



Electronic Payment System and Revenue Collection at Immigration Department Zanzibar

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

The study attempted to examine the contribution of electronic payment systems on revenue collection at Immigration department Tanzania- Zanzibar. It employed both primary and secondary data for analysis guided by questionnaires. Regression analysis was applied to examine the impact of electronic payment system on revenue collection at Immigration department in Zanzibar, the efficiency of the electronic payment system on revenue collection at Immigration department of Zanzibar and to analyse challenges face electronic payment system on revenue collection at Immigration department of Zanzibar. The result regression analysis revealed that all independent variables of Visa fees, permits fees and passport fees have positive relationship with total revenue collection at Immigration department of Zanzibar. The study concluded that there is a huge difference of revenue collected at immigration department before and after the installation of the electronic payment system. The study recommended that the immigration department of Zanzibar should provide awareness to the customers on the electronic payment system.

Keywords: E-payment system; payment system; revenue; revenue collection.

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1. INTRODUCTION

Revenue collection is very important for every government in the world as it enables the government to acquire assets which are not liable to debt and which the government uses to develop its economy [1]. Enhancing revenue mobilization has frequently been the focus of revenue administrations. Diagnostic work has mainly focused on measuring revenue leakages. Keen [2] revealed that, both the World Bank and the International Monetary Fund frequently use this approach. A sound revenue system for devolved governments sets the pace for the success of fiscal decentralization [3]. Muema, Kyambo, Kirichu, & Senagi [4] argued that, a modern e-payment services, such as smart parking service, provide convenience in revenue collection through use of devices such as mobile devices in the parking industry, highly improve revenue collection performance and gain a competitive edge (Wang and Wenbo, 2013).

The concept of E-government emerged in the late 1990s despite that the history of computing as a tool in government establishments could be traced back to the origin of computer itself and just like other e – platform concepts such as e-commerce, the term e – government was born out of internet world (Ake and Horan, 2004). Danish [4] suggested that E-government services could increase the rate of development in a country and even enhance democracy in decision-making processes and in allowing more effective and transparent engagement between government, business, and citizens. According to Welch et al. [6] the e-governments service leads the electronic voting, access equity, online interaction for public decision making, information reliability, political coordination among multiple stakeholders, and public monitoring of and communication with elected officials.

Haque and Pathrannarakul (2013) argued that the successful deployment of e-service technology will no doubt help to boost government revenue, very fast and secure transactions, reduce corruption through the use of modern technology and transparent operations. The currently outstanding values of e-money schemes in the Euro marked increase in e-money issuance right before the euro changeover, and there was also some increase during the first halves of 2003 to 2005 (ECB 2005). E-money is electronic money which is exchanged electronically over a technical device

such as a computer or mobile phone is not held in any physical form [7].

On 27th day of December, 2018, the Tanzania Immigration Department introduced online visa, residence permit and emergency travel document services. All foreign nationals who wish to reside in Tanzania are to be issued with an immigration status based on the purpose or type of business he or she wants to do in the country. Visa and Residence Permit applications can now be applied for and acquired via online services portal introduced by the Immigration Department. (Immigration newspapers report, 2019). This has led to the need of conducting a study on the contribution of use of the electronic payment system in revenue collection at Immigration department Zanzibar.

The rapid global growth in the (ICT) has led many governments around the world to transform their services from the traditional services to electronic means [8]. The application of ICT would significantly increase the revenue collection as it helps tracing noncompliant revenue payers through EPS [9].

Tanzania is among the countries that has started to use the internet and information technology in countering payment systems for the transaction compiled within and or outside the country. Tanzania (GePG) is a result of amendment made on 30th June, 2017 to the Public Finance act of 2001 in which all public money required to be collected through GePG. Owing to the rapid national use of internet and information technology on revenue collection through e-payment system in Tanzania, many departments have reformed their revenue collection systems in recent years from cash to cashless methods these results increase revenue collection (REPOA, 2008).

In Immigration Department of Zanzibar, the system was introduced in 2018 for the purpose of reducing some of the problems encountered in the disbursement and payment process by allowing customers to pay their bills without getting to the premises. Before the installation of EPS in Immigration Department in Zanzibar the revenue collection was about 17,789,125,240.29 billions in 2015-2016, however after the installation of electronic payment, the revenue collection raised to 33,165,421,156.95billions 2019-2020(Immigration Department financial statement 2015-2021).This positive increment of revenue collection was the reason of electronic

payment system, though apart from this positive increment the Immigration department in Zanzibar is still face challenges in implementing electronic payment systems. Thus, the researcher intended to do research on the contribution of the electronic payments system on revenue at Immigration department in Zanzibar.

2. THEORETICAL LITERATURE REVIEW

2.1 Revenue Diversification Theory (RDT)

This is the theory which stems from Financial Modern Portfolio Theory, which was established by Bernelot (2013). The revenue diversification theory focuses on whether a more diversified, well balanced revenue portfolio increases financial stability for a country by reducing revenue instability. However the Bernelot (2013) suggested that revenue is derived from various source and there must exist an equal balanced between multiple incomes sources in the revenue collection of public organizations usually leads to increase financial stability, therefore in this study this theory were used because the electronic payments system is used to increase the revenue collection this technique have a positive impacts on increasing financial because difference methods were used during collection of revenue example mobile money, credit card and Pos to increase the revenue collection. Revenue collection performance has been established to be improved by profitable and market-oriented revenue methods.

2.2 Diffusion of Innovation Theory (DIT)

Rogers proposed the Theory of (DOI) in 1962, and it is one of the oldest social science theories. Rogers (2014) has suggested the diffusion of innovation theory, which describes how individuals gain experience with changes in technological adoption over time. "Diffusion is a mechanism by which innovation is distributed among members of the social system over time through specialized channels," he insisted. This theory is widely utilized in modern economy to explain innovation and advancement of new technologies, but it also points out the primary elements that impact innovation adoption, which decides the five components. Of innovation among these are relative advantage, compatibility, observability, complexity, and trainability (Rogers, 2014).It is very strong to adopt a new idea, even if it offers benefits. Diffusion studies focuses on how and why

innovations get adopted at varying speeds. The concept of electronic payment is improving day by day as a result of innovation that encourages users to continue using the mobile network, For example, they are always creating new ways to pay with mobile devices, credit cards, POS and other ways they must do it every day in order for the company to continue to exist. "In order to improve services and retain customers, electronic payment systems must be innovative (Everett, 2013)".

2.3 Empirical Literature Review

Nkote and Luwugge [10] conducted a study on Adoption of Automation and customs tax administration on revenue collection, a case study Uganda. The results suggested a positive correlation of automation and the cost of tax administration, automation and effectiveness of revenue collection while automation was negatively and significantly related with tax clearance time.

Odusina and Onakoya [11] in their study of the electronic payments system and customer retention in banks implications for entrepreneurial development in Nigeria. Results further showed that EPS increases the ability to hold cash for transitional, precautionary and speculative motives. Sahoum and Dojanah [12] in the study of Factors Affecting the Adoption of Electronic Payment Systems - Case Study E-Fawateercom System Users in Jordan. Shine (2019) conducted the study about factors influencing electronic revenue collection in public sectors in Tanzania using (GePG).

According to Muema et al. [4], in a study of Assessment of the adoption of mobile Parking Management system in parking Industry in Nairobi Country. The result is that the modern e-payments system provides convenience in revenue collection through use of devices such as mobile devices in the parking industry, highly improving revenue collection performance and gaining a competitive edge. (Wang &Wenbo, 2013).

Shine (2019) conducted the study about factors influencing electronic revenue collection in public sectors in Tanzania using (GePG). The study adopted a quantitative approach whereby secondary data were generated from GePG system collection center at KADCO Headquarters at KIA, Kilimanjaro Region. After using multiple regressions, the findings revealed

that landing fee, sales concession, VIP lounge hire and passengers service charges can together influence the electronic revenue collection at KADCO using GePG system. The result validated the findings as it was revealed that there was a significance relationship between electronic revenue collection (dependent variable) and independent variable which are landing & parking fee, sales concession, VIP lounge hire and passenger's service fee [13,14]. This study recommended that awareness to users of GePG should be instituted to increase usage rate of GePG system.

Albert Okiro [15] conducted a study on the effect of e-payment system on revenue collection by the Nairobi city county government. The objective of the study was to determine the effect of e-payment system on revenue collection by the Nairobi City County Government. The study use the descriptive research data was collected from secondary sources and analysed, with respect to the study objectives using both descriptive and inferential statistics "The results of these study reveals that the revenue collection performance in Nairobi City County increased considerably after adoption of e-payment system in revenue collection. The adoption of e-payment makes the Nairobi City County collect higher amounts of revenue than the amounts that was estimated to their annual budget, meaning that adoption of e-payment system has increased the revenue collection performance in Nairobi City County effect than non e-payment system."

3. METHODOLOGY

Research design: The quantitative research was used to design due to it was inquires deeply into specific experiences, with the intention of describing and exploring meaning through text, narrative, or visual-based data, by developing themes exclusive to that set of participants through questioners survey.

Study Area: The study was conducted in Zanzibar. It focused on Immigration Head Office Zanzibar and Zanzibar Abeid Aman Karume International Airport (AAKIA).

Population of the Study: The study population was officials from Immigration Department Zanzibar offices which consist of largest percent of information required for the purpose of this study.

Sampling techniques and sample size: Simple random sampling was to select 225 sample sizes

of the officers of Immigration department Zanzibar and customer were those who are performing the Electronic payment system activities respondents. This technique provided the equal chance to all individuals in the departments that were selected so as to avoid biased statistics.

Data Collection Methods: Survey questionnaire was used as a tool of data collection and secondary data.

Data analysis Techniques: A regression analysis method was used to examine the impact of electronic payment system on revenue collection at Immigration department in Zanzibar.

The following model used in this study,

$$TREV = \beta_0 + \beta_1 VISA + \beta_2 PMT + \beta_3 PPT + \mu t$$

Where by:

- VISA = Visa fee
- PMT = Permit fees
- PPT = Passport fee
- μ = Error Term
- $t = (1, 2 \dots n)$
- $\beta_0, \beta_1, \beta_n$ = Estimated parameters in a model data analysis

4. FINDING OF THE STUDY

4.1 Profile of the Respondents

Demographic profile questions are an important aspect of any socioeconomic research. In this respect, this study profiled the respondents based on gender, age, marital status and educational attainment.

From table 1 above it indicates that 33.5 percent of the respondents are between the ages of 31-40, which is more than the total respondents. This indicates that majority of the respondent were aged between 31-40. Through gender, the findings showed that majority of the respondent (56%) were male and 43.2 percent were female. In a Zanzibar social conditions most of employed people are normally by males compared to female, from the given sample there are few female this indicate that the Immigration Department staffs and customer who need service from that department are more male than female, that's why the large number of respondents were males by gender in this study. It can be seen in table 1 that, the respondents

were attained their education in different level. The large numbers of the respondents were from degree and other level of education which represent 35.7% and 25.9% respectively. This implied that education represents the basis of a society oriented towards the future; knowledge becomes the main component of the economic.

4.2 Regression Analysis

The study employed regression analysis to examine the impact of independent variables (passport, permit and visa) to the dependent variable (Revenue collection) in order to add more extensive analysis in achieving the objective one. The tables below show the output of the regression analysis of the variables used in the study, where the dependent variable is total revenue collected at Immigration department in Zanzibar while independent variables are VISA, permit (PRT) and passport (PPT).

4.2.1 Model Summary

The table 2 shows the model summary which reports the strength of the relationship between the model and the dependent variable. R, the multiple correlation coefficient, is the linear correlation between the observed and model-predicted values of the dependent variable. Its large value indicates a strong relationship. Table 2 revealed that the value of R is 0.949.

R-Squared is a commonly used statistic to evaluate model fit. R-square is 1 minus the ratio of residual variability having the value of 0.900. The adjusted R², also called the coefficient of multiple determinations, is the percent of the variance in the dependent variable explained uniquely or jointly by the independent variables. 85.80% of the changes in the total revenue collection could be attributed to the combined effect of the predictor variables.

Table 1. Profile of the Respondents

Variable	Category	Percentage
Age	Less than 20	9.2
	21-30	31.9
	31-40	33.5
	41-50	22.2
	Above 50	3.2
Gender	Male	56.2
	Female	43.2
Education level	Certificate	14.0
	Diploma	22.2
	Degree	35.7
	Master	2.2
	Other Certificate	25.9

Table 2. Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df 1	df 2	Sig. F Change	
1	0.949 ^a	0.900	0.858	14160541.92750	1.000	153518.455	3	68	0.000	2.619

a. Predictors: (Constant), PPT, VISA , PMT

b. Dependent Variable: TREV

Table 3. ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	9235099	3	3078366608837	153518.455	0.000 ^b
	Residual	1363542	68	200520947		
	Total	10598641	71			

a. Dependent Variable: TREV

b. Predictors: (Constant), PPT, VISA , PMT

4.2.2 Analysis of Variance (ANOVA)

This section of the analysis intends to test the significance of the model, the study used ANOVA. From the table the significance value is 0.000 which is less than 0.05 thus the model is significant. Since the general linear regression was significant, undertaking analysis was suitable to extract factors that were significant. This result means probability value of 0.000 indicates that the regression relationship was highly significant in predicting Visa fee, permit fees and passport fee. This implies that P- value at 0.000 (Less than 0.05) insinuates Revenue collection significance model at 5% significance. The Fisher statistics value calculated at 5% level of significance was 153518.455 since Fisher statistics calculated is greater than the Fisher critical (value = 2.8387), this shows that the overall model was significant. Also, there exists a substantial variance between e-payment benefits and revenue collection.

4.2.3 Coefficients of regression equation

This part of the regression analysis is known as Coefficient of determination, which explains the extent to which changes in the dependent variable can be explained by the change in the independent variables or the percentage of variation in the dependent variable (total revenue collected) that is explained by all the three independent variables of VISA fees, permit fee PMT and passport fees PPT.

The table 4 shows the coefficients of the regression equation used in the study. All independent variables have a positive and significant relationship with the independent variable of the study. The table 3 shows that the constant which is intercept in the regression coefficient and that is 845676 this implies that when all independent variables (VISA fees, permit fee PMT and passport fees PPT) are zero, then the dependent variable of total revenue collection are 845676.

4.2.3.1 Effect of collected VISA fees on total revenue collection

Also, table 4 shows the effects of each independent variable used in the study, such that the VISA fee has a positive relationship with total revenue collection having a value of 0.994 and its significance since its p-value is 0.000 less than (5% level of significance). These results reveal that taking all other independent variables

at zero, a unit increase in the collection of VISA fee would lead to 0.994 increases in the total revenue collection TREV. The results imply that Visa generates revenues primarily from fees paid by the immigration department based on payments volume (total monetary value of transactions for visa services that are purchased in order to visit foreign countries) transactions processed, and certain other related services.

The findings are similar with the results found in the study done by Ettore et al., [16] and concludes that collection of visa costs for travel between a global set of country pairs in seven different categories (tourist, work, student, family reunification, business, transit, and other) increase the revenue collection of countries. Visa facilitation is central to stimulating economic growth and job creation through tourism. In spite of the great strides made in recent decades to facilitate tourist travel, there are still important areas of opportunity, namely considering the possibilities to maximize the use of information and communication technologies in improving visa procedures [17-19]. Therefore, electronic payment has made a rise in revenue collected from the VISA fees.

4.2.3.2 Effect of collected permit fees PMT on total revenue collection

According to the result of the regression analysis equation above, the permit fee has a positive relationship with total revenue collection with coefficient value of 1.026 and its significance since its p-value is 0.000 less than (5% level of significance). That means one unit increase in permit fees PMT caused the total revenue to increase by 1.026 units at a significant level of 5%, due to this result it implies that permit fees PMT positive relation with TREV. This means when the Immigration department issuing more permits will increase the amount of government revenue collection. This result is consistent with our expectation. But also is inconsistent with the recent study done by [20], Dingel and Neiman 2020, Garrote-Sanchez et al. 2020, Gottlieb et al. 2021) during the COVID-19 shock exerted unforeseen and sudden pressures on permit fees collection across the world and cause the revenue collection to decrease. While the negative effects of the pandemic were widespread, some categories of workers were hit much harder than others due to their occupations.

Table 4. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	845676	7246062		0.117	0.907	-13613616	1530496
	VISA	0.994	0.002	0.886	514.420	0.000	0.990	0.998
	PMT	1.026	0.020	0.093	50.106	0.000	0.985	1.067
	PPT	1.009	0.012	0.141	82.292	0.000	0.984	1.033

a. Dependent Variable: TREV

4.2.3.3 Effect of collected passport PPT fees on total revenue collection

In addition to that, table 4 represents results of passport PPT which shows that it has a coefficient value of 1.009 and its p-value of 0.000 at 5% level of significance. These findings revealed that there is a positive and significant relationship between PPT and total revenue collection. These indicate that one unit increase in passport fees leads to the increase in total revenue collected by Immigration department at Zanzibar by 1.009 units at a significant level of 5%. This result supported by our expectation and with previous studies done by Czaika et al.'s (2018) and Lorenzo (2021) who argued that confirms the important role of passport movements and simultaneously position themselves in international relations.

5. CONCLUSION

The study findings revealed that the electronic payment system was used in controlling public finance, facilitating money transactions and controlling revenue collection. The performance of the electronic payment system on revenue collection was discussed by using a regression analysis model whereby the one descriptive statistics and test tables were displayed. The study has employed both primary and secondary data. Data were collected from 416 workers in different departments in Immigration like ICT, Permit section, Visa and other related departments in the Immigration Department Zanzibar and 100 for customers. The results were analysed by using SPSS version 23.0, whereby a descriptive statistic was employed.

The study found the revenue collection before electronic payment system was 1.77033 and after the use of electronic payment system was 3.01393 which implies that the system of revenue collection was not good before the application of electronic payment system

whereas the revenue collection was good after starting application of electronic payment system.

All in all, the electronic payment system as a system of managing public finance has been experiencing some of the challenges which the department needs to address since it started to be used. Among other challenges, the fluctuation of the internet and the threat of attack has been put into consideration.

6. RECOMANDATION

Considering the above findings and conclusion, the following recommendations is proposed;

The Immigration department of Zanzibar should provide awareness to the customers on the electronic payment system. Many customers are still wary about using electronic payment but if Immigration department of Zanzibar can educate its customers on the security advantages of digital payments, customers will be comfortable with new form of payments. The Immigration department of Zanzibar should work on and address challenges of networking systems so as to make the electronic payment system effective and efficient.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Ngotho J, Kerongo F. Determinants of in Developing Countries: Kenya's Tax Collection Perspective. Journal of Management and Business Administration. 2014;1(1).
2. Keen M. Changing Customs: Challenges and Strategies for the Reform of Customs Administration Washington, D.C.: International Monetary Fund Report; 2003.

3. Bird R. Sub national Taxation in Developing Countries: A Review of the Literature. Policy Research. Working Paper 5450. Washington D.C.: World Bank; 2010.
4. Muema JK, Kyambo B, Kirichu C, Senagi K. Assessment of the Adoption of Mobile Parking Management System in the Parking Industry in Nairobi County: A Case of Lulu East Africa. International Journal of Computer Applications Technology and Research. 2014;3(10):617 – 625.
5. Danish Dada. "The failure of e-Government in Developing Countries: A Literature Review" The Electronic Journal on Information Systems in Developing Countries. 2006;26(1):1-10.
6. Welch EW, Dawes S, Gisler M. "Minitrack: 'Electronic-Democracy' (Cluster: e-Government)", in Proceedings of the 37thHawaii International Conference on System Science–2004. IEEE; 2004.
7. Zakaria H. Electronic Money University of Dhaka Departments of Managements Information System (MIS) MBA (Evening) Program ID No: 2015:61324-17-006.
8. Alanezi MA, Kamil A, Basri, Shuib. A proposed instrument dimensions for measuring e-government service Quality; 2010.
9. Balunywa W, Nangoli S, Mugerwa G, Teko J, Mayoka K. Analysis of fiscal decentralization as a strategy for improving revenue performance in Ugandan Local governments. Journal of Research in International Business and Management. 2014;4(2):28-36.
10. Nkote NI, Luwugge L. Automation and customs tax administration: Empirical evidence from Uganda African Journal of Business Management. 2010;4(11):2241-2265 Otieno
11. Ayokunle O, Onakoya A. Electronic Payment System and Customers 'Retention in Banks: Implications for Entrepreneurial Development in Nigeria. Review Paper; 2017.
12. Sahoum Ali, Dojanah Mohammad. Factors Affecting the Adoption of Electronic Payment Systems - Case Study E-Fawateercom System Users in Jordan International Journal Advanced and Science and Technology. 2020;29(8):2800
13. Amin ME. Social Science Research: Conception, Methodology and Analysis. Makerere Univer; 2005.
14. Odusina, Onakoya. Electronic Payment System in customer Retention in Bank implications for entrepreneurial development in Nigeria; 2017.
15. Albert Okiro. The effect of the e-payment system on revenue collection by the Nairobi City County Government. Nairobi, Kenya; 2015.
16. Ettore et al. Assessing Visa Costs on a Global Scale Electronic Journal. 2021;10:2139
17. Bhattacharjee A. Social Science Research: Principles, Methods, and Practices. Text books Collection. Book 2012:3.
18. Lukman O, Suleiman O Adebisi & Babatunde S. Anduke (2020)Electronic Payment System adoption and customers spending growth empirical evidence from Nigeria Journal. 2020;6 Article 14.
19. Mostafa A. (2020) Electronic Payment System Architecture, Element, Challenges and Security Concepts an Overview,16(11)4826-4838.2019
20. Adams-Prassl AT Boneva M, Golin, Rauh C. Inequality in the Impact of the Coronavirus Shock: Evidence from Real Time Surveys, Journal of Public Economics. 2020;189:104-245.

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