

1 Effect of Tax Audit on Revenue Collection in Rwanda

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4 *Received: 9 December 2017 Accepted: 1 January 2018 Published: 15 January 2018*

5

6 **Abstract**

7 The purpose of this study was to determine the effects of tax audit on revenue collection in
8 Rwanda. The study is limited to the 110 respondent of Headquarter of the Rwanda Revenue
9 Authority (RRA) in Kigali. The study adopted a descriptive approach. Both Primary and
10 secondary data was used and then analyzed through SPSS version 21. Data analysis involved
11 statistical computations for averages, percentages, and correlation and regression analysis.
12 Ordinary least squares (OLS) regression method of analysis was adopted to determine the
13 inferential statistics. From the findings, tax administration, tax revenue performance, revenue
14 protection system, tax automation to a constant zero, revenue collection would be at 0.347. A
15 unit increase on Tax administration would lead to increase in revenue collection by a factor of
16 0.162, a unit increase in tax revenue performance would lead to increase in revenue collection
17 by a factor of 0.282, a unit increase in revenue protection system would lead to increase in
18 revenue collection by a factor of 0.194 and unit increase in tax automation would lead to
19 increase in revenue collection by a factor of 0.211. Therefore Tax audit actually has an effect to
20 revenue collection as according to the t ? tests there is significance in the correlation between
21 tax collected before the audit and after the audit. This clearly indicates that tax audit
22 increases revenue collection. That in essence means that the more the tax audit conducted the
23 more revenue is collected. There is a need for a study on how the size of a company influences
24 the auditing as there is variation for various organizations based on the size.

25

26 **Index terms**— tax administration, tax audit, revenue collection, revenue performance

27 **1 Introduction**

28 for most developing countries, taxation goes hand in hand with economic growth and taxes are lifeblood for
29 governments to deliver essential services and to make long-term investments in public goods (OECD, 2010; Paepe
30 & Dickinson, 2014). Some of the countries in Latin America region that are on a fiscally sustainable path, revenues
31 appear inadequate to fund a socially sustainable level of provision of public services (Ter-Minassian, 2012). The
32 United Nations considers that achieving the Millennium Development Goals (MDGs) requires developing countries
33 to raise at least 20% of their gross domestic product (GDP) in taxes. Several Asian and Latin American countries
34 and some of sub-Saharan African countries still mobilize less than 17% of their GDP in tax revenues hence making
35 it difficult to finance public projects. (Paepe & Dickinson, 2014) Very low tax to gross domestic product (GDP)
36 ratio is a common characteristic of most of the developing countries (Ter-Minassian, 2012). For example, over the
37 past few years, lower than projected tax revenue has forced the government of Tanzania to cut its ambitious plans
38 which reduced its capacity to finance public projects. Similarly, Despite the fast economic growth of Uganda, its
39 tax to GDP ratio is still low (11% in 1997 to 13% now) (Mwenda M., 2015); and even Kenya the leading country
40 in East-Africa, the tax to GDP ratio is still lower than the East African region ratio target of about 25% (African
41 Economic Outlook, 2015).

42 Kircher ??2008) stated that tax audit is the examination of an individual or organization's tax report by
43 the relevant tax authorities in order to ascertain compliance with applicable tax laws and regulations of state.

1 INTRODUCTION

44 He further reported that tax audit is a process where the internal revenue service tries to confirm the numbers
45 that you have put on your tax return. Ola ??2001) stated that the process of tax audit involves tax returns
46 that are selected for audit using some selection criteria. Thereafter, the underlying books and records of the
47 taxpayers are examined critically to relate them to the tax return filed. Tax audit is important because it assist
48 the government in collecting appropriate tax revenue necessary for budget, maintaining economic and financial
49 order and stability, to ensure that satisfactory returns are submitted by the tax payers, to organize the degree of
50 tax avoidance and tax evasion, to ensure strict compliance with tax laws by tax payers, to improve the degree of
51 voluntary compliance by tax payers and to ensure that the amount due is collected and remitted to government.

52 Government revenue includes all amounts of money (i.e. taxes and/or fees) received from sources outside the
53 government entity. Large governments usually have an agency or department responsible for collecting government
54 revenue from companies and individuals. Government revenue may also include reserve bank currency which is
55 printed. This is recorded as an advance to the retail bank together with a corresponding currency in circulation
56 expense entry, that is, the income derived from the Official Cash rate payable by the retail banks for instruments
57 such as 90 day bills. There is a question as to whether using generic business-based accounting standards can
58 give a fair and accurate picture of government accounts, in that with a monetary policy statement to the reserve
59 bank directing a positive inflation rate, the expense provision for the return of currency to the reserve bank is
60 largely symbolic, such that to totally cancel the currency in circulation provision, all currency would have to be
61 returned to the reserve bank and cancelled, ??Bingham et al, 2008).

62 Tax audit affects revenue collection in that it promotes voluntary compliance of taxpayers which increases
63 revenue. It also determines the accuracy of returns so as to ensure the right taxes are submitted. With tax audit
64 tax liability can be easily declared and matters that need adjustment are identified. It also helps in collecting
65 tax interests and penalties which thereby increase revenue collection. Tax audit also helps to implement changes
66 to eradicate evasion. Thus, tax audit is positively related to Revenue collection.

67 In the same region, according to African Economic Outlook (2015), Tax to GDP ratio for Rwanda was 13.9%
68 (2013) and 14.8% (2014) which was lower than the 14.9% and 15.4% target respectively. This is still lower than
69 Sub Saharan Africa (SSA) average of about 20% (The Government of Uganda, 2012) and the East African region
70 target of about 25% (2014). In comparison with other East African Countries like Kenya which has a Tax to
71 GDP ratio of about 20.1% (2014) and Tanzania 18.6% (2014), the Tax to GDP ratio for Rwanda is still low.

72 The low tax to GDP ratio for Rwanda shows that a lot of tax remains uncollected, despite the fact that the
73 government has put in place a number of interventions to increase the ratio and reduce the aid dependency. These
74 measures include Taxpayer education in form of dialogues with stakeholders, seminars, and others to mobilize
75 tax, to reduce tax evasion and to increase tax compliance; and also online facilities like e-filing and epayment,
76 e-clearance, e-billing machine and online registration were farther introduced to simplify the process of paying
77 taxes, reduce costs, reduce time taken by taxpayers for declaration and payment of tax, and to increase domestic
78 revenue (Kagarama Bahizi, 2013).Developing countries across the world typically suffer from insufficient supply of
79 internal resources. Despite much effort, many countries fail to raise sufficient revenues to finance the government
80 budgets and to support the development needs of the country. This incapability is a major hindrance for the
81 government's regular operations and for the capacity to accelerate economic growth initiatives ??Haque, 2012;
82 ??adler, 2000).

83 According to the report by Rwanda Auditor general's (2015), the failure to collect all potential revenue, could
84 be linked to Tax Administration system characterized by lack of proper tracking of registered taxpayers for
85 domestic taxes and gaps in existing databases of taxpayers; failure to register some taxpayers and yet RRA was
86 aware of their existence; failure to verify majority of declarations and to follow up taxpayers who had not filed
87 their returns or remained inactive since the time of their tax registration; capacity challenges in tax audits leading
88 to low tax audit coverage and many contested audit results which resulted in reduction in amounts of tax assessed
89 in 145 cases by RRA appeals committee (43% of all contested cases); and weak revenue protection system which
90 is highly dependent on informers instead of generating and reviewing exceptional reports from existing systems
91 to provide more preventive revenue protection strategies.

92 Low tax to GDP has been linked to poorly administered tax system characterized by low tax audits,
93 complicated tax system and thereby discouraging compliance and contributes to difficulties in raising tax revenues
94 in Latin American region (Aggrey, 2011;Ter-Minassian, 2012). In Nigeria and Zimbabwe, the research findings
95 show that those working in informal sector do not find the need of paying tax whereas it is the largest and growing
96 component in economy and this leads to the revenue loss (Dube, 2014; Abiola & Asiweh, 2012). Could the tax
97 revenue performance in Rwanda be due to the above stated inadequacy in other countries? This research will
98 be relevant since it will seek to establish the relationship between Tax audit and Revenue collection in Rwanda
99 Revenue Authority.

100 Taxes are the main revenue for the government and thus the department or agent concerned should ensure they
101 are collected the right way. While the principal source of a government's revenue should be taxation, in Rwanda
102 this is often not the case. The country relies on foreign sources of finance namely foreign loans and aid due to its
103 poor tax administration capacity and collection ability. Weaknesses in revenue administration lead to inadequate
104 tax collections. Financing of the resulting budget deficit through borrowing or monetary expansion can cause an
105 unsustainable increase in public debt and inflation, respectively. In the alternative, revenue shortfalls shrink the
106 budgetary resource envelope, thus, affecting the government's ability to implement its policies and programs and

107 provide public services. Unexpected decline in revenue collections also cause budget cuts that result in major
108 inefficiencies in the public expenditure management.

109 The Government of Rwanda continued to carry out tax reforms over the years with an aim of improving
110 taxation efficiency and increasing the amount of revenue raised to finance the government expenditure. In year
111 2000, The Rwanda Revenue Authority (RRA) embarked on the decentralization process and further strategies
112 were implemented such as Taxpayers education and electronic tax system to mobilize and increase tax revenue
113 collections.

114 However, despite the RRA employed strategies, the failure to collect all the potential tax revenue is persisting,
115 and the tax-to-GDP ratio is lower than their target, EAC and SSA average ratio. The low tax to GDP ratio
116 implies that a lot of tax remains uncollected and so tax revenues collected are inadequate to finance government
117 budget. For example, from 2012 to 2014 the tax to GDP ratio is averaged to 14.06% compared to EAC average of
118 about 18%. Therefore, it is evident that the tax that remains uncollected is causing inadequacy in the meeting of
119 the government budget thus making it insufficient. This problem could be linked to inadequate tax registrations,
120 tax audits, tax automation and Revenue protection system (Auditor General of Rwanda, 2015).

121 Reform of the revenue administration that include efficient and effective tax audit may be needed to enable it
122 to keep up with the increasing sophistication of business activity and tax evasion schemes. With globalization,
123 goods and services are produced by taxable entities in multiple countries. This presents vast opportunities for
124 manipulating transactions to reduce the tax burden. The existence of corruption, tax havens and increasing use
125 electronic financial transactions pose major challenges in enforcing the tax laws. Without a matching increase
126 in the professional and technological capacity of the revenue administration, its chances of monitoring taxable
127 activity and countering tax evasion are seriously reduced. For this reason, tax audit plays an important role to
128 increase the revenue administration capacity. As tax audit is one of the tools of revenue administration, this
129 study focuses on its significance and practice in Rwanda taking RRA as the case study.

130 In Rwanda, tax evasion is explained by different economic and non-economic factors contributes to lowering
131 the ratio of tax revenues to GDP (15% for 2014/2015), which is less than a half of the ratio computed for major
132 industrialized countries members of OECD ??Vito and Howell, 2001). Following this, one may ask, why this low
133 tax to GDP ratio for Rwanda? Is it due to the structure of the economy? Is it due to inefficiency of the tax
134 administration in tackling exhaustively all tax revenue potential? Or it is due to low technical compliance rate of
135 taxpayers into tax net and noncompliance of informal sector accounting more than 40 per cent of the GDP? The
136 researcher will therefore conduct the study to examine the effect of tax audit on revenue collection while looking
137 through the relationship between them.

138 **2 II.**

139 **3 Objectives**

140 The main objective of the study was to establish the effect of tax audit on revenue collection in Rwanda.
141 Specifically: 1. To measure the effectiveness of Tax Administration in RRA 2. To determine the level of Tax
142 Revenue Performance of RRA.

143 **4 To establish the relationship between Tax**

144 Administration and Tax Revenue collection of RRA.

145 III.

146 **5 Literature Review**

147 Awe (2008) defines auditing as an independent examination of the books and accounts of an organization by a
148 duly appointed person to enable that person give an opinion as to whether the accounts give a true and fair view
149 and comply with relevant statutory guidelines. The American Accounting Association (2011) in its Statement
150 of Basic Auditing Concepts in Hayes, Schilder, Daseen&Wallage (2009) described auditing as: a systematic
151 process of objectively obtaining and evaluating evidence regarding assertions about economic actions and events
152 to ascertain the degree of correspondence between these assertions and established criteria and communicating
153 the results to interested users. Akinbuli (2010), Hayes et al ??2009) reported that several theories of auditing
154 were made to specify and determine the audit functions. Some of these theories include: Classical theory of
155 tax compliance (Toggler, 1970), theory of planned behavior (Ajzen&Fishbein, 2010), economic deterrence theory
156 (Becker, 2008) and policeman theory (Loewenstein&Nachmias, 2005).

157 There are several theoretical and empirical studies on tax audit and tax compliance. These studies provide
158 mix reactions on the relationship between tax audit and tax compliance. Alm& ??cKee (2006) investigates the
159 application of experimental methods to examine the individual compliance responses to a "certain" probability
160 of audit, and conclude that the compliance rate rises if an individual knows he will be audited and the rate falls if
161 he knows he will not be audited. Slemrod, Blumenthal& Christian (2011) examines randomly selected taxpayers
162 and inform them that their filling will be "closely examined" and found evidence of taxpayers' behavior changes in
163 response to an increased probability of audit, although the responses are not uniform among different groups of
164 taxpayers. Mittone (2006) investigates that early experience of audits in taxpayers' "tax life" is a more effective

7 A) RESEARCH DESIGN

165 way to increase compliance than later audits. Also, Kastlunger, Kirchler, Mittone, & Pitters (2009) study of
166 experimental research also suggests that, although the effectiveness of audits and fines cannot be completely
167 confirmed, early audits in taxpayers' "tax life" have a positive impact on compliance

168 In a study by Wahyuni(2013), the data used are 789 firms of observation years during 2000-2010 in Indonesia.
169 From this amount, 291 samples are high profile industry. Consistent with expectation, the results of this study
170 find that (1) auditor specializations are factored into the firm's bond rating by credit rating agencies; (2) auditor
171 specialization is negatively and significantly related to the cost of debt financing; (3) the relation between auditor
172 specialization and the cost of debt financing is most pronounced in a high-profile industry. Overall, their result
173 suggests that auditor specialization matters to bond market investor in Indonesia.

174 A study conducted by Dhaliwal et al. (??008) investigated the link between the fees of auditors and the cost
175 of debt, and the impact of the fees on the association between information on the financial statements and the
176 cost of debt. It was found that nonaudit fees are related directly to the cost of debt for issuers of investment
177 grade. The findings are dynamic in controlling the tenure of the auditor and corporate governance, and evidence
178 was found that the relation between earnings and the cost of debt declined as audit fees went up. No evidence
179 was found that auditor fees have a direct effect on the cost of debt for the noninvestment-grade companies, but
180 it was discovered that the relation between earnings and the cost of debt declined as non-audit fees went up.

181 Niu (2010) in a study found a positive association between the audit and the voluntary compliance. The
182 finding suggests that the audit productivity may be under estimated in many studies in the literature. It reminds
183 us that when considering the productivity of the audit work. Besides the direct audit collections, we should also
184 take the audit impact on the voluntary compliance into consideration. For this reason, the finding may provide
185 tax professionals and tax authorities with incentives to strengthen the audit power and to better structure their
186 audit organization to generate more revenue for the state. Niu (2010) Historical population data of a New York
187 State economic sector were used in this study instead of experimental data or randomly selected sample data
188 often used in the literature. The results of both Ordinary Least Squares (OLS) and Time Series Cross Section
189 (TSCS) autoregressive modeling methods suggest that after an audit, a firm would report a higher sales growth
190 rate.

191 Jin Kwon (2004) study in Korea observed that a more rigorous analysis to evaluate the determinant of tax
192 culture for the study of tax compliance and tax audit. There are three types of tax audit. Badara (2012) stated
193 these three types of audit include the random tax audit, cut-off tax audit and conditional tax audit. The random
194 tax audit scheme simply provides each self-report of income an equal chance of being chosen for verification by an
195 audit. Cut-off audit scheme, audit resources are employed to verify reports of the tax payers reporting the lowest
196 income levels. The conditional audit scheme requires in addition to the reported income, sources of information
197 representing a noisy signal of tax payers" thorough income earning potentials.

198 Badara, (2012) Questionnaire distributed to forty-eight (48) respondents using descriptive statistics.

199 The result shows that the Relevant Tax Authority (RTA) employed tax audit towards achieving target revenue,
200 that tax audit reduce the problems of tax evasion, that tax payers do not usually cooperated with tax audit
201 personnel during the exercise. There are several theoretical and empirical studies on tax audit and tax compliance.
202 These studies provide mix reactions on the relationship between tax audit and tax compliance.

203 Generally, in literature review, authors discussed the various determinants of Tax Revenue collection e from
204 different corners. Not all authors find the same determinants of Tax Revenue Performance. (Baingana, 2011;
205 Abiola & Asiweh, 2012) assert that poor Tax Revenue Performance may be due to inadequate tax identificatation,
206 assessment, collection procedures and sensitization. On the other side, Gebre (2015) and Annah ??2005) have the
207 view that it may be due to the quality of service delivery, Attitude of taxpayers toward tax, and inadequate tax
208 registration. Besides that ??Aggrey,2011; ??aalya,2015) also present a different view of Tax Revenue Performance
209 determinants. In their studies their discussed Government expenditure, Foreign aid,Trade openness, Exchange
210 rates and Informal sector share to GDP to be the main determinants of the Tax Revenue Performance. However,
211 in this study, the researcher with a skeptical mind about the literature in place wants to find out the relationship
212 between other indicators such as tax audit, revenue protection system and tax automation (core functions of Tax
213 Administration) with Tax Revenue Performance.

214 In addition, The researchers stated above used purposive sampling (Baingana,2011; Abiola & Asiweh,
215 2012), Stratified and Systematic random sampling ??Gebre,2015; ??nnah,2005) in their study to select
216 respondents;whereas this study will use Simple Random Sampling. Whereas various studies were conducted in
217 different developing countries like Nigeria, Ghana, Ethiopia,Uganda, few in Kenya and in OECD countries to
218 improve Tax performance; however, no similar study has been so far conducted in Rwanda. Therefore, this study
219 is aiming to establish the relationship between Tax audit and Revenue collection in RRA.

220 6 Methodology

221 This section describes the methodology that was used in the study.

222 7 a) Research design

223 This study adopted a descriptive survey. Descriptive survey research design is a scientific method which involved
224 observing and describing the behavior of a subject without influencing it in any way ??Cooper & Schindler,

225 2008). It employed both quantitative and qualitative approaches. Quantitative method was used to generate
226 numerical data to ensure high levels of reliability of gathered data, and qualitative method to generate non-
227 numerical data in order to get in-depth information about the variables. The study engaged a descriptive, cross
228 sectional and correlational research designs. It was descriptive because it used descriptive statistics to describe
229 the two variables of the study; and it was cross sectional since it was carried out over a short period of time and
230 data was collected as a one stop event. It engaged correlation design to establish the relationship between Tax
231 Audit and Revenue collection in RRA.

232 **8 b) Target Population**

233 The population consists of RRA staff involved in day-to-day Tax auditing. These include; Head of Divisions,
234 Group leaders and Officers involved in the tax audit activities. They have been selected purposively because they
235 are the one who interface with taxpayers and enforce the legal framework promoted by legislators to administer
236 and safeguard government revenue.

237 **9 c) Sample Size**

238 Sampling frame is a list of all the population subjects that the researcher targeted during the study ??Cooper &
239 Schindler, 2008). The sample size comprised staff from all tax audit departments at RRA. The sample size was
240 statistically calculated using Slovin's formula and is 87 respondents.

241 **10 d) Sampling Procedure**

242 The study used simple random sampling method in selecting the respondents in the study. Random sampling
243 was used because of its simplicity and it gives equal chance to each person to be selected. There is no bias in
244 selecting respondents.

245 **11 e) Research Instrument**

246 In this study, data was collected using semistructured questionnaire that was administered to RRA staff and a
247 face to face interview was conducted to the key people to get depth information on the matter. A questionnaire
248 was designed according to Likert Scale: "Strongly disagree (1), Disagree (2), Agree (3) and strongly agree (4)" to
249 explore the key variables of Tax audit and revenue collection. The questionnaire comprised of closed questions,
250 Attitude questions and open questions. It comprises of three sections. Section A entails the Biodata; Section B
251 Entails Tax audit and Section C Revenue collection.

252 **12 f) Sources of Data**

253 Primary data was collected from the responses of the questionnaires to measure the effectiveness of Tax audit
254 and the level of Revenue collection in RRA. Secondary data was collected from RRA reports, journals, World
255 Bank reports, African Development Bank reports and internet library to provide data on Revenue collections
256 and to assess the costs of collection for the years that was covered by the study.

257 **13 g) Validity and reliability**

258 For quality Control, a pre-test of the research instrument to test its validity and reliability was conducted.
259 The Cronbach's alpha coefficient was used to assess the Reliability while the Validity was determined using the
260 Content Validity Index(CVI).

261 **14 h) Data Processing and Analysis**

262 A multiple regression model was used to analyze the relationship between tax audit and revenue. The model was
263 designed as follows: $Y = ? + ?1 X 1 + ?2 X 2 + ?3 X 3 + \mu$
264 Where, Y is a dependent variable (revenue collection), ?=constant, μ =error term, ? = coefficient of the
265 disbursement, X 1 = taxpayer's registration, X 2 = Revenue protection system and X 3 = tax automation. Factor
266 analysis of the individual tax audit (Taxpayer's registration, Revenue protection system and Tax automation)
267 was measured through ANOVA to look for significant differences between the variables.

268 **15 i) Ethical Consideration**

269 Before collection of data, awareness of the study was ensured to the respondents where the explanations of the
270 benefit of the research were clarified.

271 V.

272 **16 Findings, Discussions & Results**

273 This section presents the search findings, the discussion during the activity of collecting the data and the
274 results. The main aim of the study is to examine the effect of tax audit to revenue on 87 sampled respondents.
275 A total of 70 administered questionnaires were returned. This shows a good rate according to Mugenda (2008).

276 74 % of respondent were males, 100% are educated which shows unbiased of gender and are capable and reliable
277 to explore the underpinning issues related to the study respectively. In addition, majority of respondents are
278 adults(38%) as shown on the figure below.

279 Majority of the respondents (38%) fall within 36 to 40 years of age. This is followed by (22%) in the age
280 group of 26 to 30 years. There are (20%) respondents in the age of 31 to 35 years. The age bracket of 45 years
281 and above had only (3%) respondent. A cumulative 80% of the respondents are within 26 to 40 years. This is
282 an indication that respondents were well distributed in terms of their age. Furthermore, results revealed that
283 27.1% of the respondents had worked in the project for a period of one to two years, 40% of the respondents had
284 worked in the project for a period of 3 to 4 years, whereas 24.3% of the respondents had worked in the project
285 for a period of more than 5 years. Therefore, from the study findings, it can be deduced that respondents had
286 experience on Tax audits and revenue collection.

287 17 a) Analysis of Tax administration in RRA

288 11% of the study participant agreed with the statement every taxpayer identified is always registered while
289 majority (89%) disagreed with the statement. Majority (61%) strongly agreed with the statement that a quick
290 check is done on taxpayers to establish if they are correctly registered while 39% only agreed with the statement.
291 The findings also indicated that 20% of the respondents strongly agreed with the statement the ranking of
292 eligible tax payable is based on taxpayer's income, 50% just agreed while 30% disagreed with the statement.
293 Majority (59%) agreed with the statement that tax offices are effective in identifying and registering all potential
294 taxpayers, while 41% strongly agreed with the statement. Majority (59%) of the study participant agreed with
295 the statement that identification methods are effective in registering all potential taxpayers while 8% disagreed
296 with the statement. Most (67%) of participants agreed with the statement that all registered tax payers are
297 followed up to find out if they are active while 33% strongly agreed with the statement. Majority (76%) of
298 the study participant strongly agreed with the statement that all taxpayers' basic information is collected and
299 recorded on a timely basis while 24% just agreed with the statement. Lastly the findings also indicated that 19%
300 of the respondents strongly agreed with the statement that taxpayers are able to register without intervention of
301 tax officials, 67% just agreed while 14% disagreed with the statement.

302 18 i. Correlation

303 It was found that tax administration is significantly correlated to the revenue performance ($r=0.518$, $p<0.01$).
304 There is a Strong positive relationship between Tax administration and Revenue performance at RRA as indicated
305 by correlation of 0.518. This shows that the sampled data can be applied to the general population across RRA
306 at 95% confidence level. ??yakusaaga (2000) noted that tax administration to a great extent depends on the tax
307 collection machinery. Tax administration is largely blamed on the low levels of revenue collections in Kenya and
308 in most low developed countries. This success of tax reform largely depends on the implementing machinery (tax
309 administration). Stephen ??1984) says that the race of administration of any tax depends, to a large extent, on
310 the number of tax payers and the average payment relative to the cost of collection from each one. The ease
311 of administration also depends on the existence of records from other sources to crosscheck the report of any
312 particular taxpayer.

313 ii. Regression Regression analysis was conducted to empirically determine whether tax administration was a
314 significant determinant of revenue collection. Regression results indicate the goodness of fit for the regression
315 between tax administration and revenue collection was satisfactory in the linear regression. An R squared of
316 0.312 indicates that 31.2% of the variances in revenue collection of RRA are explained by the variances in tax
317 administration in the linear model. The correlation coefficient of 51.8% indicates that the combined effect of
318 the predictor variables has a positive correlation with Revenue collection. Result review that tax administration
319 is statistically significant in explaining revenue collection of RRA. An F statistic of 5.020 indicated that the
320 combined model was significant. From the analysis, a pvalue less than 0.05 (p-value =0.0000) was obtained.
321 This implies that the simple linear model with tax administrationas the only independent variable is significant.
322 Correlation coefficients show that tax administration (X_1) is significant ($p\text{-value} = 0.0000$) in influencing Revenue
323 collection (Y). The fitted model from this analysis is shown below: $Y = 2.487 + 0.342X_1$ Tax stands as a major
324 source of government revenue not only for developed countries but also for developing countries. For countries to
325 benefit from the opportunities afforded by globalization they must be able to mobilize adequate fiscal revenues
326 and the most reliable way to get it is with an effective tax administration, Jamalaet al; (2013) noted that, tax
327 revenues guide national development and also are used to finance a substantial part of government operations
328 including provision of public social services. b) Tax Revenue performance analysis Majority (59%) agreed with
329 the statement that there are sufficient financial resources to audit all taxpayers, while 41% strongly agreed with
330 the statement. Majority (59%) of the study participant agreed with the statement that the institution has
331 sufficient staff to carry out audits while 8% disagreed with the statement. Most (67%) of participants agreed
332 with the statement that RRA organizes training programs for auditors while 33% strongly agreed with the
333 statement. Majority (76%) of the study participant strongly agreed with the statement that financial statements
334 and records of all potential taxpayers are examined annually while 24% just agreed with the statement. The
335 findings also indicated that 19% of the respondents strongly agreed with the statement that audits are conducted

336 on a timely basis to verify if the taxpayer has correctly reported and assessed their obligations, 67% just agreed
337 while 14% disagreed with the statement. Majority (87%) agreed with the statement that RRA has the capacity
338 to identify tax evaders through audits while 13% strongly agreed with the statement. Majority (59%) of the
339 study participant strongly agreed with the statement that RRA gives audit notifications to the taxpayers on time
340 while 41% disagreed with the statement. Lastly Majority (59%) of the study participant strongly agreed with the
341 statement that RRA gives audit notifications to the taxpayers on time while 41% disagreed with the statement.
342 The above table indicatelevel of Tax Revenue Performance of RRA is significantly correlated to the revenue
343 collection ($r=0.681$, $p<0.01$). There is a Strong positive relationship between level of Tax Revenue Performance
344 and revenue collection as indicated by correlation of 0.681. This shows that the sampled data can be applied to
345 the general population across RRA at 95% confidence level.

346 i. Regression analysis Regression analysis was conducted to empirically determine whether level of Tax Revenue
347 Performance of RRAwas a significant determinant of revenue collection. The results in the goodness of fit for
348 the regression between level of Tax Revenue Performance and revenue collection was satisfactory in the linear
349 regression. An R squared of 0.282 indicates that 28.2% of the variances in revenue collection at RRA are explained
350 by the variances in level of Tax Revenue Performance in the linear model. The correlation coefficient of 68.1%
351 indicates that the combined effect of the predictor variables has a positive correlation with Revenue collection.
352 Result reviews that level of Tax Revenue Performance of RRAis statistically significant in explaining revenue
353 collection at RRA. An F statistic of 4.17 indicated that the combined model was significant. From the analysis, a
354 p-value less than 0.05 (p-value =0.0000) was obtained. This implies that the simple linear model with the level of
355 Tax Revenue Performance as the only independent variable is significant. c) Revenue protection system analysis
356 Majority (59%) of the study participant agreed with the statement that RRA system is able to detect and track
357 fraudswhile 8% disagreed with the statement. Most (67%) of participants agreed with the statement that RRA
358 system is able to track non-compliant taxpayerswhile 33% strongly agreed with the statement. Majority (76%)
359 of the study participant strongly agreed with the statement that RRA system is able to track nonregistered
360 taxpayers while 24% just agreed with the statement. The findings also indicated that 19% of the respondents
361 strongly agreed with the statement that RRA system is able to keep all taxpayers' information, 67% just agreed
362 while 14% disagreed with the statement. Majority (87%) agreed with the statement that the system is able
363 to generate appropriate reports while 13% strongly agreed with the statement. Majority (59%) of the study
364 participant strongly agreed with the statement that the system is able to ensure the accuracy and security of the
365 information processed while 41% disagreed with the statement. Majority (59%) of the study participant strongly
366 agreed with the statement that the system is able to ensure that a transaction is processed once. while 41%
367 disagreed with the statement. Furthermore, the findings also indicated that 19% of the respondents strongly
368 agreed with the statement that Preventive revenue protection strategies are provided by the system in place, 67%
369 just agreed while 14% disagreed with the statement. Lastly (87%) agreed with the statement that the revenue
370 collected is protected from any leakage while 13% strongly agreed with the statement.

371 19 Global Journal of

372 20 i. Correction analysis

373 Results indicate that Revenue protection system is significantly correlated to the revenue collection ($r=0.656$,
374 $p<0.01$). There is a Strong positive relationship between Revenue protection systemand revenue collections as
375 indicated by correlation of 0.656. This shows that the sampled data can be applied to the general population
376 across RRA at 95% confidence level.

377 ii. Regression analysis Regression analysis was conducted to empirically determine whether Revenue protection
378 systemwas a significant determinant of revenue collection. Result indicates the goodness of fit for the regression
379 between Revenue protection systemand revenue collection was satisfactory in the linear regression. An R squared
380 of 0.285 indicates that 28.5% of the variances in revenue collection at RRA are explained by the variances
381 in Revenue protection systemin the linear model. The correlation coefficient of 65.6% indicates that the
382 combined effect of the predictor variables has a positive correlation with Revenue collection. Result review
383 that Revenue protection systemis statistically significant in explaining revenue collection at RRA. An F statistic
384 of 4.85 indicated that the combined model was significant. From the analysis, a p-value less than 0.05 (p-
385 value =0.0000) was obtained. This implies that the simple indicated that the combined model was significant.
386 From the analysis, a p-value less than 0.05 (p-value =0.0000) was obtained. This implies that the simple linear
387 model with tax automationas the only independent variable is significant. e) Linear regression model analysis
388 Regression analysis was done to determine the relationship between tax audit on revenue collection. Result
389 shows that the coefficient of determination R square is 0.294 and R is 0.542 at 0.05 significant level. The
390 coefficient of determination indicates that 29.4% of the variation in the dependent variable banks performance is
391 explained by the independent variables (tax administration, tax revenue performance, revenue protection system,
392 tax automation). It further present the ANOVA on tax audit on revenue collection. The ANOVA results for
393 regression coefficient indicate that the significance of the F is 0.00 which is less than 0.05. This implies that there
394 is a positive significant relationship between tax audit on revenue collectionand that the model is a good fit for
395 the data.

396 From the data above, the established regression equation was $Y = 0.347 + 0.162 X1 + 0.282 X2 + 0.194 X3$

22 B) RECOMMENDATIONS

397 + 0.211 X4 From the above regression equation, it was revealed that holding Tax administration, tax revenue
398 performance, revenue protection system, tax automationto a constant zero, revenue collection would be at 0.347.
399 A unit increase on Tax administrationwould lead to increase in revenue collection by a factor of 0.162, a unit
400 increase in tax revenue performancewould lead to increase in revenue collection by a factor of 0.282, a unit
401 increase in revenue protection systemwould lead to increase in revenue collection by a factor of 0.194 and unit
402 increase in tax automation would lead to increase in revenue collection by a factor of 0.211.

403 21 VI. Conclusion and Recommendation a) Conclusion

404 Tax audit actually has an effect to revenue collection as according to the t -tests there is significance in the
405 correlation between tax collected before the audit and after the audit. This clearly indicates that tax audit
406 increases revenue collection. That in essence means that the more the tax audit conducted the more revenue is
407 collected. Thus, it is right to say that tax audit is directly related to revenue collection. All the tax audits are
408 important because they add something to revenue and thus should be encouraged as it assists the government in
409 collecting appropriate tax revenue necessary for budget, maintaining economic and financial order and stability,
410 to ensure that satisfactory returns are submitted by the tax payers, to organize the degree of tax avoidance
411 and tax evasion, to ensure strict compliance with tax laws by tax payers, to improve the degree of voluntary
412 compliance by tax payers and to ensure that the amount due is collected and remitted to government.

413 22 b) Recommendations

414 The study recommends that the tax audit reports be submitted to the public and a standard procedure to be
415 found in choosing the companies that random audit is conducted. This is to assure the public that those audited
416 randomly are not eyed or discriminated but at least they see the result and be aware of the procedure used in
417 the selection. The public is also urged to submit their taxes fully and seek clarification wherever they are not
418 sure of what to do.

419 For further research, this study examined the effects of tax audit on revenue collection over a period of less
420 than 5 years. There is a need for further studies to carry out similar tests for a longer time period. Due
421 to the importance of having high quality audit, further studies should explore the areas that relate to audit
422 quality such as customer service satisfaction, customer loyalty, auditors switching and auditors' turnover. This
423 will go along incorporating quality and independence of management and board membership; internal audit
424 considerations. Furthermore, there is need for a study on how the size of a company influences the auditing as
425 there is variation for various organizations based on the size. Further, a study should be conducted on the
426 procedures followed during audit to see if all the Rwanda Revenue employees follow the same procedures or a
standard procedure is in place and adhered to. ^{1 2}



41

Figure 1: 4 Global 1

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¹© 2018 Global JournalsEffect of Tax Audit on Revenue Collection in Rwanda

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Year

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Global Journal of Model Regression Residual Total a) De- Df Mean F Sig.
Management and pendent Variable: Revenue collection 1 Square 5.020000
Business Research Sum of Squares 1 12.14 28.684 40.824 49 12.14 .476 a
50

b) Predictors: (Constant), Tax adminis-
tration

Source: Primary data, 2018

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Figure 2: Table 1 :

2

Model		Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
		B	Std. Error			
1	(Constant)	2.487	.270		7.169	.000
	Tax adminis- tration	.342	.062	.444	2.241	.000

Source: Primary data, 2018

a) Dependent variable: Revenue collection

Figure 3: Table 2 :

3

Tax revenue performance

Revenue collection

Figure 4: Table 3 :

4

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[Note: D]

Figure 5: Table 4 :

22 B) RECOMMENDATIONS

5

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
1	(Constant)	0.755	.698		6.365 .000
	level of Tax	.342	.152	.308	2.663 .000
	Revenue				
	Performance				
a) Dependent variable: Revenue collection					Source: Primary data, 2018

Figure 6: Table 5 :

8

	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	12.14	1	12.14	7.658000	a
	Residual	28.684	49	.476		
	Total	40.824	50			
a) Dependent Variable: Revenue collection					Source: Primary data, 2018	
b) Predictors: (Constant), Tax administration					Source: Primary data, 2018	

Figure 7: Table 8 :

8

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
1	(Constant)	2.107	.698		6.365 .000
	Tax	.174	.152	.308	2.663 .000
	automation				
Source: Primary data, 2018					

Figure 8: Table 8 :

428 .1 Effect of Tax Audit on Revenue Collection in Rwanda

429 Correlation coefficients show that the level of Tax Revenue Performance (X2) is significant (p-value = 0.0000)
430 in influencing revenue collection (Y). The fitted model from this analysis is shown below: $Y = 0.755 + 0.342X2$
431 linear model with the Revenue protection systemsas the only independent variable is significant.

432 .2 d) Tax automation analysis

433 Results revealed that 20% of the respondents strongly agreed with the statement that All transactions are
434 processed using automated system, 50% just agreed while 30% disagreed with the statement. Majority (59%)
435 agreed with the statement that all registered taxpayers are able to file electronically, while 41% strongly agreed
436 with the statement. Majority (59%) of the study participant agreed with the statement that E-tax system reduces
437 time taken by taxpayers in declaration and tax payment while 8% disagreed with the statement. Most (67%) of
438 participants agreed with the statement that Non-compliance cases decreased as a result of etax system while 33%
439 strongly agreed with the statement. Majority (76%) of the study participant strongly agreed with the statement
440 that aE-tax system increased revenue collection while 24% just agreed with the statement. Moreover, the findings
441 also indicated that 19% of the respondents strongly agreed with the statement that all records are digitized with
442 RRA, 67% just agreed while 14% disagreed with the statement. Lastly the findings also indicated that (67%) of
443 participants agreed with the statement that Electronic records are able to be retrieved after an extended period
444 for audit purposes while 33% strongly agreed with the statement. Gasteiger (2011) indicated that automated
445 system enhances administration with the provision of multiple scenarios that allow senior management in a
446 multi-campus university system to generate multiple income scenarios, make well-informed decisions concerning
447 the operation of their institution and timely calculation and allocation of resources to academic departments.In
448 Kenya, Kioko (2012) indicated that the macro model performs better the variations in funds allocated to counties
449 than the representative tax system.

450 .3 i. Correlation

451 The results indicate that tax automation is significantly correlated to the revenue performance ($r=0.789$, $p<0.01$).
452 There is a Strong positive relationship between Tax automation and Revenue performance at RRA as indicated
453 by correlation of 0.789. This shows that the sampled data can be applied to the general population across RRA
454 at 95% confidence level.

455 .4 ii. Regression

456 Regression analysis was conducted to empirically determine whether tax automation was a significant determinant
457 of revenue collection. Regression results in Table ???.23 indicate the goodness of fit for the regression between
458 tax automation and revenue collection was satisfactory in the linear regression. An R squared of 0.402 indicates
459 that 40.2% of the variances in revenue collection of RRA are explained by the

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