

The Efficiency of Virtual Financial Data Management System in Increasing Tax Collection: A Cross-Sectional Study of Traders in Tanzania

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Abstract

Globally, several countries have been working to enhance the efficiency of tax collection. Various mechanisms, such as the Virtual Financial Data Management System (VFDMS), have been adopted to improve tax collection. This study aimed to assess the efficiency of Virtual financial data management system in increasing tax collection. The study used a cross-sectional survey design. The sample size was 334 traders who had used Virtual financial data management systems. This study used simple random sampling technique to collect data from traders. The questionnaire was used as the main data collection instrument. Data analysis was performed using SPSS version 20. Descriptive statistics using frequencies and percentages were performed, with the information presented in tables. The study results found that VFDMS performs with efficiency thereby increase tax collection. The findings show that more than half of the respondents (56.9%) strongly agreed that the VFDM system does not have any problems performing each transaction. The majority of the study participants (57.8%) strongly agreed that the level of efficiency increases during the day, while most of the respondents (44.9%) agreed that VFDM performance in the field is efficient and predictable. Additionally, nearly half (49.7%) of the respondents agreed that VFDMS stores all information accurately. The study suggests that government through Tanzania revenue authority (TRA) to enhance the efficiency of the VFDM system, further improve tax collection, and ensure that stakeholders feel confident in its use.

Keywords: Virtual Financial Data Management System (VFDMS), Value Added Tax (VAT), Tax collection

Introduction

Tax collection serves as the main source of central government revenue, supporting state-building, reducing long-term dependence on foreign assistance, enhancing the fiscal benefits of trade liberalization, and providing essential public goods and services(1).

While tax collection has been a longstanding priority in the Africa, a few countries have achieved sustained

revenue increases(2,3). Many African countries struggle to collect an adequate amount of tax revenue to support needed investments in public services(4). Despite some progress over recent years, improvements have been slow and uneven across countries in the face of persistent structural issues, high levels of informality, and weak reform efforts(5). Taxes in most of these countries are not sufficiently adapted to the specificity of the taxpayer and often do not consider the weak administrative capacity of the countries in the region(6).

To improve tax compliance and administration, several countries in Africa have adopted various mechanisms including introduction of electronic fiscal devices (EFDs) in their quest to combat noncompliance, particularly regarding the sales tax and the value-added tax (VAT) payable on sales(7). In East Africa, Kenya was the first nation to adopt Electronic Fiscal Devices (EFDs) in 2005, followed by Tanzania in 2010 and Rwanda in 2014(1,7)

Similar to other African governments, the Tanzanian government has been working to enhance the effectiveness of its value-added tax (VAT) system by minimizing tax evasion through various measures, such as improved tax legislation and more efficient administrative processes(8,9). A significant step in this effort was the introduction of Electronic Fiscal Devices (EFDs). It was anticipated that this new technology would benefit both the Tanzania Revenue Authority (TRA) and businesses by improving VAT compliance and lowering administrative and compliance costs (10). The introduction of EFDs aimed to: first, provide the TRA with accurate sales information from businesses; second, reduce tax collection costs; and third, helping businessmen to comply with value Added tax (VAT) regulation (11).

Despite the use of EFDs to stimulate the increase of revenue collection in Tanzania the target has not been reached, thus in 2021, TRA came up with new technology of revenue collection by using virtual billing payments systems where by a taxpayer use smart gadgets like smartphone, scanners and laptops to access the billing payments receipt direct from TRA(12).

The Virtual financial data management systems (VFDMS) requires every taxpayer to issue a fiscal receipt or invoice for each transaction, which is essential for value-added tax revenue collection and income tax assessment at the end of the tax year for each taxpayer(13). The introduction of the Virtual Financial Data Management System in Tanzania empowers the Tanzania Revenue Authority to accurately collect sales information from taxpayers, reduce tax collection costs, and enhance tax compliance (14).

Statistics indicate that Tanzania's government revenue surpassed 21.7 trillion shillings (approximately 9.4 billion USD) in 2020/21. From July 2021 to March 2022, the Tanzania Revenue Authority (TRA) collected TZS 16.69 trillion, achieving 97.3% of its target of TZS 17.15 trillion. This reflects an increase of TZS 3.1 trillion (22%) compared to the same period in 2020/21, when collections were TZS 13.59 trillion. In March 2022, TRA collected TZS 2.06 trillion against a target of TZS 1.98 trillion, achieving 103.6% efficiency and a 23.17% growth compared to March 2021's collection of TZS 1.67 trillion. TRA attributes these results to decreased tax evasion, improved taxpayer relationships, resolution of out-of-court tax disputes, and timely handling of taxpayer complaints (12).

A number of authors have been extensively studied the impact of EFD machines on revenue collection, Value added Tax collection and its impact on improving revenue collection(13,15–17). Despite impact of VFDMS on revenue collection in Tanzania, there is a dearth of evidence on the efficiency of Virtual financial data management system in increasing tax collection in Tanzania. Thus, this study aimed to fill this knowledge gap.

2.0 Literature Review

Studies reported that technology adoption is key in improving the efficiency and effectiveness in revenue mobilization(18). The study conducted in Ethiopia on the challenges of electronics tax register machine (ETRs) to businesses and its impact in improving tax revenue indicated that to the difficulty with ETR suppliers, tax payers were faced with unallowable costs and a lack of consistency and transparency in applying penalties on tax professionals. Taxpayers also complained about maintenance expenses and time, as well as greater compliance expenditures(19).

The study conducted in Tanzania on Impact of Electronic Fiscal Devices towards Revenue Collection in Tanzania. 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 (20).

Moreover, the study conducted by PCCB in Tanzania on the Effectiveness of EFDs in Improving Tax Compliance in Tanzania revealed that the problem of low tax compliance was mainly caused by weak enforcement of the law, lack of voluntary taxpaying culture. The study added that collusion between dishonest tax officials and traders, bribery, dishonest behaviours such as cheatings by either over or under-invoicing the receipts, harsh treatments against taxpayers and the negative perception toward payment of taxes was associated with low tax compliance (21).

In Kenya, the study conducted on Effect of Information Systems on Revenue Collection by Local Authorities in Homa Bay County found that there is a relationship between Information Systems (IS) and both efficiency and effectiveness in revenue collection, there is a strong positive relationship between Internal Control Systems and revenue collection(22).

In Malawi the conducted-on effectiveness of using electronic fiscal devices (EFDs) in revenue collection and compliance. The study found that using VAT collection has not increased revenue collection in the period under review as evidenced by a decline after the EFDs were rolled out. The mean of growth of VAT revenues in the two periods (pre- and post-EFD implementation) does not reveal any significant difference. The study added that the sales-purchases gap is not different between the two periods. The study revealed that EFDs have not been effective in increasing compliance, as shown by a decrease in timely filing of tax returns in the post-EFD era (23).

3.0 Methodology

Sampling and Data Collection

This study follows cross-sectional design using primary data collected from randomly selected 334 traders operating in the Dar-es-Salaam. The study area was preferred due to the fact that it is the largest commercial, industrial city and harbour of the United Republic of Tanzania. This study used simple random sampling technique to collect data from traders. Additionally, the study employed a questionnaire to gather data from traders regarding VFDM's efficiency. A sample was selected based on the population of registered trades using VFDM in Dar es Salaam. The total population of the registered trades using VFDM is 2,534. The Kothari formula was used as seen below(24).

$$n = \frac{Z^2 pqN}{e^2(N-1) + Z^2 pq}$$

Data analysis

SPSS version 20 was employed for data analysis. The data were analysed using descriptive statistics analysis. In descriptive statistics frequency and percentages were determined. This part of analysis was conducted to determine efficiency of Virtual financial data management system influence in increase tax collection in Tanzania.

4.0 Findings

4.1 Respondent background characteristics

The analysis for this study included a total sample of 334 traders operating in Dar es Salaam. Most of the study participants were female 185 (55.4%). Majority of the respondents (54.2%) 5-10 years of work experience in the business, and 45.8% had 1-5 years in business. Business model category indicated that nearly half of the respondents were direct-to-consumer (wholesale) (46.1%), followed by direct-to-consumer (Retail) (20.4%). All respondents (100%) were using VFDM, however 54.2% were using mostly compared to 45.8% this might have been influenced with availability of customers as presented in **Table 1**.

Table 1 Characteristics of the study respondents

S/N	QUESTION	RESPONSE	Frequency	%
1.	Gender	Male	149	44.6
		Female	185	55.4
2	Business model	Direct to Consumer-Wholesale	154	46.1
		Direct to Consumer-Retail	68	20.4
		Wholesale Online business	52	15.5
		Retail Online business	60	18
4	Position in business	CEO/Manager	164	49.1
		Shopkeeper	170	50.9
5.	Business experience (years)	1-5 years	153	45.8
		5-10 years	181	54.2
6.	Use VFDM system	Yes	334	100
7.	Frequently do you use VFDM system	Less than fifth daily	153	45.8
		More than fifth daily	181	54.2

4.2 The Efficiency of Virtual financial data management system in increasing tax collection

According to the study's findings indicated that more than half of the respondents (56.9%) strongly agreed that the VFDM system does not have any problems performing each transaction, while 41.3% agreed. The majority of the study participants (57.8%) strongly agreed that the level of efficiency increases during the day, with a minority (1.8%) remaining neutral. Most of the respondents (44.9%) agreed that VFDM performance in the field is efficient and predictable, while 0.3% strongly disagreed. Moreover, nearly half (49.7%) of the respondents agreed that VFDM stores all information accurately, as shown in **Table 2**.

Table 2: Efficiency of VFDM system

Statement	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The VFDM system does not have any problem with performing each transaction			6 (1.8%)	138 (41.3%)	190 (56.9%)
The level of efficient performance increases during the day			6 (1.8%)	135 (40.4%)	193 (57.8%)
Its performance on the terrain field is efficient and predictable	1 (0.3%)	3 (0.9%)	81 (24.3%)	150 (44.9%)	99 (29.6%)
It stores all information done	1 (0.3%)		71 (21.3%)	166 (49.7%)	96 (28.7%)

Source: Field Data (2023)

Discussion

The study aimed to assess the Efficiency of Virtual financial data management system in increasing tax collection. Studies reported that technology adoption is key in improving the efficiency and effectiveness in revenue mobilization (18). The study found that VFDM performs with efficiency thereby increase tax collection. VFDM system streamline tax payment and filing, lower the likelihood of corruption, and increase accuracy of the assessment of taxes. This study's findings are in line with the findings of previous studies, which found that VFDM reduces corruption and builds taxpayers' trust in the system (25,26). Additionally, these technologies improve the ability of tax inspectors to process tax returns and spot possible cases of tax evasion more quickly and effectively (27,28). The study's findings corroborate with studies conducted in China and India that found efficiency technology use enhances tax collection and has significantly boosted the total tax revenue collected (29,30). The findings of the study are not consistent with research carried out in Malawi regarding the efficiency of the VFDM system for collecting VAT. The study found that EFDs have not been effective in increasing compliance, as shown by a decrease in timely filing of tax returns in the post-EFD era(23).

The current study findings found that VFDM system had no any problem with performing each transaction. The absence of problems indicates that the system is likely efficient, which enhance user confidence and satisfaction. This might be explained by the appropriate selection of suppliers and manufacturers who manufactured and supplied devices in compliance with specifications (17). The previous study conducted in Dar es Salaam and Coast regions revealed that ongoing maintenance and updates of the VFDM system contribute to its reliability, minimizing potential problems. Furthermore, training provided to TRA staff is essential for enabling them to assist customers in implementing EFD (31). All these efforts by the Tanzania Revenue Authority aimed to ensure the effective implementation of EFD. The study findings are consistent with the previous studies conducted in Kenya which indicated that the introduction of ETRs led to an increase in the declared VAT by improving the accuracy of VAT reporting(18,32).

The results of this study indicated that the VFDM system performed efficiently and predictably in the terrain field as well as storing all required information. The possible explanation could be the adoption of

VFDM system suits the specific needs and conditions of Tanzania. The study conducted by Mokiri reported that EFDs have several features that make them useful and efficient not only to businesses but also to revenue collection agencies (33). TRA revealed that EFDs has in-built Fiscal Memory which cannot be erased by mechanical, chemical or electromagnetic interferences. EFDs also automatic self-enforcing Issuing of daily “Z” report after every 24 hours and transmits tax information to TRA system automatically(34). In addition, it has irreversible date mechanism and has tax memory capacity that stores data for at least 5 years or 1800-day transactions. Moreover, EFDs can be used as a stand-alone and configured into a network; and has at least 48 hours power backup, and it can use external battery in areas with no electricity supply (14,34). The efficient and predictable performance of the VFDM system in Tanzania enhances financial access and promotes greater economic participation among citizens. Previous studies found that VFDM system facilitates more efficient and effective operations by lowering expenses and raising revenues(7). Moreover, the implementation of technology in tax administration has promise for enhancing tax compliance, increasing accountability and transparency(21).

Conclusion

The study demonstrates that the efficient use of the Virtual Financial Data Management System (VFDMS) has contributed to the increasing tax collection in Tanzania. The system operates efficiently and reliably. VFDMS not only provides accurate information storage but also offers predictable performance in the field. To enhance the efficiency of the VFDMS, it is crucial for the Tanzania Revenue Authority (TRA) to conduct regular training sessions for tax officials and users of the VFDMS to maximize its potential.

Conflict of Interest

The authors declare that they have no competing interests.

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We concur with the statement made by British philosopher Jones Allen, who asserted that no duty is more urgent than the duty of returning thanks. Above all, we are grateful to Almighty God for the health, drive, and faith that sustained us during the process of completing this paper.

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