

EFFECTS OF REVENUE COLLECTION AUTOMATION ON THE PERFORMANCE OF OWN SOURCE REVENUE IN NYANDARUA COUNTY KENYA

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ABSTRACT

Revenue collection at county level improves service delivery by the county government. Automated systems have been proven to be more efficient than the conventional methods of revenue collection. The research is motivated by this backdrop to establish the effects of automation on revenue collection in Nyandarua County, Kenya. The research aimed to establish the effects of automation of revenue collection, mobile payments, online response process and integrated tax management systems on the own source revenue collection in Nyandarua County. The survey is directed by the Resource Based Views Theory and the Transaction Cost Theory. The study targets 12 officials and 40 staff from the Department of Financial Reporting and Accounting as well as from the ICT Department in the County Government of Nyandarua. The units of analysis were the County Revenue Director, 5 Sub-County Revenue Officers as well as 20 support staff directly involved in the collection of revenue across Nyandarua County. From the ICT department, the units of observation were the ICT Director, 5 ICT Officers in charge of each of the Sub Counties as well as 20 ICT support staff. Primary data was gathered by dispatching questionnaires to the participants while secondary data was acquired from the financial records of the County. The SPSS software was utilized to analyze the data. The inferential and descriptive statistics were utilized to statistically examine quantitative data, while content analysis was utilized to statistically evaluate qualitative data. The

outcomes were presented in tables and figures utilizing frequencies, mean, and standard deviation. The research utilized a multivariate regression model to show how the factors were correlated. Tables, charts, and graphs were used to display the findings. At the 95% level of significance, the results established a R squared of 0.862 and an adjusted R squared of 0.849, indicating that automation of revenue collection jointly accounts for 84.9% of the variation in own source revenue collection in Nyandarua County. Also, the research established that mobile payments had a positive significant effect on own source revenue collection in Nyandarua County ($\beta = .538$, $p = .005 < .05$), online response process had a positive significant effect on own source revenue collection in Nyandarua County ($\beta = .239$, $p = .042 < .05$) and finally integration of tax management systems had a positive significant effect on the own source revenue collection in Nyandarua County ($\beta = .282$, $p = .019 > .05$). The research concluded that the automation of revenue collection had positive significant effect on own source revenue collection in Nyandarua County. To enhance the collection of revenue from their own sources, the report advised other Counties to investigate automating revenue collection.

Key words: Automated Revenue Collection, Integrated Tax Management System, Mobile Payment, Online Response Process, Own Source Revenue Collection, Revenue Collection

INTRODUCTION

The revenue collection in Kenya among the counties has not been as efficient as is needed and as such there are huge revenue gaps (Koskei, Cheruiyot & Naibei, 2019). Despite Kenya's economic outlook being positive and Kenya averaging a 5-6% annual growth in recent years. The fiscal deficit for both the Central and Local governments has increased. To counter this deficit, authorities aim at strengthening the revenue performance at county level. In the past, own source revenue collection was handled by local authorities through the issuing of business licenses and property rates. However, a combination of a weak revenue collection system and failed reforms pushed local governments into debt and a failure to honor their financial obligations including staff wages (Mohammed & Muturi, 2018). When the County Governments came into operation in 2013, County Governments inherited the staff and systems previously affiliated with the local authorities. In addition, County governments also inherited existing debts, inadequacies and the poor administrative practices that led to poor revenue collection in the first place (Wanjiru, Maina, Onsomu & Stewart-Wilson, 2019).

In Europe, Covid-19 significantly affected the collection of revenue especially for countries in the euro zone with tax revenues declining sharply in 2021 from 2020 for most EU member states. Automation of revenue collection was one of the recommendations made by the EU in order to improve and stabilize the collection of tax revenues (Țibulcă, 2022). In India, Sidhu, Jain, Shukla, Patil and Sawant-Patil (2018) showed that revenue collection in the wide road network was not efficient and effective when the traditional manual collection was used.

In Nigeria, electronic tax registration, tax identification, electronic filing of returns and electronic payments have improved revenue performance significantly. Digitization as a whole positively influenced the performance of revenue (Yusuf, 2022). In Zimbabwe, Chilunjika (2018) showed that online systems affect compliance among small taxpayers in terms of the registration, filing and payment of taxes. As such, the research highly recommended automation of systems in a bid to increase performance levels.

In Kenya, although there was an initial increase in revenue after the creation of the county governments, the revenue collected is still very low. OSR contributes between 12% and 13% making County governments increasingly reliant on the National government. As such, it is important that revenue collected is increased in accordance with the scale of economic activity at the County level (Mohammed, 2021). The collection of revenue is important in promoting the effective of service delivery and the growth of economic of the county governments. However, a lot of the county governments are unable to collect enough funds to fund their budgets (Muyanja, 2019). Revenue collection at county level improves service delivery by the county government. Automated systems have been proven to be more efficient than the conventional techniques of revenue collection (Gideon & Alouis, 2013). As per the Owuor et al. (2012), developing countries

like Kenya do not have efficient revenue collection systems. This is partly down to a number of challenges that are mostly down to revenue collection systems. In addition, the little that is collected is sometimes derailed by corruption among revenue collection officers (Ismail, Fathonih, Prabowo, Hartati & Redjeki, 2020).

County governments came into existence in 2010 and devolved governance to 47 counties. They were implied to devolve excellent governance and reliable delivery of services. To do so, county governments are needed to impose taxes and as per the constitution. The sources of revenue for counties include single business licenses, vehicle parking, rates, lease and appropriation from the national government (Smoke & Whimp, 2011). Previously, the Kenyan tax system only used manual methods of revenue collection that involved a lot of cash transactions. This was a breeding ground for corruption and theft of public funds by those who worked in revenue collection for the County governments.

All County Governments in Kenya are currently reliant on funding from the National Government to run their affairs and this limits the amount of services that they can provide to the people. They should devise ways and strategies of improving own source revenue collection in order to complement the funds from other sources (Muthomi & Thurmaier, 2021). Initially after devolution, there was an expansion of revenue collection by the county governments. However, this appears to have slowed down and currently only 12-13% of county government funding is from Own Source Revenue (Office of the Controller of the Budget, 2018).

Kirimi (2015) shows that after the automation of own source revenue collection through the adoption of an online receipt system, online payment systems and online response process, the own source revenue collection performance has improved significantly. This has reduced queues at the revenue collection offices and has made compliance easy and fast. In addition, it has enabled County governments to widen their tax bases and made following up of payments easier and cheaper for the County Government.

Statement of the problem

After county governments were established in Kenya in 2013, more people expected them to be able to recognize local residents' needs, meet them, and offer them public services (Koskei, Cheruiyot & Naibei, 2019). It was anticipated that county governments would be better positioned to assess community needs and be able to provide public services closer to them after the formation of County Governments in 2013. As a result, all counties including Nyandarua County are mandated to identify sources of revenue locally and raise revenue through property tax, levies, parking fees, fines and business permits so as to raise revenues for the County Government. In addition, County Governments should initiate and run programmes of poverty alleviation in local

areas. Locally generated revenue is important because it enables sustainability of infrastructure as well as service delivery to the residents of the County (Ngundo & Chitere, 2015).

Manual or Non-automated revenue collection has been characterized by multiple malpractices including corruption, misallocation of funds and poor revenue collection in general. In addition, tax collectors and tax players have colluded in the past to evade revenue collection and break laws pertaining to the collection of revenue among County Governments in Kenya. As a result, most county governments have challenges in revenue collection and consistently fail to meet own source revenue targets (Karori, Muturi & Mogwambo, 2016). To solve these issues, County governments chose to automate their tax collection systems in order to seal the existing loopholes by adopting a system that uses mobile and online payments, digitization of county records and the use of an aggregated tax management system (Oduor, Sevilla, Wanyoike & Mutua, 2016).

The County Government of Nyandarua budget for 2021/22 is Ksh. 7.22 billion with 67% of this owing to recurrent expenditure and 32.3% for development. To finance this, 5.67 billion which is 78.6% will come from the national government and Ksh. 590 million from own sources. This represents only a paltry 8.2% of the entire county budget being from own sources revenue (OCOB, 2021). Out of the Ksh. 590 million targeted, the County Government of Nyandarua only raised Ksh.103.68 million or 17.6% in the first quarter. If current trends persist, then the County government of Nyandarua is likely to miss revenue collection targets for the financial year. The over reliance on the national government affects delivery of services to the residents of Nyandarua County and hampers development in the County (Njeru & Obwatho, 2018). It is important for the County to raise revenue collected through own sources in order to improve its performance. As such, this research sought to investigate the effect of automation on the performance of own source revenue in Nyandarua County Kenya.

Research Objectives

The specific objectives included;

- i. To explore the effects of automation of revenue collection on the performance of own source revenue in Nyandarua County.
- ii. To establish the effect of mobile payments on performance of own source revenue in Nyandarua County.
- iii. To assess the effect of online response process on own source revenue collection in Nyandarua County.
- iv. To establish the effect of integrated tax management systems on the own source revenue collection in Nyandarua County.

LITERATURE REVIEW

Theoretical review

Resource Based View Theory

The Resource Based View, first presented by Barney in 1991, maintains that an organization's capacity to successfully compete depends on the its resources uniqueness. The assessment of the availability of resources to the firm is thus a crucial point of convergence. Resources in this context refer to both material and immaterial assets that a business decides to use to create and implement its strategies. Financial, physical, technological, and organizational assets are examples of tangible resources. According to Lockett, Thompson and Morgenstern, (2009) human, image, and innovation are examples of intangible resources.

Due to the unnecessary detours from the organization's key goals, processes that provide no value have a negative effect on the firm's capacity to compete (Nzuki, 2017). Rarity is the process through which an enterprise gains a competitive edge by utilizing a scarce resource and making the most of it to produce an original good or service that other businesses cannot. The incapacity of the competitors to imitate the special services or goods offered by the business is known as imitability. The firm's resources and how it uses them to gain a competitive advantage are the emphasis of the resource-based view as a result (Alexy, West, Klapper & Reitzig, 2018).

Two assumptions are taken into account when analyzing Barney's theory of competitive advantage. The idea starts off by assuming that each firm has a distinct combination of resources at its disposal. Second, the resources that provide an industry a competitive edge have limited mobility and cannot, therefore, be exchanged (McGahan, 2021). Sustainability is important because, even though an organization's resources may have previously added value, future value may be diminished due to variables such as shifting consumer preferences, technological advancements, industry structures, or regulations (Nason & Wiklund, 2018).

In the context of County governments such as in this research, the theory was relevant because it explains how County Governments can use technology and automation of systems as a resource at their disposal to enhance own revenue performance. The theory informs the use of automated systems of revenue collection as a unique resource that can help boost revenue collection by the County Government of Nyandarua.

Transaction Cost Theory

The theory is profound with the costs that organizations and institutions incur in their commitments including but not limited to the collection of revenue. It was first proposed by Ronald Coase in 1937 but has since been advanced. Williamson (1993) stated that this theory is applicable in almost all aspects of financial management. Alexander (1992) used the transaction cost theory to arrive that fixed rent contractors and established that financial fraud on collections can be minimized by adopting automated revenue collection systems (North, 1990).

This theory has faced criticism because it does not take into account other factors such as economic organization, power relations, trust as well as other social considerations. Critics of this theory also argue that it would be dangerous for organizations to make the assumptions of transactional cost theory since organizations are not substitutes for efficient transactions in the event of market failure (Ghoshal & Moran, 1996). The theory is pertinent to the current study because county governments will eliminate and reduce the number of organizations and contractors through whose hands the money must pass by automating tax collection. In comparison to manual systems of revenue collection, automation of revenue will minimize costs of collecting revenue, save time and make revenue collection efficient and convenient in the County Government of Nyandarua.

Empirical Review

Automation of Revenue Collection

Ligeyo (2019) aimed to determine how the automation of revenue collection would affect Siaya's personal source of income. The research study discovered that in order to increase the amount of income obtained from own resources, county governments must broaden their tax bases. The survey utilized secondary data showing yearly targets as well as collections in addition to the level of automation. The research established that 21.74% of earnings streams in the county were completely automated while 30.43% were non-automated. The completely automated profits streams presented security in collection of profits and was not impacted by exterior variables. Semi-automated or non-automated earnings streams were volatile and also differed. The results additionally revealed that the typical collection of fully automated profits streams was greater than the others. In addition, the study established that fully automated revenue streams collected more revenue on average than the other streams. According to regression analysis, automation of revenue collection systems and revenue collection have a favorable and significant linkage.

Mobile Payments and Own Source Revenue Collection

A study was undertaken by McCluskey, Franzsen, Kabinga, and Kasese (2018) on the local governments of Arusha, Kitwe, Ndila, and Kiambu to determine the advantages and difficulties of ICT use by local governments in the collection of taxes and other sources of revenue. The study noted that local governments in developing countries are increasingly handling large amounts of data. The study found that ICT offers city councils the option of using cashless payment systems built around electronic and mobile payment systems. The survey established that the ICT adoption has increased collection of revenue in the cities. In addition, ICT enables city council to take up cashless payment systems. The study also showed that City councils may suffer if technical issues are not dealt with promptly. In addition, banks should be engaged in order to facilitate the electronic and mobile payments. The study also notes that IT systems that are developed and maintained internationally might be problematic as was the case in Ndola City. The study was conducted on four African cities rather than on Nyandarua County therefore presenting a contextual gap.

Online Response Process and Own Source Revenue Collection

According to Kiema (2017), the Kenya Revenue Authority (KRA), which collects 93% of all revenues, has increased revenue collection. The survey was grounded on the institutional theory, the theory of systems, and the theory of change management. According to the study, tax collection is difficult due to budgetary restrictions and local tax evasion. Additionally, there are administrative issues including corruption and ineffective enforcement methods. The study discovered that KRA's revenue collection is significantly impacted by its use of online support services. The study demonstrated that automating revenue collection procedures improves revenue management by enabling efficient customer and public input. The study shows that compliance levels increase among tax payers as a result of online response and feedback systems. However, the research concluded that online response systems must be incorporated to facilitate compliance and to guide payment of taxes for those who may face any challenges in doing so. The study was conducted on KRA on a national scale rather than on County level and as such presents a contextual gap.

Integration of Tax Management Systems and Own Source Revenue Collection

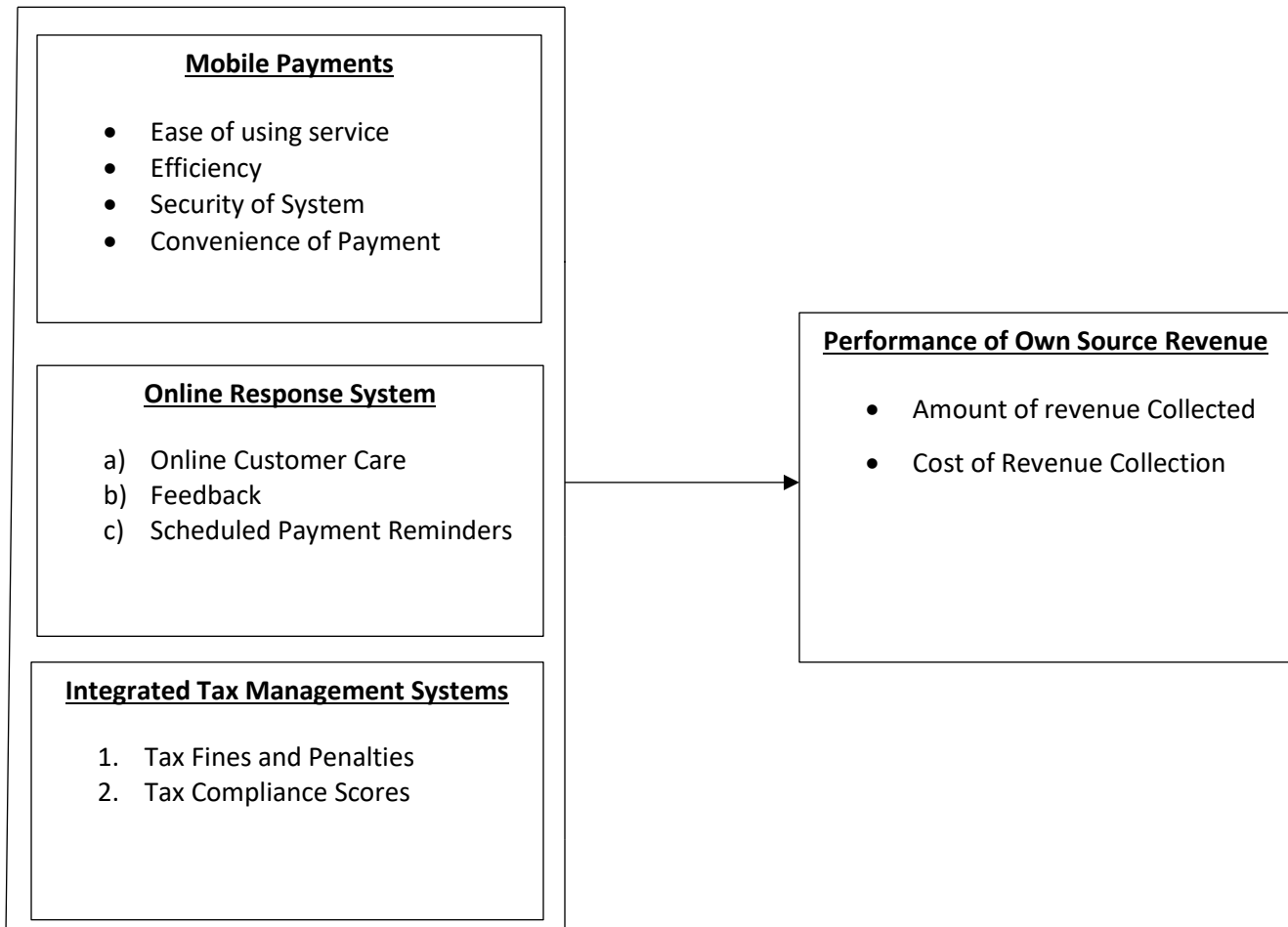
Ofurum et al. (2018) surveyed on the influence of E-Taxation on the profits of Nigeria and economic development. The research study disclosed that the execution of incorporated electronic tax systems had not dramatically enhanced tax obligation earnings. Furthermore, tax obligation income decreased after the execution of the integrated tax system. Because of this, the research advised that federal government ought to conduct more enlightenment seminars throughout Nigeria in order to improve the knowledge of making use of digital solutions on the system. The survey was done in Nigeria and also as a result supplies a contextual gap. Furthermore, the research

compared performance prior to the setup of the Etax system and after and also consequently provides a technical gap.

Conceptual Framework

Independent Variables

Dependent Variable



Source: Author, 2022

RESEARCH METHODOLOGY

Research design

A descriptive design was utilized in this research. According to Bloomfield and Fisher (2019), the descriptive research design is applicable when gathering data regarding people's attitudes, viewpoints as well as their routines. Based on this, descriptive research was appropriate for the current study.

Target Population

The study targeted all officials and staff employed by the County government of Nyandarua. The County employs 582 employees across all departments and as such the target population was the 582 staff.

Sampling Design

The study adopted non-probabilistic purposive sampling to select the 12 officials and 40 support staff from the department of Financial Reporting & Accounting as well as the ICT department.

Table 3.1: Sample Size

Department	Position	Target Population
Financial Reporting & Accounting	Revenue Director	1
Financial Reporting & Accounting	Revenue Officers	5
Financial Reporting & Accounting	Revenue Support Staff	20
ICT	ICT Director	1
ICT	ICT Officers	5
ICT	ICT Support Staff	20
Total		52

Source: Field Data (2022)

Data Collection Instrument

The primary and secondary data was utilized. In-depth interviews and standardized questionnaires were utilized to gather primary data. Secondary data based on the County's revenue performance was also used. Data was collected from the County's financial records between 2016 and 2020.

Data Analysis and Presentation

The data gathered through survey was analyzed through utilizing SPSS v. 25.0. The descriptive and inferential describe the qualities of the variables under research study. The descriptive

statistics exist via mean, mean as well as standard deviation, while the inferential data certainly consist of Correlation and regression analysis. The regression version utilized in the research is;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon_{it}$$

Where;

Y = Own Source Revenue Collection in Nyandarua County.

X₁ = Automation of Revenue Collection

X₂ = Mobile Payments

X₃ = Online Response Process

X₄ = Integrated Tax Management Systems

The coefficient $\beta_i = 1...4$ was utilized to assess the sensitivity of the dependent variable (Y), where β_0 Indicates the constant term. The model's unexplained changes are represented by the error (ϵ) term.

RESULTS

Descriptive Statistics

Mobile Payments and the Performance of Own Source Revenue Collection

Table 4.1: Mobile Payments and Performance of Own Source Revenue Collection

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev
The utilization of mobile service has made it easier to collect revenue	3.90%	27.80%	16.70%	23.90%	27.80%	3.139	1.457
The mobile payment system is efficient and fast	2.80%	19.40%	11.10%	27.80%	38.90%	3.806	1.238
The County's mobile payment system is safe and secure for users.	2.80%	11.10%	5.60%	44.40%	36.10%	4.000	1.069
The system is convenient for the users as well as the County Government	5.60%	2.80%	2.80%	38.90%	50.00%	4.250	1.052
The mobile payment system has improved own source revenue collection.	2.80%	8.30%	2.80%	25.00%	61.10%	4.333	1.069
Average						3.906	1.177

Source: Survey Data (2022)

With reference to Table 4.1, the majority of participants (51.70%) agreed that using mobile services has made it simpler to collect income while just 31.70% disagreed. Additionally, the

results showed that while 22.20% of participants disagreed with the assertion that the mobile payment system is effective and quick, the majority of participants (66.70%) agreed. Additionally, the findings indicate that the majority of participants (80.50%) thought the County's mobile payment system was secure and safe for users while 13.9% disagreed. The outcomes uncovered that the majority of participants (88.90%) concurred that the system is practical for both users and the County Government. Also, the survey outcomes established that the majority of participants agreed that the mobile payment system had upsurge the collection of own-source income. The mean and standard deviation of the replies to statements on mobile payments were respectively 3.906 and 1.177. This suggests that the majority of survey participants approved of the use of mobile payments to automate systems for collecting money and that the replies did not significantly deviate from the mean.

Online Response Systems

Table 4.2: Online Response Systems and Performance of Own Source Revenue Collection

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev
There is an active online customer care that is happy to help users.	11.10%	0.00%	11.10%	38.90%	38.90%	3.944	1.241
Feedback on the service is worked upon so as to improve the quality of the service.	2.80%	8.30%	16.70%	33.30%	38.90%	3.972	1.082
Payment reminders are sent frequently in order to encourage compliance	5.60%	0.00%	0.00%	36.10%	58.30%	4.417	0.967
Online response systems have improved own source revenue collection.	0.00%	2.80%	5.60%	50.00%	41.70%	4.306	0.710
Users can be able to get help on the use of the system at any time	0.00%	5.60%	2.80%	44.40%	47.20%	4.333	0.793
Average						4.194	0.959

Source: Survey Data (2022)

The outcomes displayed in Table 4.2 uncovered that the large part of participants (77.80%) agreed that there is an active online customer service department that is eager to assist customers, while

11.10% disagreed. Additionally, the outcomes established that the majority of participants (72.20%) agreed with the claim that service quality improvements are made in response to customer input while 11.10 disagreed. Also, the outcomes revealed that the majority (94.40%) of the study's participants agreed that reminders about payments are delivered frequently to promote compliance. The outcomes of the survey further uncovered that the majority (91.70%) of participants believed that online response systems had enhanced the collection of own source revenue, while 2.80% disagreed. Finally, the outcomes uncovered that the majority of participants (91.60%) agreed that users can seek assistance with using the system at any time, while 5.60% disagreed and 2.80 % were undecided. The results show that the large part of participants agreed with the assertions regarding the use of online response systems to automate systems for collecting payments and that the responses did not significantly deviate from the mean as indicated by average mean score of 4.194 and standard deviation of 0.959.

Integrated Tax Management Systems

Table 4.3: Integrated Tax Management Systems and Performance of Own Source Revenue Collection

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev
System comes up with tax fines and penalties automatically.	2.80%	5.60%	5.60%	36.10%	50.00%	4.250	0.996
The compliance record of all taxpayers are kept and updated regularly.	2.80%	5.60%	2.80%	36.10%	52.80%	4.306	0.980
The integrated tax management has helped to expand the County's tax base through registration of new taxpayers.	0.00%	8.30%	2.80%	33.30%	55.60%	4.361	0.899
Integrated Tax management systems has improved compliance levels	8.30%	8.30%	13.90%	38.90%	30.60%	3.750	1.228
More people are aware that public knowledge on tax has improved as a result of the integrated tax management systems.	16.70%	5.60%	5.60%	30.60%	41.70%	3.750	1.481
Average						4.083	1.117

Source: Survey Data (2022)

The outcomes exhibited in Table 4.3 uncovered that majority of participants (86.10%) agreed that tax fines and penalties are generated by the system automatically, while 8.40% disagreed. Also,

the results uncovered that the majority (88.90%) of participants agreed that all taxpayers' compliance records are maintained and updated on a regular basis, 8.40% of participants disagreed, while 2.80% were unsure. Also, the outcomes uncovered that the majority of participants (88.90%) agreed that the integrated tax management had contributed to the County's tax base expansion through the registration of new taxpayers while 8.30% disagreed.

Also, results revealed that the majority of participants (69.50%) concurred that integrated Tax management systems have increased compliance rates while 16.60% of participants disagreed. Finally, the study's outcomes uncovered that the majority (72.30%) of participants agreed that the integrated tax management systems have increased public awareness of taxes, while just 22.30% disagreed and 5.60% were unsure. Large part of participants agreed with the comments concerning integrated tax management systems as a technique to automate revenue collection systems, and the replies did not significantly deviate from the mean, as indicated by the overall mean and standard deviation of 4.083 and 1.117, respectively.

Own Source Revenue Collection

Table 4.4: Performance of Own Source Revenue Collection

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Std. Dev
The County Government has improved the amount of revenue collected	13.90%	8.30%	19.40%	44.40%	13.90%	3.361	1.246
The cost of collecting Revenue has been reduced significantly	11.10%	8.30%	5.60%	47.20%	27.80%	3.722	1.279
The number of cases of fraud in revenue collection have been minimized following automation	0.00%	8.30%	2.80%	50.00%	38.90%	4.194	0.856
The County Government keeps better records on Revenue Collected and Expenditure	16.70%	5.60%	13.90%	22.20%	41.70%	3.667	1.493
The Process of Revenue Collection is Easy and convenient for Residents of the County and other taxpayers	8.30%	16.70%	16.70%	36.10%	22.20%	3.472	1.253

Source: Field Data (2022)

The results from the survey uncovered that the large part of participants (58.30%) agreed that the County Government had increased the amount of revenue collected, while only 22.20% disagreed. Further, the results show that majority of participants (75.00%) thought the Nyandarua County

Government's cost of revenue collection had been greatly lowered, 5.60% were unsure, while 19.40% disagreed. Additionally, the outcomes uncovered that the majority of participants (88.90%) agreed that automation has reduced the frequency of revenue collection fraud incidents while 8.30% of the participants disagreed.

Further, the results uncovered that the large part of participants (63.90%) agreed that the County Government maintains better records on Revenue Collected and Expenditure, while just 22.30% disagreed. Finally, the study's outcomes uncovered that the majority (58.30%) of participants agreed that the county's residents and other taxpayers find the revenue collection process to be simple and convenient, while 25.00% of participants disagreed and 16.70% were unsure. Numerous participants agreed with claims made by the County government of Nyandarua regarding the performance of own source revenue, and the replies did not significantly deviate from the mean, as indicated by the overall mean and standard deviation of 3.683 and 1.225, respectively.

4.1.5 Descriptive Statistics from Secondary Data

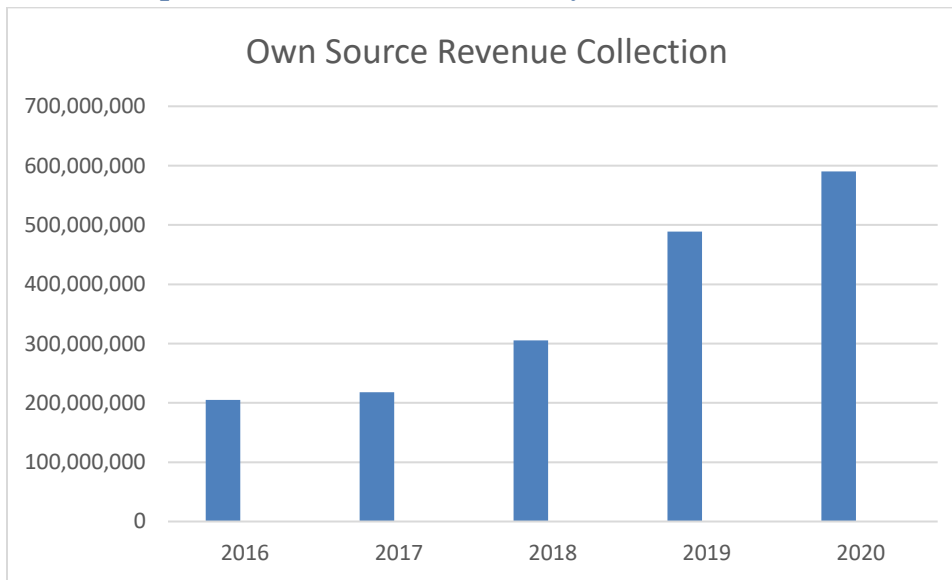


Figure 4.1: Own Source Revenue Collection
Source: Field Data (2022)

Based on Figure 4.1 above, own source revenue collection in Nyandarua County has been increasing from 2016 to 2020. This increment can be accredited to a number of elements including automation of revenue collection that enabled the county to widen its revenue and to make the process more efficient and transparent.

Inferential Statistics

Correlation Analysis

Table 4.5: Correlation Matrix

		Own Source Revenue Performance	Mobile Payments	Online Response Systems	Integrated Tax Management Systems
Own Source Revenue Performance	Pearson Correlation	1.000	.766**	.656**	.413*
	Sig. (2-tailed)		0.000	0.000	0.012
Mobile Payments	Pearson Correlation	.766**	1.000	.661**	.435**
	Sig. (2-tailed)	0.000		0.000	0.008
Online Response Systems	Pearson Correlation	.656**	.661**	1.000	.495**
	Sig. (2-tailed)	0.000	0.000		0.002
Integrated Tax Management Systems	Pearson Correlation	.413*	.435**	.495**	1.000
	Sig. (2-tailed)	0.012	0.008	0.002	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

Source: Survey Data (2022)

As per the findings of the correlation in Table 4.5, there was a highly significant and positive link between the performance of own source revenue in Nyandarua County and mobile payments ($r=0.766$, $p<0.000$). The survey also discovered a very positive and significant correlation ($r=0.656$, $p<0.000$) at the 1% level of significance between the performance of own source revenue in Nyandarua County and online response systems. Lastly, the finding uncovered that there was a substantial positive and significant correlation between integrated tax management systems and the County Government of Nyandarua's performance in own source revenue ($r=0.413$, $p<0.012$, at 5% threshold of significance). The findings support the claims stated by Macharia and Dominic (2019), who investigated whether IFMIS was effective in accounting and whether the system promoted accountability and transparency in Kenyan government departments. They found that IFMIS facilitated the budgetary process.

Regression Analysis

Table 4.6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.928a	0.862	0.849	0.20867

a Predictors: (Constant), Integrated Tax Management Systems , Online Response Systems, Mobile Payments

Source: Survey Data (2022)

As per the results in Table 4.6, the coefficient of determination (R squared) at the 95% level of significance is 0.862 and the adjusted R squared is 0.849. The automation of revenue collection (including mobile payments, online response systems, and the integration of tax management systems) is likely to account for 84.9% of the variation in the efficiency of own source revenue collection in Nyandarua County, according to the R squared of 0.849 while 15.1% counted for other variables excluded in the model.

Table 4.7: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8.687	3	2.896	66.501	.000b
	Residual	1.393	32	0.044		
	Total	10.08	35			

a Dependent Variable: Own Source Revenue Performance

b Predictors: (Constant), Integrated Tax Management Systems , Online Response Systems, Mobile Payments

Source: Field Data (2022)

The outcomes exhibit that there is statistical significant between automation of revenue collection and own source revenue collection in Nyandarua County.

Table 4.8: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-0.218	0.312		-0.699	0.490
Mobile Payments	0.538	0.177	0.467	3.044	0.005
Online Response Systems	0.239	0.113	0.230	2.120	0.042
Integrated Tax Management Systems	0.282	0.114	0.303	2.471	0.019

a Dependent Variable: Own Source Revenue Performance

Source: Survey Data (2022)

The regression model became;

$$Y = -0.218 + 0.538X_1 + 0.239X_2 + 0.282X_3$$

Where:

Y= Own Source Revenue Collection

X₁= Mobile Payments

X₂= Online Response Systems

X₃= Integrated Tax Management Systems

Regression coefficients in Table 4.8 uncovered that mobile payments had a positive and significant effect on own source revenue collection in Nyandarua ($\beta = .538, p = .005 < .05$). The finding suggests that, a unit improvement in mobile payments result into an improvement in own source revenue collection by 0.538 units. The research also uncovered that online response systems had a positive significant effect on the own source revenue collection in Nyandarua County ($\beta = .239, p = .042 < .05$). The finding suggests that, a unit improvement in online response systems as a way of automating revenue collection results in an improvement in own source revenue collection by 0.239 units. The outcome also implies further that online response systems significantly impacted the own source revenue collection of Nyandarua County. Finally, the research revealed that integrated tax management systems as a way of automating revenue collection had a positive significant impact on own source revenue collection in Nyandarua County ($\beta = .282, p = .019 < .05$). The findings imply further that integrated tax management systems significantly affect own source revenue collection in Nyandarua County. The outcomes agreed with the assertions made by Macharia and Dominic (2019) who aimed to assess the effectiveness of IFMIS in accounting and to establish whether the IFMIS system and discovered that the IFMIS system enhanced the

budgetary process and improved accountability and transparency in government ministries in Kenya.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The study comes to the conclusion that own source income collection in the County Government of Nyandarua was positively and significantly impacted by mobile payments, online response systems and integrated tax management systems. The mobile payments adoption in revenue collection reduces the loopholes that were used for fraud and mobile transactions leave records and a trail that can be followed showing what transactions have been made. The use of online response systems provides guidance to taxpayers on how they can comply with their payments and encourages them to pay revenue to the county government. The utilization of integrated tax management systems enhanced accountability and transparency by showing how and when county revenue is collected and spent. This minimizes cases of fraud and ensures that county revenue is channeled into the right use.

Recommendations

The research recommends that County governments should adopt procedures to automate revenue collection such as embracing mobile payments, establishing and maintaining online response systems and using integrated tax management systems. The research recommends that mobile payments should be adopted so as to provide a trail and records of all transactions in order to promote accountability.

Furthermore, the study recommends that counties should enhance their online response systems. This will help to increase compliance levels by providing guidance and taking into account feedback from taxpayers and other revenue streams on how to make the process easier and more convenient for the taxpayers and the County Government. Finally, the research recommends that County governments and other government departments in general should adopt integrated tax management systems. This will help to improve trustworthiness and accountability in the amount of revenue collected as well as how it is spent and managed.

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