding of the tax laws. To further investigate the impact of tax knowledge on taxpayer compliance in the context of Rwandan taxpayers, the respondents were asked to respond to the question of whether taxpayers have enough tax knowledge about their tax obligations and entitlements towards VAT reforms. According to the USAID the principles and tax codes must clearly cite and describe the basic provisions of taxation to provide the basic legal authority to the tax administration to collect taxes. The operating business must comply with the legal requirement and register for tax purposes in 7 days from the beginning of the business or activity or the establishment of the company according to article 10 of law n° 16/2005 [11]. From the study in both small enterprises and medium enterprises have been increasing due to VAT tax reforms [12-30].

The ANOVA results for regression coefficient indicate that the significance of the F is 0.00 which is less than 0.05. This implies that there is a positive significant relationship between VAT reforms versus revenue performance and that the model is a good fit for the data. Therefore, the Alternative Hypothesis

Table 15: Model Summary.

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	0.575 ^a	3	0.192	11.388	0.000 ^b
Residual	1.379	51	0.017		
Total	1.953	54			
a. Dependent Variable: Revenue Performance					
b. Predictors: (Constant), use of EBM, Administrative fines, Taxpayers training					

H1 is accepted and the null Hypothesis (H01) is rejected and a conclusion reached that, at 5% level of significance, VAT reforms significantly influence the revenue performance [31-40].

Table 16: Coefficient results.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.005	0.239		0.023	0.982
Use of EBM	0.576	0.091	0.484	6.325	0
Administrative fines	0.289	0.065	0.288	4.431	0
Taxpayers training	0.13	0.07	0.123	1.866	0.044
a. Dependent Variable: Revenue performance					
Source: Primary data, 2020					

The Table 26 shows the beta coefficients of the model. It helps to appreciate how much every independent variable contributes to the prediction of the dependent variable. One should notice that $0.05 > p(t)$ for all variables which means that every independent variable counts in this model [41-49].

From the table above the regression equation may be written as follow:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

$$Y = 0.005 + 0.576X_1 + 0.289X_2 + 0.130X_3 + 0.386$$

The regression model demonstrates that a unit increase in use of EBM increases VAT collection performance by 0.576 units, while other variables remain constant. One unit increase in administrative fines would increase the VAT collection performance by 0.289 units if other variables remain constant. Finally, a unit change in taxpayers training would increase VAT collection performance by 0.130 units, while other variables stay constant.

Conclusion

Based on the information drawn from findings the researcher concluded that the effect of use of EBM on VAT collection performance is significant. It was found out that the VAT collection could not succeed at a significant level without use of EBM and that the increase of one unit in use of EBM increases the performance of VAT collection by .576 units if other variables remain constant. This study demonstrated that there is a strong relationship between administrative fine and VAT collection performance. The study found out that administrative fines have a great effect on VAT collection performance in Rwanda. It showed that the increase of one unit in administrative fine would increase the VAT collection performance by .289 units if other variables remain constant. Moreover, it showed that this variable is a very important factor in VAT collection, the correlation

between the two variables was strong with $r=0.718$. As per the third objective this study demonstrated that there is moderate relationship between taxpayers training and VAT collection performance. Statistically, the increase of one unit in taxpayers training increases the VAT collection performance by .130 units if other variables stay constant. The indispensable role of taxpayers training in VAT collection performance has been proved by its p-value (0.44) which showed that it can't be ignored in the model without affecting deeply the accuracy of the prediction by the model.

Recommendations

At the end of this study some recommendations should be given to whom it may concern especially to researchers and decision makers.

- VAT collection agency and decision makers should take into consideration the importance use of EBM in revenue collection by increasing the number of taxpayers registered in VAT and consequently increasing the number of taxpayers using EBM.
- Administrative fines revealed to be an important factor in VAT collection, thus the agency in charge of VAT collection should emphasize on audit to prevent tax fraud and to penalize those who have not goodwill to pay VAT.
- Taxpayers must be trained regarding paying taxes especially VAT and the use of EBM.
- RRA must inform taxpayers regarding the fines incurred in any case of no-compliance in VAT declaration or/and payment.

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