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# Effect of Electronic Fiscal Devices on VAT Collection in Tanzania: A Case of Tanzania Revenue Authority

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**ABSTRACT**
The study sought to assess the effect of implementing Electronic Fiscal Devices in VAT collection in Tanzania. The study analysed the importance of Electronic Fiscal Devices to TRA, taxpayers and other stakeholders with the aim of determining the impact of Compliance Checks using Electronic Fiscal Devices on VAT collection in Tanzania, to establish the effect of Roll Out of Electronic Fiscal Devices on VAT collection in Tanzania and to evaluate the effectiveness of Enforcement of Electronic Fiscal Devices on VAT collection in Tanzania. The study utilized secondary data obtained from 391 traders registered at TRA and utilizing Electronic Fiscal Devices. The study adopted a descriptive research design. Preliminary data analysis was conducted as a pre requisite to running regression analysis. The data collected was computed using STATA SE 12.1 and the output presented in form of tables. To answer the research objectives and hypotheses regression analysis was utilized where variables of the study were only able to explain 62.18% of the change in VAT collection and a 37.82% of the change being explained by other factors. The regression coefficients were negative for Compliance (-2.045778), positive for Roll out (2.040379) and positive for Enforcement (19.11515). Our variables of interest, that is, Roll out was statistically significant with a p-value of 0.038 while Compliance and Enforcement are statistically insignificant with the p-values of 0.055 and 0.188 respectively which are greater than a significant level of 0.05. The study found out that there is statistically significant relationship between Roll out and VAT collection. However, enforcement of EFDs and compliance check were found not to be significant related with VAT collection at 5% level of significance. The study recommends further longitudinal studies on the effects of roll outs, compliance checks, and implementation of Electronic Fiscal Devices on VAT collection in Tanzania.
**Key Words**: Electronic Tax Register, Electronic Fiscal devices, Expert Software, VAT Collection, Tax Compliance.

## INTRODUCTION

Value added tax (VAT) is an indirect consumption tax assessed on the value added to a product at each point in the cycle of production and distribution. It is a consumption tax because it is ultimately borne by the consumer, who pays a fixed percentage of the final sale price of a product. A VAT is levied on the difference between the purchase cost of an asset and the price at which it can be sold (i.e., the amount of value added to it). Producers and distributors typically pass the cost of the VAT on to the final consumer in the form of price increases. Sales tax is imposed on the total price of goods and services (Gale (Firm), 2009)

According to Chad and Wolf (1973), a number of countries have made efforts to deal with weak tax administration as well as reduced tax evasion and avoidance. Procedural demands that complicated administration are minimized (Chad and Wolf, 1973). Electronic Fiscal Devices (EFD), also referred to as till, is an Electronic Device for calculating, recording and transmitting sales transactions. Automation is the use of various control systems for operating equipment such as machinery, processes, switching in telephone networks, and other applications with minimal or reduced human intervention. The biggest benefit of automation is that it saves labor, energy and materials and to improve quality, accuracy and precision.

The governments discovered that the traders despite collecting sales proceeds efficiently failed to remit the same to government treasury coffers. This heralded invention of EFD's in Italy in October 1983 which works under Parliamentary Legislation. This new inventions had government (fiscal) security control mechanisms to ensure accurate reporting of sales taxes to Revenue Authorities (RA's). These devices are in use in 33 countries. In Africa, the Revenue Authorities like Kenya, Ethiopia, Tanzania, Rwanda, Malawi, Zimbabwe, Uganda – ratified law, Zimbabwe, Mauritius and Zambia– ratified law are joining the ETR league.

TRA's Electronic Fiscal Device (EFD) was introduced to VAT registered traders under the "The Value Added Tax (Electronic Fiscal Device) Regulation, 2010" - Subsidiary Legislation, Government Notice No. 192 published on May 28, 2010, and enshrined in the Finance Act 2010 with the main aim of enhancing VAT compliance in Tanzania. TRA's new EFD system became effective on July 1, 2010 (Finance Act, 2010). The system aims at aiding the taxman to get correct sales information from businesspeople; reduce tax collection costs and helping business people to comply with the Value Added Tax (VAT) regulations among others. This study assessed the effects of EFD adoption among VAT registered traders in Tanzania (Tanzania Revenue

Authority, 2014). TRA started to implement the second phase (Post Pilot) of Electronic Fiscal Devise (EFD) in 2013 with the aim of boosting revenue collections and simplify tax administration.

**Tanzania Revenue Authority**

In Tanzania, taxation of individuals under the Income Tax Act 2004 (ITA) is on the basis of both residence and source. Individuals are classified either as resident or nonresident taxpayers. Resident taxpayers are taxed on their worldwide income. Nonresident taxpayers (and residents who have not been resident for more than two years in total during their entire lives) are taxed on income accrued in, or derived from, Tanzania. Tanzania, like any other developing countries, has taken a number of measures to promote the growth of private sector and Small and Medium Enterprises (SMEs). In Tanzania, SMEs were estimated to account for a significant share of Gross Domestic Product (GDP) of more than 30% (IPP Media, 2012). The government of Tanzania formulates and implements various policies aimed at increasing job opportunities, development of infrastructure as well as income generation through the creation of new SMEs and improving the performance and competitiveness of existing one.

According Kerever (2008), special characteristics of African VAT is the degree to which implementation of the VAT has exposed the need for broader institutional transformation and modernization of revenue administrations. African countries necessitate having modern VAT collection and Revenue regulations system via technology. The tax authorities can also face a problem that while it transforms the administration activities from traditional economies through to globalized and electronic transactions in the same marketplace. And finally, authorities have found that VAT poses unique challenges in African economies in which commercial arrangements range from traditional economies through to globalised and electronic transactions in the same marketplace.

Automation facilitates the clearance of legitimate trade, improves the efficiency of taxation controls and secures revenue collection. In addition, it helps address expectations of traders and transport operators regarding transparency, predictability and reliability, as well as the simplification of border-crossing and administrative procedures (Peha, 1999). There has been a considerable growth in the usage of tax administration software and in the outsourcing of tax processes to external advisers throughout the world. According to Guyton et al. (2005) the share of self prepared tax returns without software in the U.S. dropped between 1993 and 2003 from about 41% to 13%, while the paid preparer use rose from 51% to 62%.

One of these initiatives by TRA was the introduction of EFD to combat revenue leakage or tax evasion by ensuring tax payers keep proper books of accounts via amending the VAT Act through the Finance Act 2010 (TRA, 2014). Tanzania Revenue Authority (TRA) has recorded an increase in Value Added Tax (VAT) under the use of Electronic Fiscal Devices (EFDs). Despite the fact that the Revenue collection has increased following the introduction of the Electronic Fiscal Devices the system is lacking support from business operator in the country this is due to high cost of buying the Electronic Devices. Therefore this may hinder voluntary tax compliance and may result to a decrease of tax collection percentage.

None of the previous studies has dealt with the effectiveness of EDFs implementation and VAT collection. This study therefore sought to assess the effectiveness of implementing electronic fiscal devices on VAT collection in Tanzania. The study aimed at assessing the effect of implementing Electronic Fiscal Devices on VAT collection in Tanzania. Specifically the study objective was to assess the impact of Compliance Checks using Electronic Fiscal Devices on VAT collection in Tanzania and the effect of Roll out enforcement of Electronic Fiscal Devices and on VAT collection in Tanzania.

## LITERATURE REVIEW

The Theory of Planned Behaviour (Ajzen and Fishbein, 1980) tries to explain human behavior. According to this theory, the behavior of individuals within the society is under the influence of definite factors, originate from certain reasons and emerge in a planned way. The ability to perform a particular behavior depends on the fact that the individual has a purpose towards that behavior (behavioral intention). Behavioral intention in turn depends on three factors that is attitude towards the behavior, subjective norms and perceived behavioral control. These three factors are also under the influence of behavioural beliefs, normative beliefs and control beliefs. As opposed to the economic theories that emphasize on increased audits and penalties as solutions to compliance issues, psychological theories lay emphasis on changing individual attitudes towards tax systems (Mengere, 2013).

According to deterrence theory, people carefully asses' opportunities and risks, and disobey the law when the anticipated fine and probability of being caught are small in relationship to the profit to be made through non-

compliance Murphy (2004). However some researchers have questioned the deterrence as the most appropriate model for explaining tax behavior. The recent study in the Australian context suggested that taxpayer attitude toward the tax system and the ways taxpayers feel treated by a tax authority are important in explaining taxpayer non-compliance (Braithwaite *et al*., 2001).

Economic theories generally call for increased audit and penalties as the solution to compliance. However, the policy prescription of psychological theories leads to emphasize on changing individuals attitude towards the tax system by increasing its perceived fairness and making it easy to comply with the tax low through such measures as superior website information, increased telephone assistance and appropriate information technology (Trivedi et al, 2005).

Pilkington (1998) deterrence theory suggests that a significant number of taxpayer would evade tax. The Fear of detection or deterrence theory suggest that taxpayer will maximize their own self interest by performing a cost benefit analysis, comparing the benefits of evading tax with the penalties of being caught out evading tax. According to some theorist, the perceived probability of being caught is a major motivating factor for complying with the law.

One of the earliest attempts to model taxpayer's compliance was done by Allingham and Sandom, (1972). According to the model the intuitive result that tax payer will voluntary report more income in response to either an increase in the probability of being detected, or an increase in the penalty imposed on those who are caught (Plumley, 1996). Allingham and Sandom (1972) view rational individual as maximizing the expected utility of the tax evasion gamble weighing the benefits of successful cheating against the risky prospects of detection and punishment.

The fiscal exchange theory suggests that, the presence of government expenditures may motivate tax compliance from the tax payers (Toye & Moore, 1998).According to Toye & Moore (1998), tax compliance among society increases with perception of the availability of public goods and services being developed in relation to the tax paid. This theory is more practical and acceptable than the previous one (economic deterrence) because, it advocates individual's willingness to comply without direct coercion. Furthermore, it serves the government from high collection costs resulting from enforcement measures. The main argument of this theory is that bargaining over taxes is central point to building relationships of accountability between state and society, based on mutual rights and obligations, rather than on coercion (Fjeldstad, at el., 2012).

Human behaviour in the area of taxation is influenced by social interaction in much the same way as other forms of behavior (Snavely, 1991). Compliance behavior and attitudes towards the tax systems may therefore be affected by the behaviour of an individual's reference group such as relatives, neighbours, and friends. This theory to a large extent, support the fiscal exchange theory and negate the economic deterrence theory. The society with government advocating good governance has better chances to comply with laws and orders including tax laws and vice versa.

Essentially all taxes shift resources to the government by threatening current resource holders, property owners, labour, international trading firms, etc. with punishments of various sorts if they do not "give" their resources to the government's tax collectors. In this sense, all taxes including VAT are coercive at the point of collection. This contrasts with government bonds and ordinary fees for services, because such transactions are voluntary at the point of collection. Bond buyers and public service purchasers feel better off after the purchase, whereas tax payers normally feel worse off after paying the tax although better off than had they not paid. On the other hand, insofar as taxes are used to fund desired public services, taxation as a method of government finance can be regarded as voluntary in much the same sense that the amounts paid can be regarded as voluntary. In such cases, voters prefer to "tax themselves" to pay for desired governmental services, rather than go without those services (Stephen, 2007).

The resultant observation is massive tax evasion in African Countries hence a case for more objective systems such as Electronic Fiscal Devices (EFD) which comprises Electronic Fiscal Printer (EFP) and Electronic Signature Device (ESD) and Electronic Tax Registers (ETR) as earlier defined in this paper (Feld & Matsusaka, 2003).

With the problem of efficiently controlling the VAT collections from hundreds of thousands of small retail outlets, there was a question of what the government auditor could do to secure fair auditing. What is the most efficient way to ensure everyone pays taxes and VAT? What can the authorities use to ensure fair play and equal opportunities for everyone? The answer to this question was the adoption of fiscal technology. In its basic form, fiscal technology is not only a technology but also a legally defined way to control key aspects of the way; business is done in retail sector (Kumar, 2005).

Electronic Fiscal Device (EFD) is a machine designed for use in business for efficient management controls in areas of sale analysis and stock control system which conforms to the requirements specified in the regulation and dully registered. Under section 5 of the revenue collection in Tanzania includes Electronic Fiscal Printer (EFP) and Electronic Signature Device (ESD). The device is called fiscal device due to the fact that it is intended to trace the economic activities of every business organization for tax purposes and report to TRA, thus ensuring accurate approximation of tax returns.

Many countries in the world today including Tanzania have special laws in place that make it obligatory for anyone who is selling goods or services to consumers to use cash registers (approved by tax authorities) that have special security features that enable the authorities to check in the reliable way of tax that the retailer has to pay (Mmanda, 2010).When dealing with fiscal devices, there are three types of EFDs Machines, namely: Electronic Tax Register (ETR), Electronic Fiscal Printer (EFP) and Electronic Signature Device (ESD).The ETR are appropriate and commonly used by retail businesses that issue receipts manually while the EFP are used by computerized retail outlets and are mostly suitable for business group such as supermarkets and petrol stations among others. The ESDs are used by computerized businesses that issue receipts or invoices via special accounting software. They can be easily used by manufacturers and wholesalers (Mmanda, 2010). Kumar (2005) classify the fiscal devices into Fiscal Electronic Tax Registers (FETRs), Fiscal POS Printers (FPs) and Fiscal Electronic Signature Devices (FESDs).

From an efficiency point of view an ideal tax system is one which is consistent with a Pareto optimal allocation of resources. The classical solution to the problem is to advocate lump-sum taxes, which are clearly neutral with respect to all marginal evaluations made by consumers and producers, but this is not a very helpful conclusion for the public finance economist. Although lump-sum taxes can be envisaged in the context of a once-and-for-all levy, it is much more difficult to imagine such taxes as a permanent system. If the public sector levies lump-sum taxes each year in such a way that the elasticity of the tax payment with respect to the taxpayer's income exceeds one everywhere, taxpayers will soon discover that they do in fact have a progressive income tax system and adjust their actions accordingly. Therefore, it is hard to resist the conclusion that lump-sum taxation is a bad assumption both from a descriptive and a normative point of view.

OECD (1999) recognize that in considering the definitions of compliance, it is convenient to divide compliance into two key categories: Administrative compliance; which refer to compiling with the administrative rules of lodging and paying on time, this include compliance with reporting requirement, procedural compliance or regulatory compliance. Technical compliance, which is tax, calculated in accordance with technical requirement of the tax law or the taxpayer pay their share of tax in accordance with the provision of the tax law. Sarker (2003) define tax compliance as the degree to which a taxpayer complies (or fail to comply) with the tax rules of his country.

According to Brown & Mazur (2003), taxpayer compliance is a multi-faceted measure. One theoretical appealing way to define compliance is to consider three distinct types of compliance: payment compliance, filing compliance and reporting compliance. The three mutually exclusive and exhaustive measures together provide a comprehensive look at overall taxpayer compliance. The filing compliance measures tracks the percentage of required returns that are timely filed. The reporting compliance measure tracks the percentage of true tax liability that is correctly reported and payment compliance measure tracks the percentage of reported tax that is timely paid.

Introduction of tax automation and advantages; the introduction of tax automation minimizes direct contacts between tax collection officers and traders or their agents, and hence leads to a reduction of corruption. Further benefits achieved through automation include improved reporting, control of file transfers, automatic reconciliation of tax returns declarations, and compliance testing of bank files. Paperless declarations and automation save time and make it easier to focus on inspecting high-risk transactions. The possibility of submitting tax returns declarations on-line has made it possible to reduce the associated fees; in other cases it has helped eliminate the obligatory contracting of VAT agents.

Experts says that the fiscalization (use of fiscalized devices like EFDs), together with introduction of VAT are the most important steps for controlling the economy (www.salesdatacontroller.com, accessed July 2014). An Electronic Fiscal Device is a piece of apparatus designed for use in business for efficient controls in sale analysis and stock control system. TRA identified three types of Electronic Fiscal Devices i.e., Electronic Tax Register (ETR) is used by retail business that issue receipts manually. Electronic Fiscal Printer (EFP) is used by computerized retail outlets. Electronic Signature Device (ESD) uses a special computer program to generate a unique number (Signature) which is appended to and printed to every invoice issued by the user's system. Eichfelder and Schorn, (2012), analyzed the relationship between tax compliance costs and business strategy in German data set of 1,220 small and medium-sized businesses. They find no similar cost-reducing effect for

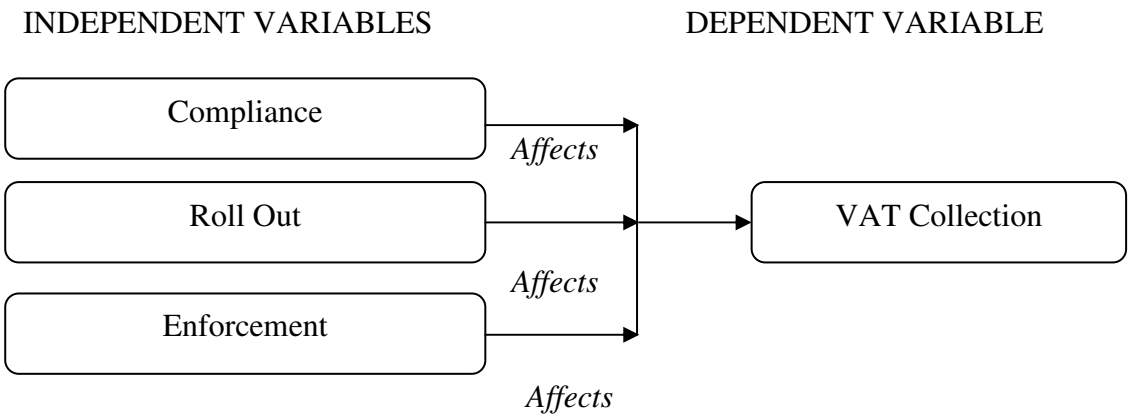
 

capital-intensive compliance strategies, electronic data interchange with the tax and social insurance authorities or a simplified cash accounting method for tax purposes

An IMF study, (2005) on VAT refunds found out that a pre-condition for successful reform is a strong commitment on the part of government and key stakeholders. The premises and equipment necessary for automation may include new or rehabilitated offices, hardware, software, internal communication systems and connections to external networks, and they may also require the set-up of wireless networks and links. Furthermore, the introduction of ICTs needs to be accompanied by extensive capacity building. Benefits of automation include a reduction of fraud, remote access to information, improved collection of statistics, and uniform application of tax legislation. Omweri and Bernard (2010) assess the effectiveness of Electronic Tax Registers (ETRs) in the collection of VAT returns. The study measured the problems of using Cash Register Machine facing tax payers and tax collectors as well as get possible solutions to the problems. The study sought to establish if the Electronic Tax Registers had increased the speed at which taxpayers processed their VAT returns and if there were any associated costs in the processing of VAT. Kenya has witnessed significant changes in many aspects of its economy over the last four decades, but like most developing countries, it has had to contend with the common problems that plague tax systems of developing countries (Karingi and Wanjala, 2005).

The findings of Schaffer & Turley (2001), on their study measuring effective tax administration in transition economies (TE) revealed that wide differences between effective or realized average tax rates and tax yields that would result if statutory tax rates were strictly applied indicate problems with tax compliance and collection. The methodology involves calculating an effective/statutory (E/S) tax ratio. Initial results indicate that the leading TEs have E/S ratios similar to the EU average. They find a positive correlation between progress in transition and effective tax administration, as measured by our E/S ratio. The effectiveness of VAT Collection depends on Compliance Checks, Full Roll Out, Partial Roll Out and Enforcement.

**Figure 1: The Conceptual Framework**




*Source: Authors (2014)*

**METHODOLOGY**

The study used a descriptive survey design because it enables the researcher to collect a large quantity of in-depth information about the population being studied. The target population of this study were a total of about 12,060 VAT Registered traders. The purposive sampling was in identifying and reaching the key informants on particular themes. A sample size of 391 traders in Tanzania who possessed the required data was used. The study utilized secondary data for the year 2010 and 2011. Secondary data was collected from 391 VAT registered traders in Tanzania Tanzanian obtained from Government and Revenue Authority officials, Research and Corporate Planning, Commissioners of Domestic Taxes and Managers in Charge of ETRs.

To achieve the objective of the study descriptive and inferential statistics (regression and correlation analysis) were utilized. The study employed a multivariate regression model to study the relationship between compliance checks, roll out and enforcement and VAT collection. The regression model was as follows:

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

Where: Y = VAT collection; $\beta_0$ = Constant term; $\beta_1$, $\beta_2$, and $\beta_3$ = Beta coefficients; $X_1$= Compliance check; $X_2$= Roll out; $X_3$= Enforcement; and $\varepsilon$ = Error term.

## RESULTS

The secondary data from 391 traders was analyzed using STATA/SE 12.1 and the output presented in form of tables and equation. Descriptive Statistics Analysis shows that VAT collection had a mean of 119.7225 with a maximum value of 726 and minimum of 0.1. It has a standard deviation of 230.9745 from the mean and a skewness of 2.014393 which indicates that the variable is positively skewed. In addition the kurtosis is 5.455763 implying that the variable is leptokurtic and thus not normally distributed.

Compliance had a mean of 235.175 which indicated that on average 235 traders had complied. The standard deviation is 316.526 with a maximum of 387 and a minimum of 88 traders complying in each of the regions under the study. Further it is noted that the compliance is positively skewed at 2.005687 and a kurtosis of 4.005869 which shows it is not normally distributed i.e (Kt=4.005869>3).

Roll out had a mean of 211.892 with a standard deviation of 309.237, the skewness is positive of 2.142137and a kurtosis of 4.536982 i.e (Kt=4.536982>3) implying not normally distributed. The maximum value is 378 and minimum of 104.

Enforcement had a mean of 9.571429 implying that on average 10 traders were found not observing the rules set with a maximum value of 49 and minimum of 0 in each of the regions under the study. It was noted that this variable had a positive skewness of 1.224789 and a kurtosis greater than 3 (3.534708) implying not normally distributed.

Table 1: Descriptive analysis

| **Descriptive statistics** | **VAT Collection** | **Compliance** | **Roll out** | **Enforcement** |
|---|---|---|---|---|
| **Mean** | 119.7225 | 235.175 | 211.892 | 9.571429 |
| **Standard deviation** | 230.9745 | 316.526 | 309.237 | 14.78936 |
| **Skewness** | 2.014393 | 2.005687 | 2.142137 | 1.224789 |
| **Kurtosis** | 5.455763 | 4.005869 | 4.536982 | 3.534708 |
| **Max** | 726 | 387 | 378 | 49 |
| **Min** | 0.1 | 88 | 104 | 0 |

Source: Research Data 2014

The results on correlation analysis (table 2) indicate that VAT collection and compliance are positively correlated with a value of 0.4828 however, the relationship is insignificant (0.0585 > 0.05) at 5% level of significance. Significant relationships were also observed between roll out and VAT collection (0.5018); roll out and enforcement (0.6757); roll out and compliance (0.5963) at 5% level of significance.

Similarly enforcement is significantly correlated with compliance (0.4863) and also positively correlated with VAT collection (0.5457) at 5% level of significance. The results further indicate that the variables under study are not highly correlated since they are less than 70% (>0.7). It was noted that the variables were all positively correlated and their relationship was also statistically significant since was less than 5% other than the relationship between VAT collection and compliance which was found to be insignificant.

Table 2: Correlation Analysis

| Variables | VAT collection | Compliance | Roll out | Enforcement |
|---|---|---|---|---|
| VAT Collection | 1.0000 | | | |
| Compliance | 0.4824<br>0.0585 | 1.0000 | | |
| Roll Out | 0.5018<br>0.0476 | 0.5963<br>0.0000 | 1.0000 | |
| Enforcement | 0.5457<br>0.0435 | 0.4863<br>0.0009 | 0.6737<br>0.0012 | 1.0000 |

Source: Research Data 2014

**Regression Analysis**

Regression analysis was conducted to determine the effect of the independent variables on the dependent variable. The results are as presented in Table 3.

Table 3: Regression results

| VAT Collection | Coefficients. | Std. Err. | t | P>t | [95% Conf. | Interval] |
|---|---|---|---|---|---|---|
| Compliance | -2.045778 | 0.942204 | -2.17 | 0.055 | -4.145139 | 0.0535834 |
| Roll Out | 2.040379 | 0.8547581 | 2.39 | 0.038 | 0.135859 | 3.944899 |
| Enforcement | 19.11515 | 13.51602 | 1.41 | 0.188 | -11.00043 | 49.23073 |
| Constant | 48.58669 | 60.78375 | 0.80 | 0.443 | -86.84794 | 184.0213 |
| Number of Observation =14<br>F( 3, 10) = 5.48<br>Prob > F = 0.0173<br>R-squared = 0.6218<br>Adjusted R-Squared = 0.5084<br>Root MSE = 172.18 | | | | | | |

Source: Research Data 2014.

The final model is a linear model which its interpretation precedes as follows:

$$VAT\ collection = 48.5867 - 2.04578\ Compliance + 2.04038\ Roll\ out + 19.1152\ Enforcement + \varepsilon$$

From table above, if all explanatory variables are held constant, VAT collection will increase by 48.5867 units. For a unit increase in the Compliance we have a corresponding decline in the VAT collection by 2.0458 units. For a unit increase in the Roll out, we shall have a 2.0404 increase in the VAT collection whereas for a unit increase in the Enforcement, we have VAT collection increasing by 19.1151 units.

From the model summary, it was concluded that the model was fit with a probability value of 0.0173 which is lower than 0.05 level of significance. Further the coefficient of determination has been explained at 62.18%. Thus, coefficient of determination (R Square) reveals significant relationship between variables of the study where 62.18% of the change in VAT collection can be attributed to compliance, roll out and enforcement and only 37.82% of the change being explained by other factors. Our variables of interest, that is, roll out is statistically significant with a p-value of 0.038 while compliance and enforcement are statistically insignificant with the p-values of 0.055 and 0.188 respectively which are greater than a significant level of 0.05.

## CONCLUSION AND RECOMMENDATIONS

The study sought to assess the impact of compliance checks using Electronic Fiscal Devices to tax collection in Tanzania Revenue Authority. According to Gang & Das-Gupta, (1998), tax compliance decision depends on income level of an individual taxpayer, inspection (audit) and compliance checks by tax authorities and deterrent measures put in place. The study findings indicate that compliance and VAT collection are statistically significantly related at 5% level of significance. Assessing the causal effect, the coefficient of compliance was also found not to be statistically significant at 5 % level of significance. The study concludes that there is

sufficient evidence to support the causal effect between compliance of live VAT with EFDs and VAT collection in Tanzania.

The second objective of the study sought to assess the effect of roll out of Electronic Fiscal Devices on VAT collection in Tanzania. The study findings show that the roll out of Electronic Fiscal Devices and VAT collection are not statistically significantly correlated at 5% level of significance. However the coefficient of roll out in the regression model was found to be statistically significant at 5% level of significance. The study therefore concludes that there is enough evidence of linking roll out with VAT collection. This can be partially attributed to the fact that roll out is somehow sufficient on its own since it will influence the level of enforcement and finally constituting compliance by the traders.

Lastly the study sought to assess the effectiveness of enforcement of Electronic Fiscal Devices on VAT collection. The study findings indicate that VAT collection and enforcement are not statistically significantly correlated at 5% level of significance. The coefficient of enforcement was also found not to be statistically significant at 5% level of significance. The study thus concludes that there is sufficient evidence not to link effectiveness of Enforcement of Electronic Fiscal Devices on VAT collection.

**Recommendations**

From the above findings, it can be concluded that the use of Fiscalised Electronic Devices and its efficiency depends heavily on Roll Out and compliance and Enforcement also plays a role.

The literature on tax compliance points out, the size of income of tax payer, knowledge of tax due, frequency of audit, probability of detection by tax authorities and severity of punishment if caught as some of the important determinants of tax compliance model. Tax compliance can therefore be increased if control measures are put in place to detect non compliers and punitive measures instigated. According to Ritsema et al (2003), tax compliance decision depends on income level of an individual taxpayer, inspection (audit) by tax authorities and deterrent measures put in place. However, this study does not provide enough evidence to statistically link the compliance using electronic fiscal devices with VAT collection.

Based on the study findings and review of the literature, Tanzania Revenue Authority (TRA) is advised to increase Rollout of EFD's and educational programs. Electronic payment of taxes through the banking system should also be utilized. When taxpayers are educated about various tax matters, they will know their rights and there will be less/ no tax ambiguity and tax evasion. The Government through TRA is advised to charge a single tax for small taxpayers which combine all types of taxes (Income Tax, VAT and Excise Tax) This will help to engineer the growth of SMEs since it will reduce the burden of tax and it will help the authority concern, that is, TRA to collect enough revenue since tax evasion will be minimized to a greater extent.

Tax policy reforms during the last decade in Tanzania have succeeded in widening the tax base. Overall, however, they have provided better support for tax collection than the policies of the previous regime**.** This study does not provide enough evidence to statistically link the effectiveness of enforcement of electronic fiscal devices with VAT collection.

The research findings finds it necessary to conduct further analysis using the panel regression to capture both time and individual effects of the items under study. Further research could be undertaken evaluate the impact of EFDs on VAT compliance on an industry by industry base to see whether there is any difference in compliance . Finally a study on the level of EFD adoption among rural and urban companies could also be undertaken to establish if there is a difference in compliance and roll out between the two locations.

**REFERENCES**

Allingham, M. G. & Sandmo. (1972). "Income Tax Evasion: A Theoretical Analysis." *Journal of Public Economics* 1 (3-4), 323–338

Ajzen. I & Fishbein. M (1980), "Understanding attitudes and predicting social behaviour", p. 278, *Englewood Cliff*; Prentice-Hall

Braithwaite V., Reinhart M., Mearns M., and Graham R., (2001) Preliminary findings from the community hopes, fears and actions survey: *Australian National University. Centre for tax system integrity*. Working Paper No 3.

Brown R. E. and Mazur M. J. (2003), "IRS's Comprehensive Approach to Compliance Measurement", *Internal Revenue Services*, Washington D.C

Chad S.K and B. Wolf (1973), Elasticity and Bouyance of the Tax System of Peru 1960-71: An Empirical Analysis", *International Monetary Fund Staff Paper* Vol 28

Eichfelder, S., & Schorn, M. (2012). Tax compliance costs: A business- administration perspective. *Public Finance Analysis*, *68*(2), 191-230.

Feld. L.P & Matsusaka, J.D, (2003). "Taxes, Financing Decisions, and Firm Value", *The Journal of Finance*, vol. LIII, No. 3, June

Fjeldstad, O. H., Schulz-Herzenberg, C., & Hoem Sjursen, I. (2012). People's Views of Taxation in Africa: A Review of Research on Determinants of Tax Compliance. *Available at SSRN 2411424.*

Gale (Firm). (2009). *Encyclopedia Of Management*. Gale/Cengage Learning.

Guyton, J. L., Korobow, A. K., Lee, P. S., & Toder, E. J. (2005). The effects of tax software and paid preparers on compliance costs. *National Tax Journal*, 439-448.

IMF (2005). Obligatory Use of Sales Register Machines council of Ministers Regulations No: 139/2.007 Washington D.C.: *International Monetary Fund.*

Karingi, S. N., & Wanjala, B. (2005). *The tax reform experience of Kenya* (No. 2005/67). Research Paper, UNU-WIDER, United Nations University (UNU).

Kerever. R. (2008), "VAT in Africa", *Pretoria University*, Law Press Pulp.

Kumar, R. N. (2005). Electronic tax register systems: an overview of the fiscalization devices. *Accountant (Nairobi, Kenya)*, 45-46.

Mengere. M.M (2013). "The Effect of Tax Related Education on PAYE Tax Compliance for KRA Audited Firms in Nairobi Central Business District", *Unpublished project report*, masters of business administration, school of business, university of Nairobi, Kenya.

Mmanda, P. (2010). A presentation on; Introduction of Electronic Fiscal Device in Tanzania. *TRA Journal*: Dar es salaam.

Murphy K., (2004), An Examination of Taxpayers Attitudes Towards the Australian Tax System: Centre for Tax System Integrity, *Working Paper No 46*.

OECD Committee of Fiscal Affairs Forum on Strategic Management, (1999), "Compliance Measurement – Practice Note: General Administrative Principles – GAP004 Compliance Measurement" Centre For Tax Policy and Administration.

Omweri. L & Bernard. M. O, (2010). *"The effectiveness of Electronic Tax Registers in processing of value added tax returns from registered VAT taxpayers in Kisii, Kenya"*

Peha, J. M. (1999). Lessons from Haiti's Internet development. *Communications of the ACM*, *42*(6), 67-72.

Pilkington, C. (1998). Taxation and ethical issues. *Ethical Issues in Accounting*.

Plumley, A. H. (1996). *The determinants of individual income tax compliance: Estimating the impacts of tax policy, enforcement, and IRS responsiveness*. Internal Revenue Service.

Ritsema, C. M., Thomas, D. W., & Ferrier, G. D. (2003, June). Economic and behavioral determinants of tax compliance: evidence from the 1997 Arkansas Tax Penalty Amnesty Program. In *IRS Research Conference*

Sarker T. K., (2003), "Improving Tax Compliance in Developing Countries Via Self- Assesment System – What Could Bangladesh Learn From Japan": *International Bureau of Fiscal Documentation*. Bangladesh.

Schaffer. M. E & Turley. G (2001). "Effective versus statutory taxation: measuring effective tax administration in transition economies," *Working Papers 62,* European Bank for Reconstruction and Development, Office of the Chief Economist.

Snavely, K. (1991). Marketing in the government sector: A public policy model.
*The American Review of Public Administration* 2, 311–326.

Stephen, M. (2007). "Attracting Foreign Investment Through Private Sector Partnership: What Hope for Nigeria?" *Development Policy Centre Research Report* No. 37, DPC

Tanzania Revenue Authority, (2014), VAT Tax Act, Cap 148 Laws of Tanzania.

Toye, J., & Moore, M. (1998). Taxation, corruption and reform. *The European Journal of Development Research*, *10*(1), 60-84.

Trivedi, V. U., Shehata, M., & Mestelman, S. (2004). *Attitudes, incentives, and tax compliance*. Department of Economics, McMaster University.

*www.salesdatacontroller.com*, accessed July 2014