The Effect of Electronic Fiscal Device Management Systems on Revenue Collection: A Case of Ilala Municipal Council

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ABSTRACT

The study examined the effect of the electronic fiscal device management systems on Revenue Collection: A Case of Ilala Municipal Council. The study adopted a convergent research design. The sample of 387 respondents was selected through simple random and purposive sampling. Data collection involved self-administered questionnaires and interviews to gather primary data. The Quantitative data were analyzed using descriptive and inferential statistics by the help of Software Package for Social Science version 26, while qualitative data was analyzed by using content analysis. The results from the findings indicated a positive correlation coefficient of 0.650 between Fiscal Device Management Systems and Revenue Collection. The regression model for Fiscal Device Management Systems as the predictor yielded a coefficient of determination (R squared) value of 0. 523 meaning that the fiscal device management system could explain the increase in revenue collection by 52.3% and thus to optimize the effect of information systems on revenue collection, the council should prioritize user engagement and education. Empowering users with knowledge and training on these systems is likely to increase adoption rates and improve revenue collection. Moreover, conducting comparative studies across different LGAs in Tanzania could offer valuable insights into how similar factors influence revenue collection in diverse administrative settings, leading to a more comprehensive understanding of effective revenue management strategies.

Keywords: Electronic Fiscal Device, Management Systems, Revenue Collection, Information Systems, Local Government Authority

INTRODUCTION

In order to ensure the efficient execution of government activities, revenue from taxes, excise charges, customs, licenses, and other sources is vitally important. One of the main ways that governments throughout the world raise money is through taxes (Tsai & Chang 2017). It is said that industrialized nations have cutting-edge and effective tax strategies that increase revenue collection. However, developing nations frequently have ineffective tax structures that hinder their efforts to collect taxes (Ahmed 2019). The higher total budget deficits in the Saharan nations are a result of minor increases in domestic revenue mobilization as a result of different reforms. Building a system of local government that is independent and accountable relies heavily on local revenue (Hair et al, 2010). Local Governments with strong local revenue collection have greater scope for autonomy and are more responsive to the needs and priorities of their citizens.

Globally, technology innovation has been crucial to the collection of taxes and other revenues (Asongu & Odhiambo 2021). The innovation plays an important role in minimizing errors, standardization of the operational procedures and reducing costs. Furthermore, technological innovation has reduced the

operational costs of revenue collections. With a reduction in expenditures, a probable residual budget is invested in means to enhance the citizens' welfare prioritizing the society's needs (Zeng, Lu & Shen 2019). The introduction of new tools to make corporate operations more effective has an impact on how taxes and other revenues are collected (Okeke & Nwoha 2018). Since information technologies at LGAs are changing so quickly, the current financial systems are being rendered outdated (Tetteh and Ofosu-Dwamena 2019). Due to the need for new applications to be developed to support the dynamism of financial operations, the requirement to integrate previously existing structures is becoming more challenging (Githinji & Mwega 2018). Additionally, the amount of processing data increases yearly, necessitating a scalable infrastructure to maintain the financial procedures (Nyamwange & Waema 2017).

In Africa, revenue collection is a major challenge facing many jurisdictions but the challenges tend to be more acute in comparison to developed countries (Kamau & Nyanamba 2019). Creating a sustainable revenue collection system that can administer own source revenues in an easy, efficient and cost-effective manner is a goal of many national and sub-national governments in Africa (Adeoti, Adeoti & Adegbite 2017). The revenue collection systems are aimed at raising more revenue; improving internal organization; ensuring greater accountability, transparency and integrity; improving taxpayer compliance and improving service delivery to taxpayers (Bagchi & Uddin 2017).

African governments are constantly under increasing pressure to collect more revenue with reduced budgets (Tien, Wu, and Lin 2020). This has caused them to adopt Local Government Tax Collecting Information Systems to improve revenue collection. However, the efficacy of these systems have not been established in African nations.

In Tanzania, Strong local revenue collection has a significant impact on local government autonomy and responsiveness to the needs and priorities of their constituents. To achieve this, many local governments in Tanzania have invested in information technology to enhance their revenue collection efforts. This investment in information systems has been encouraged by the government as a means to improve local government performance and the quality of public service delivery, as highlighted in the work of Asongu & Odhiambo (2021).

However, with the rapid and significant changes in technology, it is unclear to what extent these investments have led to increased revenue collection. Despite the investments made in information systems, many local governments in Tanzania continue to struggle to meet their revenue collection targets. As noted in the CAG Report for 2021/2022, most local governments are only able to achieve 50% to 70% of their intended collection targets, which raises concerns about their financial stability and ability to provide essential public services.

Despite the adoption and use of the tax management systems the Local government authorities are still collecting half or one-third of the planned revenue collections and thus basing on this the study has examined the effect of tax management systems on revenue collection in order to establish the extent to which the tax management system has contributed to the revenue collections in Ilala Municipal council.

LITERATURE REVIEW

Electronic Fiscal Device Management Systems is defined as per United Nations (2018) as essential tool for government organizations to track financial transactions, ensuring compliance with tax regulations and preventing fraud. These computer-based systems use advanced technology to manage and process financial data, such as sales and tax payments, and help to increase the accuracy and transparency of government financial transactions. By reducing errors and minimizing opportunities for misconduct, electronic fiscal device management systems can play a critical role in maintaining the integrity of government finances. According to this study the electronic fiscal device management systems is defined as the system that

collects, records, compiles and generate reports on the revenues collected by the public entities in order to increase efficiency, compliance and accountability in revenue collection.

Theoretical literature review

The study was guided by the technological acceptance model; model was developed by Davis and colleagues in the 1980s as a theoretical model with a narrow and dedicated focus on information technology adoption behaviour (Davis 1985, 1989, Davis et al 1989). The technology use is determined by perceived usefulness which is the prospective user's subjective probability that using the specific application system will increase his or her job performance within the organisation context (Davis et al 1989) and perceived ease of use defined as the degree to which the prospective user expects the target system to be free of efforts. The perceived usefulness and ease of use should be well communicated to overcome negative attitudes towards use and to inculcate positive behavior of intention to use. The model is suitable to the study because it has helped in explaining the acceptance and use of the electronic fiscal device management systems in revenue collection in local government authorities. The TAM technology has also been adopted because it can explain the factors for the adoption of the electronic fiscal device management system that include the expected revenue gains, thus the TAM adoption increases efficiency and compliance in tax collection

Empirical literature review

The study reviewed the following literatures that guided the establishment of the study as explained below

Chege et al (2015) examined the effect of Electronic Fiscal Devices on VAT Collection in Tanzania: A Case of Tanzania Revenue Authority. The study analyzed 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. The study was able to establish the importance of fiscal devices for tax compliance for the VAT and used a descriptive design but this study has established the effect of fiscal devices management on revenue collection and used the convergent research design.

Lyimo B.J and Makilully M.H (2022) examined the impact of Electronic Fiscal Devices towards Revenue Collection in Tanzania: A Case Tanzania Revenue Authority Arusha Region. The study found that there exists a statistically significant positive relationship between tax compliance using EFDs and revenue collection and there exist a statistically significant positive relationship between tax information transmission using EFDs and revenue collection. The study also found that there is statistically significant

positive relationship between efficiency and effectiveness of EFDs and revenue collection. The study concludes and recommends that the introduction of EFDs machines to taxpayers has been seen as an effective way to solve the problem of non-compliance and raise government revenues. The study established the importance of EFDs in tax compliance this research established the effect of fiscal device management on revenue collection

Salehe M (2015) examined the effect of introduction of electronic fiscal device on revenue collection in Kinondoni municipality council. The general objective was to explore on the effect of electronic fiscal devices in revenue collection in Tanzania with some specific objectives of the study were to explore on businessmen perception regarding the effect of EFDs to their business, To examine on the significance of Electronic Fiscal Devices in Revenue Collection in Tanzania, To determine on the challenges facing the introduction of electronic fiscal device as a tool for revenue collection ,and to determine the means of improving the adoption of EFDs as tools for Revenue collection in Kinondoni Municipality council in Dar-essalaam, to explore on businessmen perception regarding the effect of EFDs to their businesses, to examine the significance of electronic fiscal devices in revenue collection in Tanzania. The research findings indicated that there was an increase in revenue collection associated with the introduction of Electronic Fiscal Device in Kinondoni Municipality Council. EFD machines can then be deemed to enhance Revenue collection resulting from more accurate Revenue reporting. It can be concluded that the classified Taxpayers have adopted and complied with the requirements of EFD machines. The study recommends that the tax office should therefore strive to ensure full adoption of the EFDs machines since they increase the revenue collection. This study was able to establish the perceptions of the fiscal devices while this research established the effect of fiscal devices management on revenue collection

Peter G (2021) *Effect of Use of Electronic Fiscal Devices in Revenue Collection.* This study is assessing the effect use of electronic fiscal devices in revenue collection. The study adopted a descriptive design research and the data were collected by using structured questionnaire technique of data collection and data were analyzed by using statistical package for social sciences. The researcher found that, with regards to perceived usefulness the findings show that perceived usefulness is positively related with reporting of revenue and volume of revenue collected whereas it is negatively related to technical use and revenue collections. The findings further show that perceived trust is positively related with resistance of EFD, perceived risk of usage, time management results and identifiable results whereas there is a negative relation between perceived trust with construction of negative correlations. The findings further show that perceived risk is positively related to external battery, improved performance, and collection of revenue but negatively related to filling efficiency and accuracy. The researcher concludes perceived usefulness is positively related with reporting of revenue and volume of revenue collected whereas it is negatively related to technical use and revenue collections. researcher further concludes that perceived trust is positively related with resistance of EFD, perceived risk of usage, time management results and identifiable results whereas there is a negative relation between perceived trust with construction of negative correlations. The study concludes that perceived risk is positively related to external battery, improved performance, and collection of revenue but negatively related to filling efficiency and accuracy. The study recommends the government elimination of gaps in the legal, fiscal and contractual regimes which will results into government control on the resource reserves.

Manani J.N (2021) this study aimed at assessing the Electronic Fiscal Devices (EFDs) performance on tax revenue collection in Tanzania where the case study was TRA Mbeya region. The research used quantitative approaches, positivism philosophy and descriptive research design. A sample size of 86 respondents were selected from a study population of 110 TRA staff in Mbeya region through systematic sampling process. During the study, both primary and secondary data were collected from TRA staff in which primary data were collected using questionnaires and secondary data were obtained from TRA annual reports and other documents. Both descriptive and inferential analysis were used where the hypothesis was tested using Chi-

Square. The study found out that after introduction of EFDs in Tanzania the tax revenue collection was growing. For this reason, the study concluded that the introduction of EFDs in Tanzania brought significant performance in terms of amount of tax collected. From the findings of the study a number of recommendations have been proposed. These include, ensuring that TRA continues to provide education on the use and the importance of EFDs, the purchase price of EFDs be reviewed downwards, Taxpayers should change with change in technology, proper examination of taxpayer ability to pay tax so that the tax to be paid by each taxpayer is fair and TRA should ensure timely delivery of services especially in solving problems related to EFDs. Also, the study suggested further studies to be conducted on the same topic in other places in Tanzania as well as on other factors contributed to increase in tax revenue collection after introduction of EFDs other than EFDs.

Zakayo M. (2019) this study aimed to investigate the effect of introducing EFD machines on domestic VAT collection in Tanzania. The study combined both quantitative and qualitative design. The quantitative part used a time series data covering the period of 20 years from 1998 to 2017 inclusive. Qualitative information involved key findings from Key Informant Interviews (KIIs) with tax-payers and tax collectors. The Descriptive analysis as well as regression analysis was used to analyze key findings of the study. Findings on the mean difference between the period before EFD and the period after EFD showed a significant effect of TZS 1,087,141 of domestic VAT per annum. The Hedge's and granger effects size revealed an effect size of about 3% domestic VAT per annum. Further, the Johansen test for cointegration revealed both short run and long run relationship between EFD and Domestic VAT collection. Despite significant effect of EFD on domestic VAT, the study also identified some challenges of EFD which include high cost of purchase device, breakdown of the system, and personal attitude toward EFD usage, maintenance costs and fairness on tax estimation. Thus, the study recommended for the Authority (TRA) to address those challenges in cooperation with tax-payers. Since EFD has proven a significance effect on revenue collection especially VAT, it is a recommended system for tax collection.

Muhia and Karanja (2017) provides insights into the impact of electronic fiscal devices (EFDs) on revenue collection in the Kenyan informal sector. The study's use of survey data from 200 small businesses provides a nuanced understanding of the effectiveness of EFDs in improving tax compliance and revenue collection. The findings of the study suggest that EFDs can be a valuable tool for enhancing revenue collection in the informal sector in Kenya, which could have positive implications for the country's overall tax revenue. While the study provides valuable insights into the effectiveness of EFDs in enhancing revenue collection in the Kenyan informal sector, it does not specifically examine the impact of local government information systems on revenue collection in a municipal council like Ilala.

Tetteh and Ofosu-Dwamena (2019) provide further evidence of the effectiveness of EFDs in enhancing tax compliance and revenue collection in Ghana. The study's focus on the impact of EFD usage on value-added tax (VAT) revenue in Ghana, using data from the period 2013 to 2017, offers valuable insights into the potential of EFDs to improve revenue collection in the country. The study's results indicate that the adoption of EFDs has a positive effect on VAT revenue in Ghana, highlighting the potential for EFDs to enhance tax compliance and revenue collection in the country. The study provides important evidence on the potential of EFDs to improve revenue collection in Ghana, but it does not address the specific context of Ilala Municipal Council and the potential impact of local government information systems on revenue collection.

Zhang and Yang (2018) investigates the impact of EFDs on tax revenue in China, using data from a natural experiment that randomly assigned EFDs to different regions. The study's findings suggest that the adoption of EFDs has a positive effect on tax revenue in China, providing further evidence of the potential effectiveness of EFDs in enhancing accountability of revenue payments. The study's results have significant implications for policymakers in China and other countries seeking to improve tax compliance and revenue

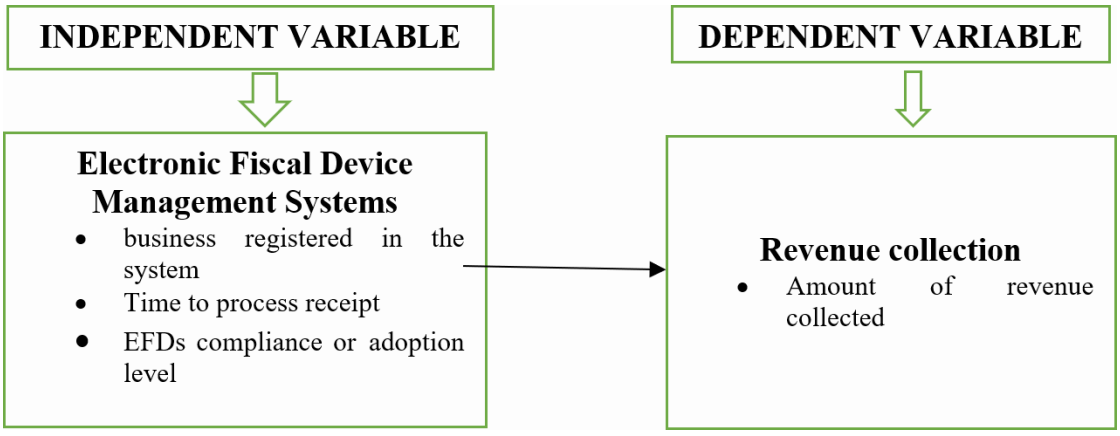
collection through the adoption of EFDs. Although the study offers valuable insights into the impact of EFDs on tax revenue in China, it does not examine the specific impact of local government information systems on revenue collection in a municipal council like Ilala.

Okeke & Nwoha (2018) conducted a study on the impact of electronic fiscal devices (EFDs) on value-added tax (VAT) compliance in Nigeria. Based on survey data from 200 businesses, the study found that the adoption of EFDs has a positive impact on VAT compliance. The results of this study suggest that EFDs can be an effective tool for improving VAT compliance and revenue collection in Nigeria. However, the study notes that the initial costs of acquiring and maintaining EFDs could be a barrier to their adoption, particularly for small businesses. However, there was a gap in research on how information systems at the local government level affect revenue collection, particularly in the context of Ilala Municipal Council. Githinji & Mwega (2018) investigated the impact of electronic fiscal devices (EFDs) on revenue collection in Kenya. Using data for the period 2013 to 2016, the study found that the adoption of EFDs has a positive impact on revenue collection. The results suggest that EFDs can be an effective tool for improving tax compliance and revenue collection in Kenya. The study also notes that the government's efforts to enforce the use of EFDs have contributed to increased compliance and revenue collection. However, there was a gap in research on how information systems at the local government level affect revenue collection, particularly in the context of Ilala Municipal Council.

Kamau & Nyanamba (2019) examined the effect of electronic fiscal devices (EFDs) on revenue collection in the hospitality industry in Kenya. Using survey data from 78 hotels, the study found that the adoption of EFDs has a positive impact on revenue collection. The results suggest that EFDs can be an effective tool for improving tax compliance and revenue collection in the hospitality industry in Kenya. However, the study also notes that the complexity of the EFD system and the need for training and technical support could be a challenge for small businesses in the industry. However, there was a gap in research on how information systems at the local government level affect revenue collection, particularly in the context of Ilala Municipal Council.

The conceptual framework

A conceptual framework is a visual representation of the variables, concepts, and their relationships in a study (Guest, Namey & Mitchell 2022). The conceptual framework for this study illustrates the relationship between the independent variables. In Gall, Borg & Gall's (2018) definition, a dependent variable refers to the variable that is being measured by the researcher in the experiment and is subject to change or influence by other variables. Conversely, an independent variable is the variable that remains constant and is not affected by the other variables in the experiment. The independent variable of this study is electronic fiscal device management systems while dependent variable was revenue collection. The independent variable is measured by business registered in the system, Time to process receipt, EFDs compliance or adoption level while the dependent variable is measured by the amount of revenue collected.



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METHODOLOGY

Research design

This study used a convergent research design to investigate the relationship between electronic fiscal device management systems and revenue collection. This is the mixed research design that enables a researcher to collect both the quantitative and qualitative data at the same time Creswell (2022). This study employed the convergent research design because the quantitative and qualitative data was collected and used at the same time.

Population of the study

The study targeted 532 employees and 12,000 tax payers directly involved in revenue collection activities at Ilala Municipal Council, as they could provide valuable information on the effect of electronic fiscal device management systems on revenue collection.

The sample of the study

The sample size of 387 respondents was considered appropriate and economical for the purposes of this study, with a confidence level of 95% and a margin of error of 5%. Sample size was obtained by using the formula of Yamane (1967) below;

$$n = \frac{N}{1+N.e^2} = \quad n = \frac{12{,}532}{1+12{,}532*(0.05)^2} = 387$$

Where n = number of samples, N = Total Population; e = 5%

Table 1: Sample Size

	Population	Sample Size
Employees	532	16
Users	12,000	371
Total	12,532	387

Source: HR Office Ilala Municipal Council (2023).

The study used both simple random and purposive sampling techniques. Simple random sampling ensured equal representation among users of electronic fiscal device management systems, while purposive sampling targeted employees directly involved in or affected by revenue collection activities.

Data collection instruments

The questionnaire was designed to gather information on electronic fiscal device management system, the questionnaire was adopted because it is easy to administer and get the required data in time while Interviews were conducted with employees of the council who were involved in or responsible for using the electronic the fiscal device management system on revenue collection, the interview was used because of the need of detailed information and perceptions on how the fiscal device management system have helped in revenue collection

Data analysis

Data analysis included content analysis for qualitative data and descriptive and inferential statistics for quantitative data. The Quantitative data obtained from the survey were processed and analyzed using descriptive and inferential statistics. The Descriptive statistics such as mean, median, mode, and standard deviation were used to summarize the data while the inferential statistics such as correlation and regression analysis were also employed. The regression model on the effect of electronic fiscal device management systems on revenue collection was as follows;

$Y= \beta 0+\beta 1X1+\alpha$

Where:

Y –Revenue Collection;

β0 – Regression coefficient / constant/ Y-intercept

β1 is the slope of the regression equation

X1 = Electronic Fiscal Device Management Systems;

α – Error term

Validity and Reliability of the Instrument

The Validity of the research instrument was assured. The Kaiser-Meyer-Olkin (KMO) measure was employed to further assess the validity of the collected data. The KMO score obtained was 0.765, exceeding the recommended threshold of 0.50, as suggested by Hair et al., (2010), indicating that the data was highly adequate for analysis. The results are presented in the table below:

Table 2: KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.765
Bartlett's Test of Sphericity	Approx. Chi-Square	424.818
	Df	6
	Sig.	.000

Source: Field Data (2023).

Cronbach's alpha, a statistical measure of internal consistency, was calculated to determine the consistency with which the questionnaire items measure the same construct. A value of 0.7 or above is generally considered acceptable for Cronbach's alpha in social science research (Beckman, 2016). The results presented in table 3.3 below indicate that the data instruments exhibited acceptable reliability, as Cronbach's alpha exceeded 0.7, meeting the standard criteria.

Table 3: Scale for Reliability

Reliability Statistics	
Cronbach's Alpha	N of Items
.863	9

Source: Field Data (2023).

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PRESENTATION AND DISCUSSION OF THE FINDINGS

Descriptive statistics

The study examines the effect of electronic fiscal device management systems on revenue collection, with the five Likert scale questionnaire. The decision criteria for the mean and standard deviation is represented in the decision matrix in table 4, in which it helped to decide whether the respondents strongly disagreed, disagreed, neutral, agree and strongly agree.

Table 4: Decision Matrix

Weight	Mean Values	Interpretation
1	1 – 1.4	Strongly Disagree
2	1.5 – 2.4	Disagree
3	2.5 – 3.4	Neutral
4	3.5 – 4.4	Agree
5	4.5 – 5	Strongly Agree
Standard Deviation (SD)		
Less than 1	Low Dispersion	
1 and Above	Great Dispersion	

The outcomes related to this objective are displayed in Table 5 offering insights on effect of electronic fiscal device management systems on revenue collection. Additionally, Table 5 provides a comprehensive view of the regression analysis to show the effect of electronic fiscal device management systems on revenue collection

Table 5: Effect of Electronic Fiscal Device Management Systems on Revenue Collection

	Mean	SD
Electronic filing systems have significantly increased the accountability of revenue payments.	3.8	1.17
The use of electronic fiscal device management systems has significantly improved the business registration	3.8	1.17
The adoption of electronic fiscal device management systems has greatly improve time to process receipts	3.8	1.16
Electronic fiscal device management systems have contributed significantly to the overall EFDs compliance level	3.8	1.12
Electronic fiscal device management systems have significantly improved the transparency of revenue payment	3.8	1.17
The electronic fiscal device management systems used in revenue collection are highly user-friendly.	3.8	1.21
Electronic fiscal device management systems have significantly reduced the time it takes to collect revenue.	3.0	1.16

Electronic fiscal device management systems have greatly improved the tracking and monitoring of revenue collection	3.9	1.12
The use of electronic fiscal device management systems has significantly increased the accountability of revenue payment officials.	3.8	1.18
AVERAGE MEAN	**3.72**	

Source: Field Data (2023).

The mean scores for each statement related to these systems ranged from 3.0 to 3.9, with standard deviations ranging from 1.12 to 1.21. Respondents strongly agreed that electronic fiscal device management systems have significantly increased the accountability of revenue payments (Mean = 3.8, SD = 1.17) as shown in table 5. This indicates that the use of electronic fiscal device management systems has led to a higher level of transparency and responsibility in revenue transactions, ensuring that the funds are collected and recorded accurately. Also, findings portrayed improvement in the business registration process (Mean = 3.8, SD = 1.17) as shown in table 5. This indicates that the electronic fiscal device management systems has led to a higher level of transparency and responsibility in revenue transactions, ensuring that the funds are collected and recorded accurately. During the interview, participants 8 and 9 interviewed on 21st July, 2023 stated that:*" Electronic fiscal device management systems have increased revenue payment accountability by introducing transparency and real-time tracking, ensuring accurate recording and reducing discrepancies."* And that *"With these systems, businesses can now register online, eliminating the need for time-consuming manual paperwork and physical visits to government offices. The digital registration process is faster, more efficient, and less prone to errors, enabling businesses to complete the registration quickly and commence operations promptly."* Thus the two results from the quantitative and qualitative analysis merges and shows that the electronic fiscal device management systems have helped in increasing transparency and ensures that the funds are collected and recorded accurately the results are in line with the results in Salehe M (2015) who found that EFD machines can then be deemed to enhance Revenue collection resulting from more accurate Revenue reporting.

Additionally, findings revealed that the adoption of these systems was perceived to greatly improve the time to process receipts (Mean = 3.8, SD = 1.16). The more efficient receipt processing can contribute to a smoother revenue collection process, making it easier for taxpayers to comply promptly and accurately. During the interview, one of the participant 10 stated that: *"The adoption of these systems has brought automation and efficiency to the receipt processing workflow. With traditional manual methods, processing receipts involved manual data entry and reconciliation, which could be time-consuming and prone to errors. However, with the new systems in place, revenue officials can now input and process receipts electronically, significantly reducing processing time."* Thus the two results from the quantitative and qualitative analysis merges and shows that the electronic fiscal device management systems have increasing timely and efficient receipt processing the results also are as shown in Peter G (2021) that the EFD has resulted in time management results in tax processes, which lead to more revenue being collected

The study indicates that these systems have significantly contributed to the overall Electronic Fiscal Devices (EFDs) compliance level (Mean = 3.8, SD = 1.12) as shown in table 5 above. The widespread compliance suggests that the introduction of electronic fiscal device management systems has positively influenced taxpayers' adherence to EFD regulations, leading to increased compliance rates. Also the participant 11 noted that *"These systems facilitate accurate recording and tracking of revenue transactions, leaving little room for errors or omissions. The real-time monitoring and reporting capabilities of the systems provide revenue officials with timely insights into compliance levels and potential issues. This enhanced visibility allows the council to address compliance challenges promptly, thereby encouraging businesses to adhere to EFD regulations more diligently, ultimately contributing to an overall increase in EFDs compliance."*

The results in line with the results found in Lyimo B.J and Makilully M.H (2022) who found out that the introduction of EFDs machines to taxpayers has been seen as an effective way to solve the problem of non-compliance and raise government revenues.

Also, respondents rated the time it takes to collect revenue using electronic fiscal device management systems lower (Mean = 3.0, SD = 1.16), indicating that there still challenges in this area. Nevertheless, respondents strongly agreed that these systems greatly improve the tracking and monitoring of revenue collection activities in the council (Mean = 3.9, SD = 1.12). During the interview, participants 13 and 14 noted that: *"The initial setup and integration of the electronic fiscal device management system takes time, leading to delays in the early stages. Additionally, there are occasional technical issues or network connectivity problems that could affect the speed of revenue collection transactions."* And that *"To enhance revenue collection efficiency, the council should invest in system updates, provide comprehensive training for officials, implement backup options for connectivity, and actively seek feedback for improvements."* The results of this study are in line with Manani J.N (2021) the results found out that TRA has to provide education on the use and the importance of EFDs so as to reduce the challenges associated with the use of the EFDs.

Overall, the study revealed the positive effect of electronic fiscal device management systems on revenue collection processes, with an average mean score of 3.72. This indicates that respondents generally view these systems favorably in terms of their effectiveness and contributions to revenue collection. The findings accentuate the importance of electronic fiscal device management systems as valuable tools in streamlining revenue collection and fostering greater efficiency in the overall process.

Regression Analysis

The researcher conducted a regression analysis to test the effect of electronic fiscal device management systems on revenue collection to test the model: $Y= \beta 0+\beta 1X1+\alpha$ and the findings were as follows:

Table 6: Univariate Regression for Fiscal Device Management Systems

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	
1	.650[a]	.523	.421	3.98896	
a. Predictors: (Constant), Fiscal Device Management Systems					
ANOVA[a]					
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3815.027	1	3815.027	239.761	.000[b]
	Residual	5203.161	327	15.912		
	Total	9018.188	328			
a. Dependent Variable: Revenue Collection						
b. Predictors: (Constant), Fiscal Device Management Systems						
Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	15.536	1.053		14.749	.000
	Fiscal Device Management Systems	.513	.033	.650	15.484	.000
a. Dependent Variable: Revenue Collection						

Source: Field Data (2023).

In table 6 above the Fiscal Device Management Systems as the predictor, yielded a coefficient of determination (R squared) value of .523. This suggests that approximately 52.3% of the variability in Revenue Collection can be explained by the fiscal management systems. The adjusted R squared value of .421 indicates that the predictor effectively captures the variance in the model. The standard error of the estimate is 3.98896.

The analysis of variance (ANOVA)

The analysis of variance results in table 6, have shown that a model is fit for the regression. The total sum of squares was 9018.188, with the regression sum of squares amounting to 3815.027. The associated F-value of 239.761 and a p-value of 0.000 affirm the statistically significant relationship between the predictor, Fiscal Device Management Systems, and the dependent variable, Revenue Collection. The residual sum of squares was 5203.161, the unstandardized coefficients reveal the specific influence of the predictor on the dependent variable. The constant term in the model was 15.536 with a standard error of 1.053. The coefficient for Fiscal Device Management Systems was .513, with a standard error of .033. The standardized coefficient (Beta) for Fiscal Device Management Systems was .650. The t-value of 15.484 and a significance level of .00 demonstrate a highly significant association between Fiscal Device Management Systems and Revenue Collection.

Discussions

Findings revealed that electronic fiscal device management systems have significantly increased the accountability of revenue payments, improved the business registration process as well as the time to process receipts. These findings align with Zhang and Yang's (2018) research, which also highlighted how Electronic Fiscal Devices (EFDs) enhance the accountability of revenue payments. Based on these positive outcomes, Ilala Municipal Council should continue leveraging and optimizing electronic fiscal device management systems to further enhance revenue collection processes, improve financial management, and bolster the overall effectiveness of its revenue administration.

The study found that these systems have significantly contributed to the overall Electronic Fiscal Devices compliance level. This finding aligns with Tetteh and Ofosu-Dwamena's (2019) research in Ghana, which also found that Electronic Fiscal Devices enhance tax compliance and revenue collection. Additionally, the study's results show that electronic fiscal device management systems improve the transparency of revenue payment processes and are perceived as highly user-friendly. This finding is consistent with the findings of Okeke & Nwoha (2018), who observed that Electronic Fiscal Devices serve as effective tools for improving VAT compliance and revenue collection. In Ilala Municipal Council, emphasizing the implementation and improvement of these systems can promote more openness, user acceptance, and eventually lead to better results in terms of revenue collection and tax compliance. The Council can improve its revenue management procedures and attain stronger financial stability by utilizing the advantages of electronic fiscal device management systems, allowing it to better meet the demands of the municipality and its customers.

Also, respondents rated the time it takes to collect revenue using electronic fiscal device management systems lower. This suggests that the implementation of these systems has contributed to faster revenue collection processes, potentially reducing delays and enhancing overall efficiency. However, it's essential to consider the insight from Kamau & Nyanamba's (2019) study, which highlighted the complexity of electronic fiscal device systems. The Council should spend money on training and support for its employees and taxpayers to ensure seamless and efficient use of the devices to fully reap the benefits of these systems.

In order to fully realize the potential benefits of electronic fiscal device management systems for revenue collection in Ilala Municipal Council, any complications in the system's design and operation must be addressed. The Council can improve financial management and constituent service delivery by streamlining the processes for revenue collecting.

The electronic fiscal device management systems greatly improve the tracking and monitoring of revenue collection activities. This enhances monitoring capability and provides the Council with real-time insights into revenue transactions, enabling better decision-making and timely interventions where necessary. The alignment with Muhia and Karanja's (2017) research, which emphasized the value of Electronic Fiscal Devices (EFDs) in enhancing revenue collection in the informal sector, further validates the importance of these systems in optimizing revenue management. The Council can improve revenue collection by utilizing the advantages of electronic fiscal device management systems.

CONCLUSIONS

The study concluded that electronic fiscal device management systems have a positive effect on revenue collection. These systems significantly increase revenue payment, accountability, and transparency, reduce revenue leakages, and improve receipt processing, minimizing taxpayer waiting times. Furthermore, these systems play a crucial role in tracking and monitoring revenue activities, providing valuable data for decision-making and resource allocation.

RECOMMENDATIONS

The study recommends for the regular audits and follow up for non-compliance to ensure that the businesses adhere to the regulations and use the systems accurately. Additionally, the training to revenue officials and users to minimize errors on the use of the systems by launching a public awareness campaign.

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APPENDICES

Appendix I: Questionnaire

Dear respondent, you are requested to participate in a study entitled **"The Effect of Electronic Fiscal Device Management Systems on Revenue Collection: A Case of Ilala Municipal Council"** by Ms. **ANITHA MCHWAMPAKA** from the Institute of Accountancy Arusha. Please provide true information. Responses you provide will be treated with utmost confidentiality. Do not fill your name in this questionnaire. Thank you!

1: PERSONAL INFORMATION

Please tick (√) in the most appropriate answer box

Gender; Specify your gender	1. ☐Male 2. Female
Age; Specify your age	1. ☐18 – 25 2. ☐26 – 35 3. ☐36-45 4. ☐Above 45 Years
Education Level; Specify your education level	1. ☐Certificate 2. ☐Diploma 3. ☐Degree 4. ☐Postgraduate

2. SPECIFI QUESTIONS

To assess the effect of electronic fiscal device management systems on revenue collection.

1=Strong Disagree 2=Disagree 3= Neutral 4=Agree 5=Strong Agree

Fiscal Device Management Systems	**RANKING SCALE**				
	1	**2**	**3**	**4**	**5**
The use of electronic fiscal device management systems has significantly improved the business registration					
The adoption of electronic fiscal device management systems has greatly improve time to process receipts					
Electronic fiscal device management systems have contributed significantly to the overall EFDs compliance level					
Electronic fiscal device management systems have significantly improved the transparency of revenue payment in our council.					
The electronic fiscal device management systems used in revenue collection are highly user-friendly.					
Electronic fiscal device management systems have significantly reduced the time it takes to collect revenue.					
Electronic fiscal device management systems have greatly improved the tracking and monitoring of revenue collection activities in our council.					
The use of electronic fiscal device management systems has significantly increased the accountability of revenue payment officials.					

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Appendix II: Interview Guide

Effect of electronic fiscal device management systems on revenue collection

1. How has the implementation of electronic fiscal device management systems affected revenue collection at Ilala Municipal Council?
2. What improvements have been observed in revenue collection processes since the implementation of electronic fiscal device management systems?
3. How have electronic fiscal device management systems improved the accuracy and reliability of revenue collection?
4. What challenges have been encountered in implementing electronic fiscal device management systems, and how have they been addressed?