

EFFECT OF TECHNOLOGY ADOPTION AND STAFF TRAINING ON TAX FRAUD AMONG LARGE TAX PAYERS IN KENYA REVENUE AUTHORITY

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Abstract

The emergence of underground economy which majorly deals with cash has led to the evolution of another category of tax fraud method because this kind of businesses does not leave a trail of any transaction making it easy to evade tax and conceal the practice. The study sought to determine the effect of tax fraud mitigation strategies among large tax payers on revenue collection in Kenya revenue authority. The study was guided by two specific objectives: to find out the role of technology adoption and staff training in mitigation of fraud at Kenya Revenue Authority. The study was anchored on the prospect theory and fraud triangle theory and adopted a descriptive research design. The unit of analysis for the study was fraud investigation unit at KRA. The study targeted 1540 fraud unit investigation officers in LTO Section. Purposive sampling technique was used and a proportional sample size of 90 staff was used. The study used questionnaires for primary data collection. The collected data was processed using SPSS

version 21. A linear regression model was used to examine the effect of tax fraud mitigation strategies among large tax payers on revenue collection in Kenya revenue authority at 95 % degree of Confidence. Results were presented using tables and pie charts. The study concluded that staff training and technology adoption had a positive and significant effect on tax fraud mitigation among large taxpayers at KRA. The study recommends the management of Kenya Revenue Authority to regularly hold awareness seminars on tax evasion and fraud. The management should also provide customized training to their staff so as to ensure they have know-how on the operation of I-tax systems. There is also a need to engage qualified personnel with advance technological skills to combat fraud since it will lead to a significant mitigation on tax fraud. The study also recommends the management of KRA to enhance the adoption of ICT software to detect and mitigate fraud. There is also need for the management to ensure that forensic data analysis is done using digital analytical tools to detect and combat fraud.

Keywords: Staff Training, Technology Adoption, Tax Fraud, Large Tax Payer

INTRODUCTION

According to the association of Certified Fraud Examiners (ACFE, 2014), fraud implies to any unlawful actions characterized by dishonesty, disguise or abuse of trust. These actions are not reliant on the use of intimidation or violence. Normally frauds are committed by persons and firms to acquire cash, assets or services through tax evasion thereby gaining some business advantage. Tax evasion can be committed by individuals working in firms or outside the organization. Tax evasion among the corporate firms causes a significant effect on the country's total revenue collection thereby negatively impacting on economy. To observe the strategies for mitigating tax fraud among large tax payers, the study took Kenya Revenue Authority as a unit of analysis to allow the research makes categorical and meaningful conclusions. According to Kanu & Okorafor, (2013), Kenya Revenue Authority introduced integrated tax management (itax) systems to seal the loopholes that affect revenue collection. Similarly, Obat (2010), argue that internal controls such as internal auditing, usage of secret codes, appropriate record controls, assets custody and separation of obligations is vital in the mitigation of tax fraud. Internal controls refer to the means for maintaining firm assets through upholding of its accounting records integrity so as to discourage tax fraud and stealing. Additionally, small or big firms should put in place tax fraud mitigation strategies to tackle the menace associated with tax evasion. As indicated in the ACFE (2014) report of tax fraud cases, dishonest activities averagely take up to 18 months before being noticed. Kelly (2010) in agreement states that

firms should put in place monitoring mechanisms on their systems as well as their workforces so as ascertain impending threats. To ascertain the effect of strategies for mitigating tax fraud, the study focused on large tax payers because the revenue collected from them.

According to Mawanda (2010), South African government has adopted some tax fraud policy frameworks to manage the effects of rising tax fraud activities. In East Africa, a survey done by PwC in Tanzania, Zambia, Rwanda and Uganda in the late 2011 and 2010 to determine the level of risk detection and the level of risk preparedness for home-grown companies showed that more than 50% had poor level of risk detection as well as the level of risk preparedness, (PwC, 2011). This indicates that there is need for tax fraud mitigation strategies. Likewise, the economic survey of 2010 by PwC established that tax fraud cases were on the rise with bigger portions of them being occurring towards the end of 2010 higher than in any other previous year. Despite offering these vital functions to Kenyans, these parastatals have been marred with several cases of fraud ranging from cyber-crime, tax evasion tax avoidance among others. To this end, in 2006, K.R.A established the Anti-fraud and Corruption policy with an aim of mitigating cases of fraud that the parastatals were facing (Yusuf, 2007). The reporting of suspected cases of fraud and corruption whether perpetrated by Kenya Revenue Authority employees or by other actors in the domestic, regional or global economy is an important part of Kenya Revenue Authority integrity promotion and anti-fraud strategy.

Statement of the Problem

The emergence of underground economy which majorly deals with cash has led to the evolution of another category of tax fraud method because this kind of businesses does not leave a trail of any transaction making it easy to evade tax and conceal the practice. Underground economies are reluctant to transact using electronic funds transfer, credit and debit cards, does not issue invoices or cheques. Tax fraudsters manage to remain one step ahead also by using services of well-heeled lawyers and auditors making the practice of using aggressive tax planning rampant in Kenya where companies and individuals are looking for all means possible to cut their tax expenses. In some cases there are companies which are founded in Kenya, operate in Kenya and sell their products and services in Kenya but the same companies have shell companies registered in tax havens most of which have tax rates between 0 and 15% such as Bahamas, Samoa and Switzerland where they shift their profits and Kenya loses out on revenue. Cases involving Kenya Revenue Authority corporations on tax fraud or evasion often takes years. Most of these corporations have a tendency of using strong legal departments to tie up cases in protracted litigation battles that stretch across many years. Transferal appraising which is a

profit allocation method used to point an international company's net income (or loss) before duty to nations where it ensures business is also evolving as alternative way used by tax swindlers. In 2012, Kenya Revenue Authority reigned that Bangalore, India-based transnational used to relocate mispricing to circumvent compensating the government of Kenya nearly EUR 8 million in corporate income tax, part of a larger set of tax that amount to a quarter of the firm's 2012 sales. This reduces Government income thus affecting the level and quality of public services that the Government is able to offer to its citizens. As a result of individuals and corporations altering their tax payment patterns when they evade tax, there is likelihood of misallocation of resources.

Despite sophistication and volume of fraudulent claims, the vice continues to increase with Kenya Revenue Authority still struggling to put up structures to deal with it. Fraud emanates from both internal and external sources thereby posing substantial cost to our K.R.A and the entire nation of Kenya as a whole. According to the global fraud survey (2014), Kenya ranked fourth globally among the countries worst hit by fraud behind Nigeria Egypt and Namibia. Similar survey by Price Water House Coopers in 2016 ranked Kenya (62% economic crimes) as the third most corrupt country in the world behind South Africa (69%) and France 68%). According to Price Waters and Coopers (2010), fraud in Kenya rose from position 23 in global ranking in the 2009 risk survey to position 4 in the East Africa survey. This indicates that fraud is significantly affecting Kenya's economy. On the other hand, deception, bribery, forgery, extortion, corruption, theft, conspiracy, embezzlement, misappropriation, false representation, concealment and collusion continue to rob the nation of Kenya its revenue. Charles *et al* (2012) highlighted the influence of tax avoidance and tax fraud through creative accounting although the study did not clearly bring out the various methodologies used by tax payers on creative accounting. It is worth stating that a lot of research has been done to find out how banking and insurance industries in Kenya have dealt with fraudulent cases over the years. However, limited research has been done to find out how Kenya Revenue Authority has dealt with the vice. This research therefore sought to examine the effect tax fraud mitigation strategies on tax fraud among large tax payers at Kenya Revenue Authority.

Research Objectives

- i. To determine the role of staff training on tax fraud mitigation at the Kenya Revenue Authority
- ii. To establish the effect of the technology adoption on tax fraud mitigating of Kenya Revenue Authority

THEORETICAL REVIEW

The Prospect Theory of Tax Evasion

The proponent of this theory was Daniel Kahneman and Amos in Tversky 1979. The theory provides an understanding on why people tend to take risks. The theory states that persons associated with gains and losses have in a way or another linked to some cause. Therefore the theory is useful in explaining the equity- premium challenges common in accounting which are related in essence to the tax evasion dilemma in that both can be computed with respect to the problem of portfolio choice. Alm, Jackson and McKee (1992), advice that one conceivable justification on why individuals compensate taxes can probably be centered on non-linear alteration of possibilities to overweigh the chance of a tax audit, which delivers for an apparent warning to tax avoidance action. The theory has been put forward in early payment of tax in an effort to discourage avoidance of tax. In a situation where proceeds from tax levies is higher than the real tax liability, in which instance the taxpayer properly reports revenue, the taxpayer gets a reimbursement, once more. Hence, the taxpayer's efficacy function is bowl-shaped to achievements. Alternatively, if the progressive payment were smaller than the real liabilities of tax, then the efficacy function would be arched for losses and can be more eager to take a bet of avoiding taxes, (Yaniv, 1999; Elffers and Hessing, 1997). Therefore, this theory is useful in providing an understanding on the tax fraud among large tax payer firms in Kenya as well as mitigative policies to manage it. In as much as the theory is helpful in providing an insight on tax fraud, it does not elucidate clearly on the causes of tax fraud. The theory only centers on advance payment of tax and its role in discouraging tax evasion.

The Fraud Triangle Theory

The theory was proposed by Donald Cressey in 1950. Cressey was criminologist. The theory state that individuals initiates things for a purpose. Cressey describes non-shareable monetary difficulty as a reason for trust desecration. This is because individuals consider themselves as having suffered financial commitments which are deliberated as non-socially attainable and which, subsequently, must be pleased by a sequestered or undisclosed means. Additionally, Cressey contends that offender of tax fraud must design some form of ethically satisfactory justification before participating in an immoral behavior. Justification talk about the validation that the immoral conduct is something other than unlawful action. If a person cannot justify some immoral activities, it is improbable that he or she will participate in tax fraud. It is imperative to note that validation is hard to detect, as it is difficult to read the offender's mind, (Cressey 1953 in Wells, 2005). Persons who do tax fraud have a mind-set that permits them to rationalize or vindicate their dishonest actions, (Hooper and Pornelli, 2010). Justification is an

explanation of deceitful conduct because of a worker's absence of individual uprightness, or other ethical explanation, (Rae and Subramanian, 2008). However, this theory only centers on the reasons that predisposes individuals to engage in fraudulent activities. The theory does not specifically pinpoint the mitigation strategies for rationalization and non-socially attainable behaviors.

EMPIRICAL REVIEW

A study by Akindele (2011) revealed that insufficient training, a break in communication and bad management skills are the root cause of fraud in the financial institutions. The study recommended for satisfactory inner regulatory instruments be put in place and that workers satisfaction and comfort be taking care of. Pettitt (2006) study showed that revealed that occupational activities for instance steady training, job variation and control support in reducing fraud. Presence of distinct systems for control in place for example for buying and recompensing has also been established to be efficient. Some firms currently are for instance utilizing the commonly referred nonpartisan links in the deterrence of automated funds Transferal scam. Similarly, an application has been invented to scrutinize electronic card holders' expenditure designs so as to alert persons to the existence of unapproved businesses, and also commercial credit supervisory methods to identify demanding forms of fraudulent dealers. Software has also been generated so as to keep accounts of misplaced electronic cards, cards that are stolen, forged cards, falsified submissions and cards certainly not expected mail commands, phone commands and directory transactions as well as business schemes.

Mararia (2014) carried out a research to ascertain the impact of Integrated Tax Management System (ITMS) on tax compliance by the SMEs within Nairobi. Study results showed that penalties and fines had a positive significant association with tax compliance. This resulted to an overall increase in collections as penalties and fined deterred tax evasion by taxpayers. Similarly, Mhamane and lobo (2012) sought to find out how to identify and avert fraud in the financial institutions specifically in internet banking. The findings of the study revealed that using forensic technology such as the use of analytical tools, ICT protection tools, firewalls and digital computerized control systems.

Additionally, Dzomira (2014) sought to determine the effect of the adoption of computerized investigative tools and equipment in automated fraud and identification used in the Zimbabwe's public sector. Results of the study revealed that parastatals should overhaul their fraud mitigating policies by adopting frauds recognition exertions through innovative analytics with interrelated tools, applications and its software to attain better proficient oversight.

Equally, Kumar and Srigantha (2014) underscored the shared insider scams happening in public initiatives and sought to classify them into diverse forms. Accordingly, study builds on the earlier studies of frauds in public enterprises considering the limited data on the strategies adopted by parastatals to mitigate fraud. Bindiya *et al* (2011) study revealed IT Fraud as one of the major problem of the banking industry with India and was highly as a result of increased adoption of information technology, inducing more process and product innovations.

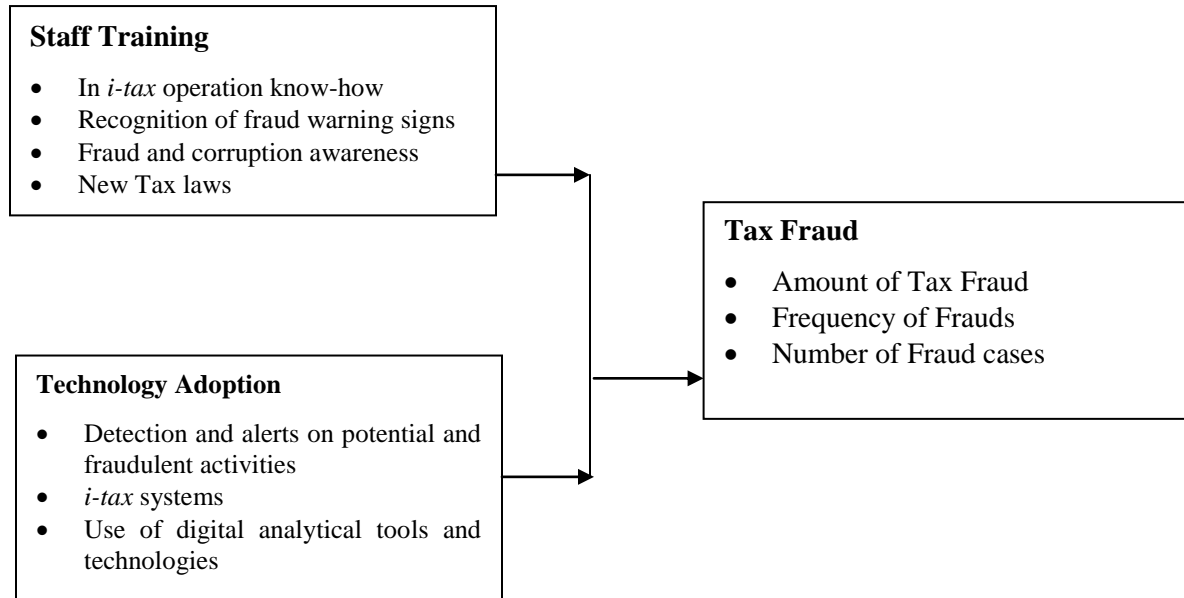


Figure 1. Conceptual framework

RESEARCH METHODOLOGY

This study adopted a descriptive research design. A descriptive research design is suitable since it attempts to describe or define a subject often by creating a profile of a group of problems, people or events through the collection of data and tabulation of the frequencies on research variables or their interaction as indicated, (Serekan & Bougie, 2010). The target population for the study was large tax payer companies listed by Kenya Revenue Authority in 2017. The study specifically targeted fraud investigation unit officers both in senior and middle level departments at KRA in Nairobi. Although there is 3,905 staff, the focus was senior tax officers, middle level officers, subordinate officers who are 1,540. The targeted population comprised of senior and middle level management staff in charge of Large Tax Payer section of Kenya Revenue Authority. The study used purposive sample of ninety (90) LTO Staffs in the head office. Primary data was gathered using structured questionnaires and captured using a 5-point Likert scale. Likert scale with close-ended questions with the guide of research assistants

was distributed to respondents, after approval to collect data by the university administration. Primary data was collected using structured questionnaires and captured using a 5-point Likert scale. The validity and reliability of the questionnaires was established through expert examination and Cronbach Alpha tests respectfully. A pilot study achieved a reliability coefficient of 0.801 which was reliable.

Descriptive and inferential statistics was used to analyze the primary data. The analyzed data was presented in form of tables and charts. Inferential statistics on the other hand includes correlation and regression analysis. A multiple linear regression model was used to ascertain the relationship between the study variables, that is, fraud mitigation strategies and tax fraud. Because of the presence of more than one predictor variable, a multiple linear regression analysis was suitable. The model is as indicated: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \epsilon$ Where; $Y =$ Tax Fraud, $X_1 =$ Staff Training, $X_2 =$ Technology Adoption, $\beta_0 =$ Represents the constant term, β_1 and $\beta_2 =$ Predictor variables coefficients, $\epsilon =$ the error term. The study conducted ANOVA test to establish the model significance. In this study, the level of significance was at 5% which implies that all statistical tests were done at 95% level of significance.

FINDINGS

The study targeted 90 fraud investigation unit officers both in senior and middle level departments and subordinate staff at KRA in Nairobi. A total of 73 questionnaires were duly filled and returned. This represented an overall successful response rate of 81.11%. Mugenda and Mugenda (2003) argue that a return rate of 50% is acceptable and therefore a response rate of 86% is hence good for the current study.

Distribution of Demographic information

The study findings showed that of the 23.3% of the respondents were aged below 30 years, those who were aged between 31-35 years were 20.5% while those who were aged between 36 and 40 years were 19.2%. The results also indicated that only 13.7% of the respondents were aged between 41 and 45 years while those who were aged above 45 years were 23.3%. This implies that the majority of the staff involved in tax fraud mitigation is younger generations below the age of 40 years. The findings indicated that 24.7% of the respondents have college level education, 38.4% have university level education while those that have post graduate level education were 37%. The findings reveal that majority of the respondents are literate. This indicates that with literacy, interpretation of the questions was easy and it contributed to the high reliability. Barrick et al. (2007) argues that the more literate a person is the more knowledgeable and able to comprehend ideas they are. The results of the study revealed that 16.4% of the

respondents had worked for less than 2 years, majority 32.9% had worked for between 2 and 5 years while 30.1% had worked for between 6 and 10 years and those who have worked for more than 10 years were 20.5%. The results of the study indicate that most of the respondents had worked for over 2 years and therefore they had a great understanding with the questions regarding tax fraud.

Table 1 Distribution of Demographic information

Demographic Characteristic	Category	Percentage
Age	Below 30 Years	23.3%
	31-35 Years	20.5%
	36-40 Years	19.2%
	41-45 Years	13.7%
	Above 45 Years	23.3%
Education Level	College	24.7%
	University	38.4%
	Post graduate	37%
Working Duration	Less than 2 years	16.4%
	2-5 Years	32.9%
	6-10 Years	30.1%
	Over 10 years	20.5%

Tax Fraud

The study sought to determine how fraud tax mitigation strategies influence revenue collection at Kenya Revenue Authority for the last five years. The summary of the findings showed that majority 82.2% of the respondents strongly agreed that the amount of tax fraud has been on the rise while 17.8% of them neither agreed nor disagreed with the statement. Moreover, the findings of the study indicated that majority 67.3% of the respondents strongly agreed that the number of tax fraud detected has been rising every year, those who indicated agree were 22.6% while only 10.1% of them neither agreed nor disagreed. In addition, results of the study showed that majority 65.8% of the respondents strongly agreed that Tax fraud occurs frequently, those who indicated agree were only 30.1% while those who neither agreed nor disagreed were 4.1%. On average, the results of the study revealed that most of the respondents agreed with the statements on fraud tax (Mean=4.46). The responses given by the respondents were less varied as indicated by a standard deviation of 0.77.

Table 2 Descriptive Statistics for Tax Fraud

Statements	Neutral (%)	Agree (%)	Strongly agree (%)	Mean	Std Dev
The amount of tax fraud has been on the rise	17.8%	0.0	82.2	4.64	0.77
The number of tax fraud detected has been rising every year	10.1%	22.6	67.3	4.11	0.98
Tax fraud occurs frequently	4.1	30.1	65.8	4.62	0.57
Average				4.46	0.77

Diagnosics Tests Results

Multicollinearity Test for Tax Fraud

Multicollinearity is said to exist when the independent variables are highly correlated with a correlation above 0.8. The presence of multicollinearity produces spurious standard errors and gives false prediction. This study used a variance inflation factor (VIF) method to test for Multicollinearity of the study variables. The results as shown in Table 2 revealed that there was no presence of Multicollinearity since all the values of VIF were below 10. This implies that the use of OLS in estimating the effect of fraud mitigation strategies on tax fraud among large taxpayers would not give spurious results.

Table 3 Results for Multicollinearity Tests

Variable	Tolerance	VIF
Staff Training	0.803	1.245
Technology Adoption	0.814	1.228

Results of Independence Tests

The study sought to establish whether the error term of the OLS regression model was auto correlated. One of the assumptions of OLS is that the error term should not be auto correlated over time. The study used Durbin-Watson test to establish the presence of Autocorrelation. A value of 2 reveals absence of autocorrelation, a value less than 2 reveals positive autocorrelation while a value greater than 2 reveals presence of negative autocorrelation. The findings in Table 4 revealed that there is no autocorrelation.

Table 4 Results of Independence Tests

Variable Test	Test	Statistic
Staff Training	Durbin Watson	2.094
Technology Adoption	Durbin Watson	1.991

Test of Normality for Tax Fraud

The Gaussian test results are presented in Table 5. The results shows that normality test statistic computed for tax fraud using Kolmogorov-Smirnov (K-S) and Shapiro-Wilk tests are significant with p-value of .201 and .327 respectively. The test results shows that the p values are higher than 0.05, therefore we accept H_0 . This implies that the data are indifferent from normal.

Table 5 Results for Normality for Tax Fraud

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Tax fraud	.259	73	.201*	.780	73	.327

a. Lilliefors Significance Correction

* This is a lower bound of a true significance

Staff Training and Tax Fraud

The study sought to investigate the effect of staff training on tax fraud mitigation at Kenya Revenue Authority. The findings of the study revealed that majority 82.2% of the respondents strongly agreed that Kenya Revenue Authority staff have adequate training while those who neither agreed nor disagreed were 17.8%. The results also indicated that all the respondents strongly agreed with the statement that training has enhanced the public level of understanding of various tax regimes of tax compliance. Moreover, results revealed that 16.4% of the respondents strongly agreed that Kenya Revenue Authority staff have know-how on the operation of *itax* systems, 24.7% of them indicated agree, 41.1% of them neither agreed nor disagreed while 8.2% of them indicated disagree and those who strongly disagreed were 9.6%. Additionally, the study revealed that 12.3% of the respondents strongly agreed that the organizations have qualified personnel with advanced technological skills to combat fraud, those who indicated agree were 30.1%, those who neither agreed nor disagreed were 23.3% while those who disagreed were 19.2% and only 15.1% of them strongly disagreed. Lastly, the findings of the study showed that 26% of the respondents strongly agreed with the statement that the organization have regular awareness seminars on tax evasion and fraud, 23.3% of them indicated agree, 27.4% of them neither agreed nor disagreed while only 6.8% and 16.4% of them strongly disagreed. These results imply that most of the respondents agreed with the statements on staff training as a fraud mitigation strategy and their influence on revenue collection at Kenya Revenue Authority (Mean=3.87). The responses given by the respondents were less varied as indicated by a standard deviation of 0.91. the results are consistent with the

findings of a study by Akindele (2011) revealed that insufficient training, a break in communication and bad management skills are the root cause of fraud in the financial institutions.

Table 6 Descriptive Analysis Results for Staff Training

Statements	SD (%)	D (%)	N (%)	A (%)	SA (%)	Mean	Std Dev
Kenya Revenue Authority staff have adequate training	0.0	0.0	17.8	0.0	82.2	4.64	0.77
Training has enhanced the public level of understanding of various tax regimes of tax compliance	0.0	0.0	0.0	0.0	100.0	5.00	0.00
Kenya Revenue Authority staff have know-how on the operation of I tax systems	9.6	8.2	41.1	24.7	16.4	3.30	1.14
The organizations have qualified personnel with advanced technological skills to combat fraud	15.1	19.2	23.3	30.1	12.3	3.05	1.27
The organization have regular awareness seminars on tax evasion and fraud	16.4	6.8	27.4	23.3	26.0	3.36	1.38
Average						3.87	0.91

SD=Strongly Disagree D= Disagree N= Neutral A= Agree SA= Strongly Agree

The bivariate linear regression model linking Staff Training and tax fraud is presented below. The linear regression analysis shows that there is a relationship, $R = 0.267$ and $R^2 = 0.071$ which means that approximately 7.1% of the resultant changes in tax fraud among large taxpayers as indicated by a unit variation in staff training.

Table 7 Model Summary for Staff Training

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.267	0.071	0.058	0.396152

a Predictors: (Constant), Staff training

The bivariate linear model significance was evaluated using ANOVA. Regression results indicate that the linear association between staff training and tax fraud has an F value of $F = 5.45$

which is significant with p value $p=.022 < p=.05$ implying that the overall model is significant in forecasting the effect of staff training on mitigating tax fraud among large taxpayers.

Table 8 ANOVA Results for Staff Training

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.855	1	0.855	5.45	.022
	Residual	11.142	71	0.157		
	Total	11.998	72			

a Dependent Variable: Tax fraud

b Predictors: (Constant), Staff training

The regression coefficients for the model are presented in Table 8. The test results revealed that the beta coefficient of the resulting regression model, the constant $\beta_0 = 3.751$ is significant with p value $p = 0.022 < p = 0.05$. The coefficient $\beta = 0.166$, has a p value, $p = .022$ which is less than $p = 0.05$. This implies that staff training as a mitigation strategy is significant in the regression model. The findings agree with the findings of a study by Akindele (2011) which revealed that insufficient training, a break in communication and bad management skills are the root cause of fraud in the financial institutions. Similarly, Pettitt (2006) study showed that revealed that occupational activities for instance steady training, job variation and control support in reducing fraud.

Table 9 Regression Coefficients Results for Staff Training

Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.751	0.279		13.428	0.000
	Staff training	0.166	0.071	0.267	2.335	0.022

a Dependent Variable: Tax fraud

Technology Adoption and Tax Fraud

The study sought to assess the effect of technology adoption on tax fraud mitigation at Kenya Revenue Authority. The results of the study showed that majority 54.8% of the respondents strongly agreed that the organization had adopted ICT using software's to detect and mitigate fraud, those who neither agreed nor disagreed were 24.7% while those who indicated disagree were 16.4% and only 4.1% of them indicated strongly disagree. The findings also showed that 43.8% of the respondents strongly agreed that the organization uses forensic data analysis to assess and combat fraud, those who neither agreed nor disagreed were 19.2% while those who

disagreed were 26% and only 11% of them indicated strongly disagree. Moreover, the findings of the study showed that majority 57.5% of the respondents strongly agreed that the organization uses digital analytical tools to detect and combat fraud, 11% of them indicated agree, 8.2% of them neither agreed nor disagreed while 15.1% of them indicated disagree and those who strongly disagreed were 8.2%. Furthermore, the study showed that 28.8% of the respondents strongly agreed that the organizations have fingerprint and cornea identification systems to combat fraud, those who indicated agree were 13.7%, those who neither agreed nor disagreed were 27.4% while those who disagreed and strongly disagreed were both 15.1%. Finally, results revealed that 13.7% of the respondents strongly agreed with the statement that there is use of ICT protection tools such as firewalls and computerized control systems, 39.7% of them indicated agree, 28.8% of them neither agreed nor disagreed while only 4.1% and 13.7% of them strongly disagreed. These results imply that most of the respondents agreed with the statements on technology adoption as a fraud mitigation strategy and their influence on revenue collection at Kenya Revenue Authority (Mean= 3.56). The responses given by the respondents were varied as indicated by a standard deviation of 1.38. The findings agree with the results of a study by Dzomira (2014) which revealed that parastatals should overhaul their fraud mitigating policies by adopting frauds recognition exertions through innovative analytics with interrelated tools, applications and its software to attain better proficient oversight.

Table 10 Descriptive Analysis Results for Technology Adoption

Statements	SD (%)	D (%)	N (%)	A (%)	SA (%)	Mean	Std Dev
The organization had adopted ICT using software's to detect and mitigate fraud	4.1	16.4	24.7	0.0	54.8	3.85	1.35
The organization uses forensic data analysis to assess and combat fraud	11.0	26.0	19.2	0.0	43.8	3.40	1.53
The organization uses digital analytical tools to detect and combat fraud	8.2	15.1	8.2	11.0	57.5	3.95	1.42
The organizations have fingerprint and cornea identification systems to combat fraud	15.1	15.1	27.4	13.7	28.8	3.26	1.41
There is use of ICT protection tools such as firewalls and computerized control systems	13.7	4.1	28.8	39.7	13.7	3.36	1.19
Average						3.56	1.38

SD=Strongly Disagree D= Disagree N= Neutral A= Agree SA= Strongly Agree

The bivariate linear regression model linking technology adoption and tax fraud is presented in below. The linear regression analysis shows that there is a relationship, $R = 0.233$ and $R^2 = 0.054$ which means that approximately 5.4% of the resultant changes in tax fraud among large taxpayers as indicated by a unit variation in technology adoption.

Table 11 Model Summary for Technology Adoption

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.233	0.054	0.041	0.399787

a Predictors: (Constant), Technology Adoption

The bivariate linear model significance was evaluated using ANOVA. Regression results indicate that the linear association between technology adoption and tax fraud has an F value of $F=4.066$ which is significant with p value $p=.048 < p=.05$ implying that the overall model is significant in forecasting the effect of technology adoption on mitigating tax fraud among large taxpayers.

Table 12 ANOVA Results for Technology Adoption

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.65	1	0.65	4.066	.048b
	Residual	11.348	71	0.16		
	Total	11.998	72			

a Dependent Variable: Tax fraud

b Predictors: (Constant), Technology Adoption

The test results revealed that the beta coefficient of the resulting regression model, the constant $\beta_0 = 4.1$ is significant with p value $p = 0.048 < p = 0.05$. The coefficient $\beta = 0.083$, has a p value, $p = .048$ which is less than $p = 0.05$. This implies that technology adoption as a mitigation strategy is significant in the regression model. The study findings are consistent with the findings of a study by Mhamane and lobo (2012) which indicated that using forensic technology such as the use of analytical tools, ICT protection tools, firewalls and digital computerized control systems. The findings agree with the findings of a study by Mararia (2014) which showed that penalties and fines had a positive significant association with tax compliance. This resulted to an overall increase in collections as penalties and fined deterred tax evasion by taxpayers. Bindiya *et al* (2011) also revealed IT Fraud as one of the major problem of the

banking industry with India and were highly as a result of increased adoption of information technology, inducing more process and product innovations.

Table 13 Regression Coefficients for Technology Adoption

Model		B	Std.	Beta	t	Sig.
			Error			
1	(Constant)	4.1	0.153		26.751	0.000
	Technology Adoption	0.083	0.041	0.233	2.016	0.048

a Dependent Variable: Tax fraud

Combined Effect of Fraud Mitigation Strategies on Tax Fraud

The study used a multivariate regression model to so as to establish the effect of fraud mitigation strategies on tax fraud among large taxpayers in KRA. The overall regression model of the study was $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$ Where; Y = Tax fraud, X_1 = staff training, X_2 = technology adoption, and ε = Error term. The model summary results of the study showed that staff training and technology adoption all account for 60.4% of the variation in on tax fraud among large taxpayers in KRA. This is shown by a by an R-square value of 0.604. The regression results show that R was 0.777 which indicates that the association between the independent variables and the dependent variable is positive.

Table 14 Model Summary for the Study Variables

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.777	0.604	0.581	0.264325

a Predictors: (Constant), Staff training, Advanced technology

The findings of the study also revealed that the overall regression model linking staff training, technology adoption and their influence on tax fraud among large tax payers in KRA was significant as indicated by a significant F (4, 68) statistic as indicated by (0.000) significance level which was less than 0.05 at 5% level of significance. F calculated is 25.93 while f critical is 2.507. F calculated is greater than the F critical (25.93 >2.507), this showed that the overall model was statistically significant at 5% significance level.

Table 15 ANOVA for the Study Variables

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	7.247	4	1.812	25.93	.000
	Residual	4.751	68	0.07		
	Total	11.998	72			

a Dependent Variable: Tax fraud

b Predictors: (Constant), Staff training, Advanced technology

To examine the association between the dependent variables on the dependent variable, regression coefficients were generated as shown below.

Table 16 Regression coefficients for the Study Variables

Model	Coefficients	B	Std. Error	Beta	t	Sig.
1	(Constant)	0.459	0.455		1.008	0.317
	Staff training	0.306	0.053	0.491	5.772	0.000
	Advanced technology	0.161	0.03	0.453	5.356	0.000

a Dependent Variable: Tax fraud

Therefore, optimal multivariate Regression Model for the study is as shown below

Tax Fraud = 0.459 + 0.306 Staff training + 0.161 Advanced technology

The summary results of the regression coefficients revealed that staff training had a positive and significant influence on tax fraud among large taxpayers at KRA ($\beta = 0.306$, Sig = 0.000). This implies that an increase in the provision of adequate training to staff, increase in the know-how on the operation of / tax systems, use of qualified personnel to advance technology to combat fraud and holding regular awareness seminars on tax evasion and fraud leads to 0.306 unit effect on tax fraud among large taxpayers at KRA. The findings agree with the findings of a study by Akindele (2011) which revealed that insufficient training, a break in communication and bad management skills are the root cause of fraud in the financial institutions. Similarly, Pettitt (2006) study showed that revealed that occupational activities for instance steady training, job variation and control support in reducing fraud. Moreover, the findings of the study also indicate that advanced technology had a positive and significant influence on tax fraud among large taxpayers at KRA ($\beta = 0.161$, Sig = 0.000). This implies that an increase in the adoption of ICT software's to detect and mitigate fraud, using forensic data analysis to assess and combat fraud, using digital analytical tools to detect and combat fraud, using fingerprint and cornea identification systems to combat fraud and the use of ICT protection tools such as firewalls and computerized control systems leads to 0.161 unit effect on tax fraud among large taxpayers at

KRA. The findings agree with the findings of a study by Mararia (2014) which showed that penalties and fines had a positive significant association with tax compliance. This resulted to an overall increase in collections as penalties and fined deterred tax evasion by taxpayers. Bindiya et al (2011) also revealed IT Fraud as one of the major problem of the banking industry with India and were highly as a result of increased adoption of information technology, inducing more process and product innovations. Dzomira (2014) revealed that parastatals should overhaul their fraud mitigating policies by adopting frauds recognition exertions through innovative analytics with interrelated tools, applications and its software to attain better proficient oversight.

DISCUSSION

According to the descriptive statistics on the revenue collection at Kenya Revenue Authority for the last five years, the study revealed that majority 82.2% of the respondents strongly agreed that the amount of tax fraud has been on the rise, 67.3% strongly agreed that the number of tax fraud detected has been rising every year while 65.8% of the respondents strongly agreed that Tax fraud occurs frequently. The finding of the study that tax fraud has been on the rise and occurs frequently had a relationship with a high percentage of the respondent who indicated that the number of tax fraud detected has been rising every year. Inferential statistic show that staff training and technology adoption had a positive and significant influence on tax fraud among large taxpayers at KRA with $\beta = 0.306$ at Pvalue = 0.000 and $\beta = 0.161$ at Pvalue = 0.000 respectively. This implies that increase in the adoption of technology and staffs training to detect and mitigate fraud are effective methods that can be used to detect and combat fraud. According to Kanu & Okorafor, (2013), Kenya Revenue Authority introduced integrated tax management (itax) systems to seal the loopholes that affect revenue collection. The study further revealed that majority of Kenya Revenue Authority staff have adequate training although slightly below half 41.1% of the respondent agreed that KRA staff have know-how on the operation of i tax systems, 42.4% agreed that organizations have qualified personnel with advanced technological skills to combat fraud while half of the respondents 49.3% agreed that organization have regular awareness seminars on tax evasion and fraud. The indication is that despite the staff being adequately trained they may require special training on advanced technological skills to combat fraud and to effectively operate itax. Moreover slightly more than half of the respondents agreed that KRA have adopted ICT software's to detect and mitigate fraud and there is use of digital analytical tools to detect and combat fraud. In additional slightly below half agreed that KRA have fingerprint and cornea identification systems to combat fraud and uses forensic data analysis to assess and combat fraud. This implies that even though most

of the KRA transactions are done online much need to be done on embracing technological mechanism to detect, analyze and combat fraud.

CONCLUSION

The study concluded that the effect of Staff Training as a tax fraud mitigation strategy among large taxpayers at KRA was positive and significant. The study established that an increase in staff training practices in the combating of tax fraud for instance provision of adequate training to staff, increase in the staff know-how on the operation of *I-tax* systems, use of qualified personnel to advance technology to combat fraud and holding regular awareness seminars on tax evasion and fraud has a positive and significant effect on the mitigation of tax fraud among large taxpayers at KRA. The study established that Technology Adoption has a positive and significant effect in the mitigation of tax fraud at KRA. The study concluded that an increase in adoption of ICT software's to detect and mitigate fraud, using forensic data analysis to assess and combat fraud, using digital analytical tools to detect and combat fraud, using fingerprint and cornea identification systems to combat fraud and the use of ICT protection tools such as firewalls and computerized control systems positively and significantly impacts on the mitigation of tax fraud among large taxpayers at KRA.

RECOMMENDATIONS

The study recommends the management of Kenya Revenue Authority to regularly hold awareness seminars on tax evasion and fraud. The management should also provide adequate training to their staff so as to ensure they have know-how on the operation of *I-tax* systems. There is also a need to have qualified personnel with advance technological skills to combat fraud since it will lead to a significant mitigation on tax fraud. The study also recommends the management of KRA to increase the adoption of ICT software to detect and mitigate fraud. There is also need for the management to ensure that forensic data analysis using digital analytical tools to detect and combat fraud. The study further recommends for the adoption of fingerprint and cornea identification systems as well as the use of ICT protection tools such as firewalls and computerized control systems to combat fraud.

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