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Electronic Payment and Revenue Collection in Local Government Authorities in Tanzania: Evidence from Kinondoni Municipality

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Abstract

This paper examines the role of e-payment on revenue collection in Kinondoni Municipal, Dar es Salaam, Tanzania. A semi-structured questionnaire was distributed to revenue collectors and administrators using simple random sampling procedure; obtaining a total of 77 respondents. Data were analysed using descriptive statistics and linear regression. The findings revealed that most of the respondents admitted that e-payment influences revenue collection by enabling the Municipal increase tax compliance. It was further revealed that e-payment can provide additional competitive edge in monitoring revenue sources, and improving the quality of financial reporting. Furthermore, the findings revealed a positive linear relationship between e-payment and revenue collection in terms of tax compliance, monitoring of revenue sources, and financial reporting. The study indicated that all e-payment modes are aligned with tax compliance. Apart from positive achievements of e-payment, poor connectivity, limited awareness, lack of technical assistance, poor experience of the technology by tax collectors, and unreliable power supply were considered as challenges in implementing e-payment system. Thus, to hasten the use of e-payment system in revenue collection, it is crucial to address the identified challenges and conduct training to all tax collectors and tax payers. Also, the geographical information system (GIS) should be integrated in the e-payment system to automate the process of allocating revenue sources.

Keywords: *electronic payment, revenue collection, local government in Tanzania*

1. Introduction

Revenue collection plays an important role in fiscal decentralization in every country (Fjeldstad et al., 2017). It enables the state to attain assets that are free of indebtedness (Ngotho & Kerongo, 2016). According to Fjeldstad and Semboja (1999), a sound revenue system is measured by the aspects of equity, transparency and accountability, efficiency in economy, administrative feasibility, and ability in the mobilization of resources. Therefore, to achieve improved revenue performance, revenue collection in authorities should be accompanied with best practices of equity, economic efficiency, ability to pay, convenience, and certainty.

The revenue collection system in Tanzania has gone through various changes since the colonial period. After independence in 1961, local authorities were charged with the responsibility of tax administration and collection (Kayuza, 2014). These local authorities were not empowered to collect their own revenue, but operated as agents of the central government. After the establishment of the Arusha Declaration in 1967 and the East Africa Community (EAC), tax administration was

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supervised by the EAC (Mtasiwa, 2013). The crumble of local authorities and its local leaders in 1972 caused income tax to be collected by individuals and corporations administered by individual countries; while in 1973 the EAC was to oversee exercise and custom tax (Rondinelli et al., 1993; Mtasiwa, 2013).

Following the collapse of the EAC in 1977, tax and revenue administration in Tanzania was placed and remained under the Ministry of Finance until the restoration of local authorities in 1984 (Mtasiwa, 2013; Rondinelli et al., 1993). The Local Government Finance Act of 1982 empowered authorities to collect revenue from their owns sources, including property tax (Kayuza, 2014). In 1995 the parliament of the United Republic of Tanzania established the Tanzania Revenue Authority (TRA), which became operational in 1996. The authority was responsible to administer various government taxes except for property tax which was left under LGAs (Mtasiwa, 2013). Between the period 2008 and 2016 property tax administration has undergone decentralization and centralization into municipals and the TRA in an effort to improve efficiency in collection (Fjeldstad et al., 2017). The administration of taxes on goods and services such as licenses, fee charges, fines and penalties post-2016 to date are left under municipal authorities, while property tax is centralized to the TRA (Fjeldstad et al., 2017; Kaongo, 2015).

In all these periods, tax administrations mainly involved manual systems (Fjeldstad & Semboja, 1999). Several studies have shown that manual systems of revenue collection have many limitations and anomalies that inhibit effectiveness and efficiency in collecting revenue (Fjeldstad, 1999; Okiro, 2015; Fjeldstad et al., 2017). In manual collection, significant amounts of collected revenue are lost through fraudulent acts of collectors (Fjeldstad, 1999). Furthermore, other significant amounts are lost because of defaulters and the failure of the system to discern them. On the other hand, huge amounts of physical cash handled induce fraud, and also imposes security risks to collectors (Fjeldstad & Semboja, 1999). It can be observed that through this system, inconsistencies and inaccuracies in financial records may cause part of the collections not to reach the Treasury (Fjeldstad, 1999; Mtasiwa, 2013). These shortcomings increase the chances of shadow economy as not all payments are recorded, and an increase of tax evaders, leading to additional losses in tax revenue. Thus, manual systems of revenue collection obtrude the risks of overtaxing or taxing the wrong person, a dilemma in identifying when and where there is under-collection, where payments miss or lag, and where payments are paid in advance (Sohne, 2008).

After recognizing the arbitrariness of the manual system, the government of Tanzania was challenged and advised to implement different reforms to harmonize the performance of revenue collection. The reforms—including outsourcing of revenue collection to private agents, review of bylaws, broadening of tax bases, keeping tax rates low—were recommended to local authorities to cover financing gaps (Kimario, 2014). Despite of the implementation of these strategies, there are still complains from various stakeholders in the government —including the public, parliament, management of local authorities, and the Controller and Auditor

General (CAG)—on the persistence of poor revenue collection performance by LGAs (Kaongo, 2015). The URT (2016) revealed that only 10% of LGAs finance comes from their own sources, while 90% is from the central government and external grants; implying that variability between actual and projected collections in LGAs still exist. This necessitated the introduction of e-payments in revenue collection by LGAs to eliminate the weaknesses and anomalies exhibited by manual procedures in 2014.

Zahari et al. (2014) has argued that it is essential to channelize the system responsible for billing and receiving revenue to increase the collection of revenue by local authorities. In this spirit, in 2014 local authorities in Tanzania changed from manually administered system of own source revenue collection to online system of Local Government Revenue Collection Information System (LGRCIS), which is integrated with the Geographical Information System (GIS) (Fjeldstad et al., 2017). The system allows LGAs to identify taxpayers' properties, monitor fiscal devices; and includes electronic invoicing system that identifies and tracks payments (Fjeldstad et al., 2017). In the same regard, in 2015 the National Payment Systems Act was enacted to address electronic and mobile transactions in Tanzania (URT, 2016). The act was introduced to reduce risks, bring convenience, and reduce transaction costs. This further enhanced the move by LGAs to improve revenue collection by using electronic payment system, thus reducing loopholes and leakages, and ensuring that LGAs collect revenue to cover their estimated collections (Okiro, 2015).

Several studies have been conducted in Tanzania on the performance of revenue collection in LGAs. The studies indicate that poor revenue collections are due to administrative incapacity, inexperienced staffs, corruption, and poor plans and policies (Kaongo, 2015; Nuluva, 2015). To address the situation, some studies have advocated that ICT and e-payment will have an effect on the effectiveness and efficiency in operational performance (Sanga, 2015); increase monthly revenue returns (Mohamed, 2015); reduce administrative and collection costs, and increase transparency (Chatama, 2013).

However, so far these studies have concentrated on the impacts of ICT and e-payment (EFDs) on the performance of services and operations in general (Chatama, 2013; Kaongo, 2015; Nuluva, 2015; Sanga, 2015). These studies have not examined in details the role of e-payments in revenue enhancement in local authorities. In addition, they have not analysed the challenges causing the inefficiency and ineffectiveness of these e-payment methods of revenue collection. Therefore, this study examines the role of the introduced e-payment system on the collection of revenue in LGAs to fill the information gap. Specifically, the study aims to answer the following questions:

(i) What are the challenges of applying e-payment in revenue collection?
(ii) What is the role of e-payment in increasing tax compliance?
(iii) How can e-payment be used in monitoring revenue sources?
(iv) What is the influence of e-payment in improving financial reporting?

Theoretical and Empirical Review

Different authors have emerged with different definitions of revenue. However, for the purpose of this study, revenue is defined as the total amount of income generated from fines, billboards, penalties, license, parking fees, market fees, sale of properties, and other sources of revenue that falls under the capacity of local authorizes (Gideon & Alouis, 2013, Torome, 2013; Alade, 2015). The revenues collected from these sources not only enable municipals and local authorities to deliver services and goods to its citizen, but also to meet budget estimates and reduce dependency on external grants and the central government.

Moreover, this study defines Electronic Payment System (EPS) as a financial exchange that takes place online between payer and payee (Jansornet al., 2013, Hassan, et al., 2012). In the case of LGAs, the financial exchange takes place online via a digital instrument between taxpayers and authorities backed by banks or EPS intermediaries such as points of sale (PoS) and mobile money. Apart from these definitions, this paper used three theories—theory of innovation translation, theory of control and expediency, and theory of taxation—to explain the influence of e-payment on revenue collections.

The invention of e-payment can be related to the theory of innovation translation, which is also known as actor-network-theory (ANT), whereby actors translate innovation in accordance to the way it suits their needs instead of using it the way it was proposed to operate. In this regard, innovation movements are in the hands of the people, of whom each can react differently towards change. These innovations may be accepted, modified, deflected, or dropped. Markard and Truffer (2006) further argued that innovation is neither discovered nor inverted, but rather created from weaker to stronger transformations. Translation involves strategies through which an actor identifies other actors and arranges them in relation to each other. With regards to e-payment in revenue collection in Tanzania, the key actors are LGAs charged with the responsibility of administering and collecting taxes from revenue bases. In this case, the central government identifies weaknesses in revenue collection and formulates strategies, policies, and regulations to be instituted by LGAs, the TRA, and other institutions responsible for tax collection. These bodies implement proposed policies, strategies, and regulations at their levels to persuade taxpayers to comply with the established policies, strategies, and regulations.

Among the strategies used was to make taxpayers aware of their obligation in paying taxes and other incentives obtained. Furthermore, local authorities and collectors are charged with the responsibility of administering revenue sources, together with the registration of the sources. Thus, the target was to ensure that transparency and accountability are manifested; and taxpayers are educated on how to use e-payment as a new system of tax payment. All these strategies were initiated to improve trust among taxpayers, LGAs, and the government. Although the theory of innovation translation is relevant to explain various factors that improve revenue collection by the introduction of e-payment, there are still challenges that are forecasted, especially in the introduction of new system. In this

case the expediency theory of taxation is used to explain the criterion for tax to be applicable (Okiro, 2015). The theory states that for any proposed tax to be applicable, it must pass the approval of its practicability done by the authorities. Also, it should be capable of being levied and collected efficiently. The theory further describes the exchange relationship between taxpayers and authorities: authorities provides goods and services in direct proportion to what taxpayers have contributed (Bhartia, 2009). The argument here is that authorities should ensure that taxes collected are applicable to tax payers, and there are friendly tax collection mechanisms that attract payment of taxes. Hence, authorities should design efficient tax collection procedures at reasonable costs (Chigbu & Eze, 2012; Okiro, 2015). In its totality, the theory concludes that the formulation and administration of tax should relieve social and economic problems of the citizens

Apart from explanations on the instigation of e-payment, the control theory seeks to explain who and what is to be controlled and by whom, or what and why should be controlled (Markus, 1976), to achieve the ultimate goal of introducing e-payment. The control theory states that individuals or systems should be restrained within a designed goal (Abdelzaher et al., 2008) to obtain the desired output. Any divergence between the actual and expected results (error) is sent back to the system to obtain results that are closer to the reference point (Maisiba & Atambo, 2016). The control process prevents diversities based on the measured output, and thus assist in obtaining the targeted results or outputs (Abdelzaher et al., 2008).

In the context of this study, the controller is the local authority e-payment system charged with the sole responsibility of administering and collecting proceeds from revenue sources. Controlled input are resources allocated under local authorities, while the measured output is the amount of revenue collected from the resources, response time, and through put. LGAs are entitled to collect own revenues in accordance to their budgets to finance their services and activities in allowed and expected performance. Thus, the model implies that e-payments facilitate LGAs to achieve the collection of their due revenues. Thus, the control is built within the system taking into consideration other factors such as environmental surroundings that can affect the behaviour of tax collectors and taxpayers, policies, and procedures. Additionally, the expediency theory of taxation adds that administrative capacity of LGAs —such as e-payment in revenue collection—ensure that different taxes are accounted as required (Bhartia, 2009; Appah & Ebiringa, 2012).

E-payment was introduced in LGAs as a 'control system' to modify the existing manual revenue system that was performing poorly. It was expected to provide feedback for any divergence between actual and expected results (error), to help monitor any attempt of tax avoidance. It is from this perspective that this paper focused on how e-payment is used as an instrument to monitor revenue sources and tax compliance. Specifically, it is expected that an increase in the use of e-payment will increase tax compliance by monitoring revenue sources. Also, it will improve financial reporting not only for taxpayers but also for LGAs by keeping proper records. From these arguments, we can hypothesize that:

H_1: *There is a positive relationship between e-payment and tax compliance,*

H_2: *There is a positive relationship between e-payment and monitoring revenue sources,* and

H_3: *There is a positive relationship between e-payment and financial reporting*.

Apart from theoretical explanations, there are number of empirical studies that explain the role of e-payment in revenue collection. For example, Sanga (2015) conducted a study on the impact of electronic revenue collection on organizational performance in the Ngorongoro Conservation Area Authority (NCAA). Specifically, the study assessed the efficiency and effectiveness, users' satisfaction level and contribution of MY PARK credit system to the NCAA's operational performance. The findings show that MY PARK greatly improved revenue collection and control, even though the system had not been well-deployed during the time of the study. The study employed regression analysis to establish the relationship between e-payment and collection of revenues. However, the study only discussed the MY PARK credit card as the only means of e-payment; leaving aside other types of e-payment methods. This study covers other e-payment methods such as mobile money, online banking, points of sale, and credit/debit cards in relation to revenue collection.

Kapera (2017) conducted a study to investigate trader's attitude on the effect, significance and challenges facing the use EFDs in tax collection. Primary data were obtained using purposive and convenience sampling techniques, and secondary data from TRA annual reports. Descriptive and thematic approaches were used to analyse data collected. The findings revealed that there was a decrease in VAT revenue collected after the introduction of EFDs. The findings indicated that the high price of purchasing the machines caused lower perception to both taxpayers and tax collectors due to their accessibility. In addition, the results revealed network breakdown and the lack of knowledge among taxpayers and collectors as among the challenges facing EFDs in Tanzania. However, the study applied purposive and convenience sampling techniques which limited the analysis in establishing the relationship between the variables of the study, and hence failed to identify reasons behind the decrease in revenue collection after the introduction of EFDs machines. To avoid such shortcomings, this study employed probability sampling techniques, together with correlation and regression analysis to establish the relationship between revenue collection and e-payment methods.

Several other studies have also examined different areas of e-payment and revenue collection (see, e.g., Okiro, 2015; Ofurum et al., 2018; and Cornel, 2017). These studies used different approaches and methods, some of which have been adopted by this study. However, these studies failed to show how e-payments have influenced revenue collection and the challenges, which is the concern of this paper. Also, some of these studies used descriptive statistics like frequency distribution to analyse data that, however, do not show the relationship between variables, which is necessary when one examines the relationship between two variables. Generally, a review of these studies reveals a limited knowledge on how e-payment affects revenue collection. Additionally, there is also no similar study has been conducted in Tanzania, hence making this pertinent to the country.

Conceptual Framework

As aforesaid, this study focuses on assessing the role of e-payment to enhance revenue collection and identifying challenges facing LGAs in implementing e-payment. In this regard, it employs PoS fake receipts assessment, PoS fund diversion, credit card risk, online banking, and mobile money as indicators of e-payment. On the other hand, revenue collection is linked to the tax compliance, monitoring of revenue sources, and financial reporting. Fig. 1 summaries these variables.

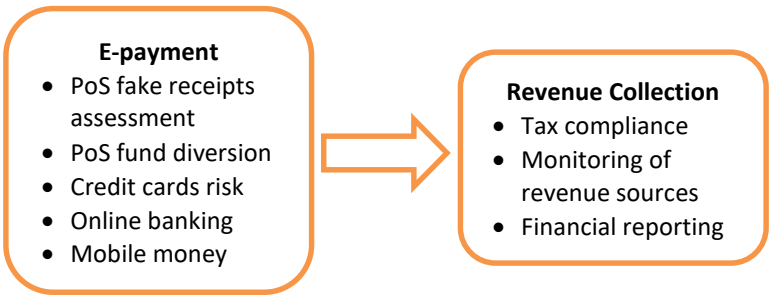


Figure 1: ***Conceptual Framework***

Source: Synthesized from literature

Methodological Considerations

The study was conducted in Kinondoni Municipal in Dar es Salaam city, Tanzania. All employees responsible for revenue collection in the Municipal were considered as unit of analysis from which the sample was drawn. In addition, these employees were considered appropriate as a population of the study because they are responsible for routine monitoring of revenue sources. A Likert scale questionnaire was used to collect responses in the key variables summarized in the conceptual framework. The stratified sampling technique was used in selecting the respondents. Specifically, the population was described by its location, whereby respondents from Magomeni, Namanga, Mikocheni, Mwenge, Kibo Complex and Bunju were considered. The study adopted the Tabachnick and Fidel (2007) rule to obtain the appropriate sample size. This rule suggests that a sample size for testing multiple correlations can be $N \geq 50 + 8m$; where m is the number of independent variable(s); and N is a sample size. They added that a sample size for testing individual predictors can be estimated by $N \geq 104 + m$. The study used tax compliance, monitoring revenue sources, and financial reporting indicators as independent variables. In this case the required sample size is ($N \geq 50 + 8^{*}3 \geq 74$). Thus, 74 respondents were considered adequate for the study although the data was collected from 77 respondents.

To obtain the real knowledge and information for analysis based on the objectives of the study, primary data was collected through questionnaires. The questionnaires were self-administered to the selected respondents. To ensure validity of the collected data, extensive literature review was conducted to develop appropriate questions. Additionally, the questionnaire was pretested to five (5) respondents before being improved for final data collection. The questionnaire was

also shared with several experts on the subject who ascertained the appropriateness and adequacy of the instrument. On the other hand, Cronbanch's alpha coefficient was used to examine the reliability of data collected. According to Nunnally (1998), Cronbanch's alpha coefficient of at least 0.70 is considered adequate to assure the reliability of collected data.

The questionnaire was divided into five areas: e-payment usage in tax collection, tax compliance, monitoring revenue sources, financial reporting, and challenges in applying e-payment in revenue collection. The analysis of reliability indicates that e-payment usage in tax collection recorded the lowest value of alpha (0.712), and financial reporting recorded the highest value of alpha (0.892). This implies that data collected were authentic and can be used to answer research questions and draw conclusions of the study. After assurance of validity and reliability, data were analysed using both descriptive and inferential statistics. Specifically, regression analysis was used to assess the relationship between e-payment and revenue collection.

The analysis of findings as presented in the next section is based on descriptive results on the profile of the respondents, and the challenges of applying e-payment in revenue collection. Specifically, the study used regression analysis as described in the following three equations to test the formulated hypotheses.

$$Y_1 = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$$
$$Y_1 = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$$
$$Y_1 = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$$

where: Y_1, Y_2, and Y_3 are tax compliance, monitoring of revenue sources and financial reporting improvement, respectively; X_1, X_2, X_3 are PoS fake receipts assessment, PoS fund diversion, credit cards risk, online banking and mobile money; α is the constant; and β_1 are coefficients of X_1.

Before the interpretation of the regression results, the study examined the model summary and ANOVA results for F-test. As presented in the next section, these results warranted the interpretation of the results of regression confidents.

Findings and Discussion

Profile of Respondents

The profile of the respondents is divided into five items: gender, age, education level, job position, and level of experience. These characteristics were considered to be important because it is argued that demographic characteristics of individuals tends to reveal the rate of the acceptance of a particular innovation (Rogers, 2003). With regards to gender, the findings show that male respondents were 55.8%, and female respondents were 44.2%. This indicates that males were more dominant among respondents who participated in the research. The results further show that 42.9% of the respondents were within the age group of 18-35 years, 54% were aged between 36-55 years, and 3% of the respondents were above 55 years. The distribution of the age group follows the national structure that is

in the form of a pyramid. Furthermore, the findings indicate that most of the employees (62.3%) had attained first degree, followed by 23.4% with diploma education, and only 6.5% had masters' degree. Most of the respondents had a first degree in line with the job requirements of employing candidates with at least a first degree.

The findings on the respondent's job position revealed that 42.9% of the respondents were revenue officers, while accountants and trade officers were 27.3% and 29.9%, respectively. With regards to the experience of the respondents, the findings show that 37.7% of the respondents had work experience of 2–5 years, 32.5% had more than 5 years of working experience, and the rest (32.5%) had less than 2 years of working experience in the Municipal. This implies that respondents had worked in municipal revenue collection for a reasonable period to be able to understand clearly the trends and operations of the revenue collection system.

Relationship Between E-payment and Revenue Collection

As mentioned earlier, the main objective of this paper is to examine the relationship between e-payment and revenue collection. Under revenue collection, three variables were examined: tax compliance, monitoring of revenue sources, and financial reporting. The independent variables are: PoS, mobile money, credit or debit cards, and online banking. In this regard, the first objective assessed the relationship between e-payment and tax compliance. Table 1 presents results of the analysis of the nature and strength of the relationship between e-payment and tax compliance.

Table 1: Model Summary and ANOVA for E-payment and Tax Compliance

Model Summary					ANOVA					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		Sum of Squares	Df	Mean Square	F	Sig.
1	.752[a]	.566	.512	.73954	Regression	32.964	5	4.709	8.610	.000[a]
					Residual	37.738	69	.547		
					Total	70.701	76			

a. Predictors: (constant), credit cards risk, online banking, mobile money, PoS fake receipts, PoS fund diversion

b. Dependent Variable: Tax compliance

The mode summary in Table 1 shows that over 50% of the respondents agreed that variability in tax compliance are accounted by e-payment variables (R Square = 56.6%). To determine what impact e-payment has on revenue collection in terms of tax avoidance, ANOVA was conducted. The fitted model was further diagnosed and found to be statistically significant at 5% level of significance ($p = 0.000$; $p < 0.05$), indicating that the data fits the model developed. Specifically, the value obtained indicates that the linear regression model produced provide a better fit to the data than a model that contains no independent variables.

The findings in Table 2 show that all predictors, except constant, were significant. The results indicate that all indicators of independent variables explain the relationship between e-payment and tax compliance. Among all predictors, eliminating fund diversion into individual accounts, PoS contributes uniquely more than other predictors (β= 0.219 at p= 0.007) in explaining the relationship between e-payment and tax compliance in revenue collection. On the other hand, PoS fake receipts assessment recorded the least value of (β = 0.172 at p = 0.023) in explaining the relationship. As Table 2 indicates, other independent variables were all significant at different levels. These variables with their values are credit cards risk (β = 0.204 at p = 0.011); online banking (β = 0.203 at p = 0.010); and mobile money (β = 0.197 at p = 0.010). All values of βs indicate a positive and significant relationship between e-payment and tax compliance. The results also show that for every unit, an increase of each variable of e-payment led to an increase in tax compliance by a value equivalent of beta coefficient.

Table 2: Coefficients for E-payment and Tax Compliance

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		β	*Std. Error*	*Beta*		
1	(Constant)	0.564	0.526		1.073	0.287
	PoS fake receipts assessment	0.172	0.074	0.239	2.327	0.023
	PoS fund diversion	0.219	0.079	0.292	2.786	0.007
	Credit cards risk	0.204	0.075	0.24	2.336	0.011
	Online banking	0.203	0.076	0.268	2.656	0.01
	Mobile money	0.197	0.074	0.272	2.663	0.01

a. Dependent variable: tax compliance

The second objective investigated the extent to which e-payment influences monitoring of revenue sources. Here, the independent variables were credit cards risk, PoS fund diversion, and PoS fake receipts assessment. Table 3 illustrates the nature and the strength of the relationship between e-payment and monitoring of revenue sources.

Table 3: Model Summary and ANOVA for E-payment and Monitoring Revenue Sources

Model Summary					ANOVA					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		Sum of Squares	Df	Mean Square	F	Sig.
1	.663[a]	.440	.120	4.1040E8	Regression	7.4061	3	2.50298	14.569	.000[a]
					Residual	9.4681	55	1.78610		
					Total	1.69832	56			

a. Predictors: (constant), credit cards risk, online banking, mobile money, PoS fake receipts, PoS fund diversion.

b. Dependent variable: revenue sources monitoring.

As per Table 3, 44% of variability in monitoring of revenue sources is explained by e-payment variables, whereas the remaining 66% is explained by other factors that were not addressed in the regression model (R Square = 0.44). On the other hand, the fitted model was statistically significant at 5% (p = 0.000; p < 0.05), indicating that the combination of the mentioned variables significantly influences monitoring of revenue sources; hence, the model fits the data used.

The coefficients of e-payment on monitoring revenue sources presented in Table 4 were all significant. The results in the table show that PoS in fake assessment had a β = .118 at p = 0.014, while PoS fund diversion had a β = .023 at p = 0.003. These results indicate that both PoS fake assessment and PoS fund diversion had significant positive relationships with monitoring revenue sources. In addition, the findings of other variables were credit cards risk (β = .018 at p = 0.002); online banking (β = .105 at p = 0.000); and mobile money (β = .028 at p = 0.001). Like the results on tax compliance, all values of βs indicates a positive and significant relationship between e-payment and monitoring of revenue sources.

Table 4: Coefficients for e-payment and Monitoring Revenue Sources

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		β	***Std. Error***	***Beta***		
1	(Constant)	3.059	.637		4.799	.000
	PoS fake receipts assessment	.118	.103	.149	2.327	0.014
	PoS fund diversion	.023	.105	.028	2.786	0.003
	Credit cards risk	.018	.107	.019	2.336	0.002
	Online banking	.105	.109	.128	.105	.000
	Mobile money	.028	.105	.035	2.663	0.001

a. Dependent Variable: Monitoring Revenue Sources

The results also show that for every unit increase of each e-payment's variable led to an increase in monitoring of revenue resources by a value equivalent of beta coefficient. Therefore, we can conclude that e-payment has a positive relationship with revenue collection in terms of monitoring of revenue. Having information of revenue sources via the e-payment system reduced data manipulation, monitoring and enforcement costs, and others outlays, which in turn increased revenue collection.

The third objective of the study was to assess the extent to which e-payment influences financial reporting of revenue collection. Financial reporting was tested by using reduction of irregularities and manipulation of financial records, promoting accuracy, accountability and transparency, easy tracing of errors, and omissions and improvement of financial records. Table 5 show that 45.7% of variability in financial reporting is explained using e-payment, while the rest (54.3%) is explained by other factors missing from the presented model (R Square = 45.7%). The results on model fit were statistically significant at 5% (p = 0.000; p < 0.05). This indicates that the developed model fits the used data.

Table 5: Model Summary and ANOVA for E-payment and Financial Reporting

Model Summary					ANOVA					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		Sum of Squares	Df	Mean Square	F	Sig.
1	.676[a]	.457	.430	.64075	Regression	16.612	3	5.537	13.487	16.612
					Residual	29.971	73	.411		29.971
					Total	46.583	76			46.583

a. Predictors: (constant), credit cards risk, online banking, mobile money, PoS fake receipts, PoS fund diversion.

b. Dependent variable: financial reporting.

The results in Table 6 indicate that all indicators of independent variables were positive and significant at 5% in explaining the relationship between e-payment and financial reporting. The results reveal that PoS fake assessment had a $\beta = .172$ and $p = .032$; while PoS fund diversion had a $\beta = .196$ at $p = 0.013$. The findings of other variables were: credit cards risk ($\beta = .239$ at $p = .017$); online banking ($\beta = .163$ at $p = .016$); and mobile money ($\beta = .260$ at $p = .008$).

Table 6: Coefficients for E-payment and Financial Reporting

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		β	*Std. Error*	*Beta*		
1	(Constant)	1.853	.581		3.188	.002
	PoS fake receipts assessment	.172	.061	.229	2.192	.032
	PoS fund diversion	.196	.096	.231	2.786	0.013
	Credit cards risk	.239	.098	.246	2.442	.017
	Online banking	.163	.066	.268	2.476	.016
	Mobile money	.260	.096	.315	2.709	.008

a. Dependent Variable: Financial Reporting

These results show the same direction as those of tax compliance and monitoring of revenue sources; whereby all values of βs indicate a positive and significant relationship between e-payment and financial reporting. The results also show that every unit increase of each variable of e-payment led to an increase in the quality of financial reporting by the value of beta coefficient. The results imply that it is possible to predict the level of revenue collection from a financial report produced by the use of e-payment system.

Challenges in Applying E-payment in Revenue Collection

Apart from the relationship established above, this paper also examined the challenges of managing and operating e-payment system in revenue collection in Kinondoni Municipal. Respondents ranked the key challenges by using a Likert scale ranging from 1 = 'Strongly Disagree' (SD), to 5 = 'Strongly Agree' (SA). Also,

the respondents were required to air their views and additional barriers in applying e-payment. As per the results shown in Table 7, the most common challenge was poor internet connectivity, whereby 81.9% of the respondents agreed or strongly agreed with the statement by saying that this lowers the efficiency of the system. While 11.7% disagreed with the statement, 6.5% were impartial to the statement. With a growing number of taxpayers, there is therefore a need to improve connectivity and expand bandwidth to accommodate the demands in using e-payment system.

Table 7: Barriers of Using E-payment System

Variable	N&%	SD	D	N	A	SA
There is a lack of awareness of e-payment	%	7.8	10.4	5.2	33.8	42.9
methods by the taxpayers	N	6	8	4	26	33
There are technical problems associated	%	14.3	10.4	7.8	33.8	33.8
with the use e-payment system	N	11	8	6	26	26
Poor internet connectivity lowers the	%	6.5	5.2	6.5	41.6	40.3
efficiency of e-payment	N	5	4	5	32	31
Transactional reversal in e-payment system	%	24.7	15.6	9.1	22.1	28.6
is difficulty	N	19	12	7	17	22
There are no enough Point on Sale (PoS)	%	13	20.8	11.7	26	28.6
terminals at the revenue sources	N	10	16	9	20	22

On the other hand, the lack of awareness of e-payment system by taxpayers was rated as the second highest challenges, whereby 76.7% of the respondents agreed or strongly agreed, while 18.2% disagreed with the statement. This may be due to the fact that little has been done to educate taxpayers about the established e-payment system, thus rendering the system strange to taxpayers. The other challenges were technical problems associated with e-payment. In this regard 67.6% of the respondents agreed, and 24.7% disagreed that there were technical problems associated with the system. This may be due to the lack of technical assistance to tax collectors and tax payers, both of whom had no sufficient skills to work with the system.

Furthermore, tax collectors added that technophobia and the lack of trust of the system by taxpayers were also among the challenges facing the use of the system. It was also mentioned that the lack of technical assistance, poor experience of the technology by tax collectors, and unreliable power supply were among the challenges of using the e-payment system. Another challenge was poor implementation of the GIS module, which led to failure of the system to locates revenue sources. This was attributed to a weak city plan: most buildings and resources are not integrated in the Google map; hence tax collectors are forced to make physical visits to revenue sources to ensure that all are registered in the system.

Discussion of Findings

It was generally observed that the e-payment system has an influence on revenue collection by LGAs. With regards to the relationship between e-payment and tax compliance, the study revealed that e-payment had a positive impact on tax

compliance. In turn, tax compliance (in terms of tax payments) has increased revenue collection. These findings corroborate those of Darison (2011), who found that there was a significant relationship between ICT and the reduction of corruption in local government revenue mobilization. The use of ICT promoted accountability, transparency, easy assessment, and monitoring of the whole process of revenue mobilization. The findings are further supported by Chatama (2013), who argued that using ICT in revenue collection has enabled to curb tax cheating, ease tax assessment, and enforce penalties, among other things.

The study findings further show that e-payment has a positive effect on monitoring revenue sources in terms of reducing monitoring and enforcement costs, manipulation of information on revenue sources, and updating the number of revenue sources: all increasing the amount of revenue collection. This finding concurs with the findings by Darison (2011), which showed that using ICT in revenue collection enabled keeping of records safe, low labour and administrative capacity, and promoted effective revenue and data processing. Similarly, studies by Mohamed (2015) and Chatama (2013) revealed that the use of ICT manages to cut down administrative costs, eases access and retrieval of records, and simplifies monitoring, evaluation and accuracy of information.

This study also found out that e-payment influences the improvement of the quality of financial recording, which in turn decreases financial irregularities and manipulation; automatically updates ledgers; and increases accuracy, transparency, and accountability in financial matters (Mieseigha & Ogbodo, 2013). All these contribute to increasing revenue collection. These findings are in line with those of Ogedebe and Jacob (2012), which revealed that cashless economy enhances the achievement of effective and efficient financial transactions, and improves financial reporting. Their findings further revealed that the use of cashless economy increases transparency, accountability, and fraud-less acts on cash. Similar results were reported by Mohamed (2015) who found that after the introduction of EFD machines in revenue collection, there was an improvement of accuracy in financial reporting.

However, the results are in contrast with those of Mieseigha and Ogbodo (2013) that disagree that cashless economy enables to reduce cash-related fraud and promotes transparency and accountability in financial matters. In addition, the findings corroborate the control theory which advocates that e-payment system should be monitored to avoid divergences. This is achieved by removing uncertainties and errors to obtain accurate financial records. E-payment enables one to compare, compute and correct errors, disclose omissions, and perform other related aspects of financial reporting.

Findings by Kapera (2017) corroborate the challenges observed in this study: that the impediments in implementing e-systems include high costs of purchasing devices (EFDs), the lack of awareness on the use of EFDs, breakdown of the system, and the lack of trust in the systems. Also the results of this study are similar with

the findings by Nwaolisa and Kasie (2012) that report weak technological infrastructure and poor power supply as among the challenges facing retail electronic payment systems. Similar findings were reported by Ngereza and Iravo (2013) in Kenya; Asia (2015) in Rwanda; and Sanga (2015) in Tanzania.

However, despite challenges discussed above, this study has revealed that, overall, the introduction of e-payment has enhanced the collection of revenue in Kinondoni Municipal. The period after the implementation of e-payment saw major tax compliance, enhancement of monitoring revenue sources, and improvement of the quality of reporting financial information: all of which in turn increased revenue collection levels. Hence, the more the use of e-payment in revenue collection, the better the levels of revenue collection (Kapera, 2017; Nwaolisa & Kasie, 2012).

Conclusion and Implications

The introduction of e-payment system in revenue collection in LGAs has transformed the collection system from a manual system that involved physical cash, to a cashless system known as e-payment. Moreover, the usage of e-payment in tax collection is rooted on the desire to promote standardization of taxes by ensuring all similar and same tax payers are treated equally and pay the same tax. In this case the usage of e-payment has significant impact on revenue collection and financial reporting.

The use of e-payment in LGAs has managed to reduce financial irregularities and manipulation, promoted accuracy and transparency in financial information, and enabled real time update of financial information that has benefitted both taxpayers and tax collectors. The use of e-payment revenue collection has enhanced revenue collection in terms of tax compliance, monitoring revenue sources, and enhancing the quality of financial reporting in LGAs. Moreover, the presence of PoS, credit/debit cards, mobile money, and online banking have made revenue collection services more plausible to tax payers when compared to the period before the system was introduced in Kinondoni Municipal. However, poor connectivity, limited awareness, unreliable power supply, lack of technical assistance, poor experience of the technology by tax collectors are problems that impinge a more successful application of the system.

From the foregoing, the study proposes the following recommendations to improve the efficiency and effectiveness of e-payment system in revenue collection:

(a) There is a need to train tax collectors and taxpayers on uses of e-payment system. This is important because e-payment is the crucial tool in achieving better performance of revenue collection in LGAs.

(b) Intention to use e-payment system is influenced by experience and knowledge of the system. Thus, it is essential to create awareness of the existence of the system, how it works, and its benefits among taxpayers to enhance its use and raise compliance level.

(c) The challenges reported by taxpayers —such as unreliable power supply, and poor internet connectivity —should be addressed to reduce motives that could discourage taxpayers from using the system.

(d) Technical assistance should be available to assist when defaults occur, particularly in the e-payment system and software debugs. Also, regular maintenance of computers, software and other resources and system audit should be performed to ensure that there are no technical failures.

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