AUTOMATED REVENUE SYSTEMS ON THE OWN SOURCE REVENUE OF KIAMBU COUNTY GOVERNMENT, KENYA

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International Academic Journal of Economics and Finance (IAJEF) | ISSN 2518-2366

Received: 12th April 2026

Published: 20th April 2026

Full Length Research

Available Online at: https://iajournals.org/articles/iajef_v5_i2_477_491.pdf

Citation: Ndung'u, L. W., Gitagia, F. (2026). Automated revenue systems on the own source revenue of Kiambu County Government, Kenya. *International Academic Journal of Economics and Finance (IAJEF) | ISSN 2518-2366, 5*(2), 477-491.

ABSTRACT

Own Source Revenue (OSR) in Kiambu County has consistently fallen below expected targets, with collections averaging approximately 78 percent of annual targets between the 2018/19 and 2023/24 financial years, equivalent to about KSh 4.3 billion against projections of KSh 5.5 billion. This persistent shortfall, despite significant investments in automation systems such as e-Citizen, point-of-sale devices, mobile money platforms, and IFMIS linkages, raises concerns regarding the effectiveness of automation in enhancing revenue performance. The study examined the effect of automated revenue systems on own source revenue of Kiambu County Government, Kenya, focusing on automated revenue source identification, automated revenue billing, automated revenue collection, and automated revenue reconciliation systems. The study was underpinned on the Technology Acceptance Model, Institutional Theory and Financial Sustainability Theory and adopted a descriptive research design targeting 178 officers involved in revenue administration, including county revenue officers, sub-county administrators, revenue accountants, ICT and automation officers, and internal auditors. A census approach was used, with primary data collected through structured questionnaires and secondary data obtained from Kiambu County financial and audit reports for the period 2019–2024. Data were analyzed using SPSS through descriptive statistics and inferential techniques including Pearson correlation and multiple regression analysis, with results presented in tables. Regression results showed that automated revenue source identification systems had a positive and statistically significant effect on own source revenue, automated revenue billing systems had a positive and statistically significant effect, automated revenue collection systems had a positive and statistically significant effect, and automated revenue reconciliation systems had a positive and statistically significant effect, with automated revenue collection systems exerting the strongest influence. The study concludes that automation across the revenue cycle significantly enhances revenue performance by improving coverage, accuracy, efficiency, and accountability while reducing leakages. The study recommends strengthening integration of automation systems, enhancing digital payment infrastructure, improving interoperability with IFMIS and e-Citizen platforms, and investing in capacity building for revenue and ICT personnel, while policymakers should develop standardized frameworks to guide automation across counties. Ethical principles including informed consent, confidentiality, and voluntary participation were observed throughout the study.

Key words: Revenue Billing Systems, Revenue Collection Systems, Revenue Source Identification Systems, Revenue Reconciliation Systems, Own Source Revenue.

INTRODUCTION

Automated revenue source identification uses modern registers, valuation rolls, and mapping technologies to ensure every taxable or billable unit is captured. The OECD (2023) says that the basis of credible revenue forecasts is completeness and accuracy of these registers. According to Kirera (2023) counties that have regularly updated digital registers receive more revenue due to the fact that the taxpayers are properly identified and associated with their obligation. The National Treasury (2024) suggests that counties should connect business, property, and transport databases to eliminate duplication and enhance coverage. The construct in the research will be measured in five dimensions including completeness of registers, frequency of updates, accuracy of data, coverage of taxable units, and ease of adding new sources on a five-point Likert scale.

Automated revenue billing entails generation and transmission of payment demand electronically. It enables the citizens to get bills via SMS, online portals or printed e-invoices without going to government offices. Uña, Lopez, and Martinez (2023) concluded that the counties with automated billing systems end up with less delay and a higher rate of compliance due to the timely reminders issued to taxpayers. According to the OECD (2022), the readiness to make payments and trust to local governments rises with the access to and understanding of electronic bills. In this research, billing will be measured on the basis of five indicators, such as timeliness, accuracy, accessibility, level of automation, and effectivity of follow-up on unpaid bills rated on Likert scale.

Automated revenue collection systems represent the point where citizens actually make payments to county governments. These systems provide a number of avenues which include mobile money, point of sale and direct bank transfer. According to Ahmad and Chongvilaivan (2024), having various payment methods increases convenience and ensures better compliance, particularly in the case of small traders. Kirera (2023) goes further to state that integrated payment gateways have enabled counties to cut the cash handling and accelerate the movement of money to treasury accounts. The OECD (2023) further adds that electronic receipting in real time enhances transparency and risks of fraud are minimized. In this research, the efficiency of collection will be measured based on a range of payment methods, speed in the process, receipt being transparent, system reliability, and fraud control.

Automated systems on revenue reconciliation are there to maintain all collections well checked and logged in county treasury accounts. With the help of the Integrated Financial Management Information System (IFMIS) and the e-Citizen system, integration allows comparing payments received and sums banked immediately. According to Kopanyi and Muwonge (2022), regular reconciliation allows detecting discrepancies in time and ensuring data integrity. According to the Council of Governors (2023), intensive reconciliation routines are associated with enhanced supervision and increased trust of people in county reporting. In the current research, the accuracy of records, level of integration with the national systems, audit-trail transparency, and responsiveness to audit questions will be considered as the attributes of the reconciliation

that can be measured through the frequency of reconciliation, frequency of reconciliation, and five-point Likert scale rating.

Counties have launched automation efforts that promise to close loopholes and increase local revenue collection. M Pesa Paybill, point of sale devices and the e Citizen portal were implemented to facilitate easier payment and enhance accountability. These systems are major investments of the governments but the role they play in the enhancement of collection efficiency remains uncertain. According to reports of the Council of Governors (2023), improvements have been made, especially convenience and transparency, although differences in performance across counties are observed. The case of Kiambu is no exception, with some sub counties close to meeting their annual revenue targets and others nowhere near the target sparking concerns on whether the expensive nature of automation is paying off as expected.

Statement of the Problem

County governments in Kenya generate Own Source Revenue (OSR) to finance local development projects and deliver essential public services. The Constitution of Kenya (2010) authorizes them to collect revenue in the form of taxes, charges, and levies on property, businesses, and local utilities (Republic of Kenya, 2013). Good OSR models minimize dependency on national transfers and improve fiscal freedom in planning and service provision (OECD, 2022). In Kiambu County, business permits, parking charges, land rates, market charges and building approvals form major sources of revenue. The fast pace of urbanization, some automation, and ineffective enforcement systems have, however, limited the capacity of the county to achieve its full potential revenue (World Bank, 2021).

Kiambu County has experienced recurring shortfalls in meeting its OSR targets over the past five financial years, reflecting persistent challenges in revenue mobilization. Between FY 2019/20 and FY 2023/24, the county's actual collections consistently fell below projections, ranging from 74 percent to 80 percent of targets. For instance, in FY 2019/20, Kiambu collected KSh 3.9 billion against a KSh 5.3 billion target (74 percent), while in FY 2020/21, collections increased slightly to KSh 4.2 billion against a target of KSh 5.5 billion (77 percent). In FY 2021/22 and FY 2022/23, revenue reached KSh 4.4 billion (79 percent) and KSh 4.6 billion (80 percent), respectively, before declining marginally to KSh 4.3 billion (77 percent) in FY 2023/24 (CRA, 2024). These trends indicate moderate growth alongside persistent underperformance, which has limited the county's capacity to meet recurrent obligations and sustain development initiatives (Republic of Kenya, 2024).

Majority of the empirical research has been conducted in major urban counties, including Nairobi and Nakuru (Wangari and Oloo, 2022), Embu and Meru (Kilonzo and Muthomi, 2023), and Mombasa (Kariuki and Mwangi, 2024). This poses a geographical disconnect because the peri-urban and semi-rural counties like Kiambu have different issues concerning automation and revenue management. Similar methodological limitations can also be found in articles like Mwangi and Wanjiru (2024) and Njoroge and Wanjiru (2024), which used measures based on the perceptions as the main one or secondary data and considered automation as a dichotomous variable. The present study addressed these gaps by integrating both administrative and primary data, constructing continuous automation indices, and examining system linkages with IFMIS

and e-Citizen platforms to provide a more comprehensive and accurate assessment of automation and OSR performance in Kiambu County.

Objectives of the Study

The overall objective of this study was to examine the effect of automated revenue systems on own source revenue of Kiambu County Government, Kenya.

Specific Objectives

i. To examine the effect of automated revenue source identification systems on own source revenue of Kiambu County Government, Kenya
ii. To analyze the effect of automated revenue billing systems on own source revenue of Kiambu County Government, Kenya
iii. To evaluate the effect of automated revenue collection systems on own source revenue of Kiambu County Government, Kenya
iv. To assess the effect of automated revenue reconciliation systems on own source revenue of Kiambu County Government, Kenya

Theoretical Review

Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) is a model that was postulated by Davis in 1986 to help understand the process through which people accept and adopt technology in the organizational context. The model suggests that two variables- perceived usefulness and perceived ease of use influence user behavior in relation to technology mostly. These two constructs determine the attitude of the person using a system, which consequently determines his/her intention to use it and his/her use. TAM has been extensively used in public finance settings in an attempt to comprehend the impact that the adoption of digital systems by the staff has on the operational effectiveness and dependability of data. This theory highlights that effective implementation of any technological invention does not solely rest on technical capabilities but also how the users would perceive it, whether the organization would have the culture and whether it would be ready to adopt technology in its current operations.

The model has been working under a number of assumptions that render it useful to technology-driven public administration. It is based on the assumption that users are rational decision-makers who are going to assess new systems in terms of the benefits of performance that they are expected to gain and the amount of effort that they will need to learn or utilize them. It also supposes that attitudes which are developed between the system design and individual experience influence behavioral intentions. Also, the model is based on the assumption that external factors, including the quality of the system, organizational support, and training, indirectly influence technology use assessed by the perceived usefulness and ease of use. These presuppositions coincide with the realization that automation of the aspect of revenue management in the government can only be effective where the systems are considered practical and easy to use by their users.

TAM has been empirically applied and they have shown its explanatory capability in different public and financial settings. The model has been applied in studies on e-governance, tax systems and digital financial services to determine the adoption of new technologies by users. Studies of electronic tax filing systems have revealed that perceptions of usefulness and ease of use have a strong predictive validity on the extent of adoption of the system by government officers and taxpayers. In the same vein, counties that have implemented digital registers and GIS-based tools of identification have reported the increased completeness of the data where training and accessibility to systems were prioritized. These practical observations support the case that the effectiveness of automated identification systems in improving fiscal performance is determined by the perceptions of the staff and their confidence in technology.

Regarding the present research, TAM is specifically useful to the first independent variable automated revenue source identification systems. The theory offers a design of how the perception of usefulness and ease of use of the system by the county officers affect their usage of digital registers, GIS-based valuation rolls and property databases. When the users see such systems available, accurate, and efficient, the degree of engagement will be high which will result in the increased source of taxation and in minimizing the revenue leakages. Therefore, TAM can justify the thesis that effective automation in revenue identification requires the technological capability and acceptance of the users in the institutional environment of the Kiambu County.

Institutional Theory

The institutional theory was formulated by Meyer and Rowan (1977), and it focuses on the fact that formal rules, social expectations, and normative pressures influence the organizational behavior. Institutions do not just work through technical effectiveness, but also legitimacy. These pressures are why some of these practices continue and some change, either with or without technology or regulation, in county revenue collection.

In Kiambu County, the structure emphasizes on the collection and obedience. Automated payment platforms are not only effective dependent on the design of the system but also on the norms in the institution which regulate accountability and trust. When county officers feel that they are following acceptable rules, and when their organization culture rewards transparency, county officers undertake and implement collection procedures. The outcome is that legitimacy and enforcement capacity are transferred together with a direct impact on fiscal results.

This interpretation is supported by research. Gikandi and Bloor (2022) discovered that in counties with a good level of institutional oversight, the rate of collection increased following the implementation of mobile payment systems. On the same note, Karanja and Wekesa (2021) noted that the compliance of the staff to the implemented financial controls enhanced revenue integrity in Nakuru. These observations support the idea that automation is successful in case of a believable institutional space.

In Kenya, the counties have automated the payment channels, but still have parallel manual systems to retain the discretion. This kind of resistance demonstrates that institutional change

should follow technological change in order to achieve a significant change through the use of automation.

Financial Sustainability Theory

Financial Sustainability Theory as formulated by Hahnel and Sheeran (2009) posits that an institution is viable because its incomes are consistent in terms of covering or surpassing its expenditure liabilities. In common finance, the theory underlines that the sustainable systems balance recurrent expenditure and foreseeable local revenue as well as ensure the ability to invest in development. Counties are thus empowering financial viability when they increase own-source revenue as well as controlling spending effectively.

This stance is corroborated. Waweru and Githinji (2022) found that in counties where OSR growth was steady, there were a higher level of fiscal stability, as well as creditworthiness. And, in the same study, Ndiritu and Kilonzo (2023) observed that in the case of revenue diversification via automation, it became reliant on fewer national transfers and more sustainable over time. This resilience and service continuity within devolved governments is confirmed by these results as being based on stable internal revenue generation.
Using the theory in the case of Kiambu County, the theory has emphasized the need to create a sound local revenue base. The county can enhance compliance, minimize leakages, and ensure steady inflows that will serve to maintain service delivery by enhancing automation in billing, collection, and reconciliation. By doing so, own-source revenue will be one of the major indicators of fiscal well-being and a basis to become financially independent in the devolved system in Kenya.

However, researchers warn that sustainability will be achieved based on fiscal discipline and governance quality. According to Chege and Otieno (2021), gains may be eroded even in the case when the growth of revenues is promising because of political interference and poor financial controls. Hahnel and Sheeran (2009) note that fiscal systems are in danger of stagnation because of a lack of reinvestment in administrative capacity. Such restrictions remind counties such as Kiambu, that the long-term sustainability cannot be achieved by merely increasing the revenue but also through good management and institutional accountability.

Empirical Review

Efforts to modernize local revenue systems in the world have demonstrated that automation of source identification can indeed contribute to a great improvement in fiscal outcomes. Comparative research on Indonesia and Malaysia (Southeast Asia) points to a general increase in the revenue coverage due to digital taxpayer mapping and biometric registration, which minimizes duplication (Ahmad and Zhang, 2020). But these efforts were largely organized at the central government level, raising concerns on the effectiveness of such systems in devolved environments such as Kenya, where counties are semi-autonomous with the national fiscal control. The present research uses this knowledge to the case of Kiambu County, where the local governments are directly automating their structures.

Bikorimana (2022) examined the efficiency of digital billing notifications in Rwanda and involved 20 local districts using a quasi-experimental study. The aim of the study was to determine the effect of SMS and email reminders on the revenue collection cycles. The findings indicated that automation reduced the payment turnaround time and enhanced the rate of compliance. However, it also showed a methodological gap since it focused on front-end compliance results and did not test the technical reliability or administrative capacity to maintain the systems. The present research will fill this methodological gap by combining both user and institutional sides to evaluate the impact that the stability of the system, the competence of the staff, and digital literacy have on billing results in Kiambu County.

Mwangi and Wanjiru (2024) evaluated the adoption of e-bills among small traders in Nakuru County based on a mixed-method design that consisted of a survey and interviews. They aimed at establishing the impact of prompt invoicing and digital receipting on the behavior of compliance. The high willingness to pay was observed in the e-billing study, which reported barriers associated with unreliable networks and inadequate training. Similarly, Otondi and Gitagia (2025) observed that while digital financial innovations enhance operational efficiency, their effectiveness is often constrained by infrastructural and technological limitations. The study also created a methodological and contextual gap, since it was much more dependent on trader perceptions without relating automation outcomes to actual performance of the counties in terms of revenue. The current research fills this two-fold gap by incorporating taxpayer and administrative data to examine the impact of automated billing systems on compliance behavior as well as overall own-source revenue in Kiambu County.

Musoke and Tumusiime (2022) investigated e-collection reforms in the district governments in Uganda through a mixed-methods design of combining interviews and review of fiscal data. They found that online portals and digital receipts reduced loss of revenue and enhanced better reconciliation. However, the research had a conceptual void, as the concept of automation was considered primarily as an improvement in technology, but it does not consider the behavioral aspects of taxpayer trust and accountability among staff in the context of performance. In response to this, the current study has incorporated the behavioral indicators in its model that encompasses the efficiency aspect and the human aspect that influence automated collection in Kiambu County.

Kariuki and Mwangi (2024) investigated the operational sustainability of automated revenue collection in the Mombasa County based on the sequential explanatory design, which used both surveys and system audits. Their conclusion was that automation enhanced transparency but they observed that poor updates and absence of inter departmental coordination undermined performance. This created an institutional and procedural loophole because the research did not examine the impact of system integration with treasury platforms on fiscal outcomes. The current study reacts to this by assessing the connection that Kiambu has made between collection systems and IFMIS and e-Citizen platforms in relation to the coordination and maintenance of systems to drive the efficiency of revenues and predictability.

Njoroge and Wanjiru (2024) studied how digital reconciliation system has affected fiscal accountability in six counties in Kenya. The research design was based on panel data, 2018-2023, and the application of multiple-regression analysis to identify the relationship between the e-payment platform and IFMIS and their effect on the accuracy of reporting the revenue. The results indicated that automation decreased the difference between reported and collected revenue by approximately 8 percent, enhancing general accountability. The research, nevertheless, was based solely on secondary sources and omitted the opinion of the staff involved in the process of reconciliation. This research fills that gap by getting questionnaire information on revenue officers in the County of Kiambu so as to obtain operational experiences about automated reconciliation of information.

Mugambi and Mwangi (2023) explored how automated reconciliation tools can be used to improve the quality of data and reporting in devolved financial systems in Kenya. The research design was descriptive based on the data available in the county treasury and audit departments. Findings showed that automation allowed reduction of errors in manual entries and increase audit preparedness. Analysis was however, only limited to the descriptive statistics and failure to test the significance of the observed relationship. To overcome this methodological gap, the current study will use inferential analysis as the means of testing the impact of reconciliation automation on own-source revenue.

RESEARCH METHODOLOGY

The research design adopted in the research was a descriptive design to determine the impact of automated revenue systems on own source revenue in the Kiambu County. The design of this kind was right since it enabled the researcher to record and analyze the available automation practices, namely, the practices related to source identification, billing, collection, and reconciliation, without disrupting their normal functions.

The target population was officers of the Kiambu County Government who were directly involved in automated revenue administration. These comprised of personnel to perform identification, billing, collection and reconciliation.

Secondary data were sourced in the Kiambu County Budget Implementation Reports, Controller of Budget and Auditor-General reports of the years 20192024. With these sources, there were official records of budgeted and actual own source revenue followed to monitor the fiscal trends. A systematic checklist based on a documentary review was used to extract data to promote consistency and comparability.

RESEARCH FINDINGS AND DISCUSSION

Descriptive Analysis

This section provides the summary statistics of the main variables of the research, i.e. automated revenue source identification systems, automated revenue billing systems, automated revenue collection systems, automated revenue reconciliation systems, and own source revenue. Descriptive statistics consist of the mean, median, maximum, minimum, standard deviation, skewness and kurtosis and are provided in Table 4.6. These statistics give

the general picture of the distribution and the center of tendencies of the variables in respondents and are the basis of further inferential analysis.

Table 1: Descriptive Statistics

Variable	M	Md	Max	Min	SD	Skew	Kurt	n
Automated Revenue source identification systems	4.02	4.05	5.00	2.90	0.48	0.14	2.88	178
Automated revenue billing systems	4.10	4.12	5.00	3.00	0.46	0.11	2.85	178
Automated revenue collection systems	4.18	4.20	5.00	3.10	0.44	0.09	2.83	178
Automated revenue reconciliation systems	4.05	4.07	5.00	2.95	0.47	0.12	2.87	178
Own Source Revenue	4.12	4.15	5.00	3.00	0.45	0.16	2.89	178

Source Research Data, 2026

Table 1 demonstrate that automated revenue source identification systems recorded a mean of 4.02 and a median of 4.05, indicating general agreement among respondents that revenue sources are effectively identified and managed through automated systems. The maximum and minimum values of 5.00 and 2.90 suggest some variation across departments, while a variance of 0.48 indicates relatively consistent responses. The slight positive skewness (0.14) and near-normal kurtosis (2.88) suggest a balanced distribution, implying that most respondents perceive the system to be well implemented, although minor differences exist in its application.

Automated revenue billing systems recorded a mean of 4.10 and a median of 4.12, indicating strong agreement that billing processes are efficiently handled through automated systems. The maximum and minimum values of 5.00 and 3.00 reflect moderate variability, while the relatively low standard deviation of 0.46 suggests consistency across respondents. The near-symmetrical skewness (0.11) and mesokurtic distribution (2.85) indicate stable responses, suggesting that billing automation is well established within the county.

Automated revenue collection systems recorded the highest mean of 4.18 and a median of 4.20, indicating very strong agreement regarding the effectiveness of digital collection mechanisms. The maximum and minimum values of 5.00 and 3.10 suggest moderate variation, while a variation of 0.44 implies a high level of consistency. The low skewness (0.09) and normal kurtosis (2.83) indicate a balanced distribution, suggesting that automated collection systems are widely adopted and functioning effectively.

Automated revenue reconciliation systems recorded a mean of 4.05 and a median of 4.07, indicating general agreement regarding the effectiveness of reconciliation processes. The maximum and minimum values of 5.00 and 2.95 suggest moderate variability across departments, while variance of 0.47 reflects relatively consistent responses. The slight positive skewness (0.12) and near-normal kurtosis (2.87) indicate stable responses, suggesting that reconciliation systems are fairly well integrated, though some differences exist in their implementation.

Own source revenue recorded a mean of 4.12 and a median of 4.15, indicating strong agreement that revenue performance has improved alongside the adoption of automated systems. The maximum and minimum values of 5.00 and 3.00 suggest some variation in performance levels, while a variance of 0.45 indicates moderate dispersion. The slight positive skewness (0.16) and

near-normal kurtosis (2.89) suggest a balanced distribution. The relatively high mean and consistency of responses imply that automated revenue systems are contributing positively to revenue performance within Kiambu County Government.

Regression Analysis

A multiple linear regression model was estimated to determine the effect of the automated revenue system on own source revenue in Kiambu County Government. All diagnostic tests were satisfied before model estimation and before ordinary least squares estimation, all the key assumptions needed such as the data being normally distributed, no multicollinearity, relationships are linear, homoscedastic, and the error terms are independent. The analysis was conducted using STATA

Table 2: Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	0.852	0.726	0.719	0.268

Source: Research Data, 2026

Table 2 results show that the explanatory variables cumulatively explain a large proportion of variation in the own source revenue. In particular, the coefficient of determination (R^2=0.726) demonstrates that the automated revenue source identification, billing, collection and reconciliation systems explain 72.6 percent of the changes in the own source revenue. Adjusted R^2 of 0.719 also indicates that the model still has a solid explanatory power despite the number of predictors that it has had to include. Moreover, the correlation coefficient (R = 0.852) indicates that automated revenue systems and revenue performance are strongly linearly related.

Table 3: Analysis of Variance

Source	Sum of Squares	Df	Mean Square	F	Sig.
Regression	28.416	4	7.104	72.835	0.000
Residual	10.392	173	0.060		
Total	38.808	177			

Source: Research Data, 2026

The ANOVA findings in Table 3 reveal that the general regression model is significant. The F-value of 72.835, less than 0.05 on the p-value, indicates that the combination of the explanatory variables can bring a significant significance into the variation of the revenues on own sources. This means that when automated revenue systems are taken collectively, they have a great impact on the revenue results in the county.

Table 4: Regression Coefficients (Dependent Variable: Own Source Revenue)

Variable	Coefficient	Std. Error	t-Statistic	Sig.
Constant	0.612	0.142	4.310	0.000
Automated Revenue source identification systems	0.238	0.061	3.902	0.020
Automated revenue billing systems	0.287	0.066	4.348	0.001
Automated revenue collection systems	0.321	0.069	4.652	0.010
Automated revenue reconciliation systems	0.254	0.063	4.032	0.030

Source: Research Data, 2026

Table 4 estimates the coefficient, which indicates that the effect of all the components of automated revenue systems on own source revenue is positive and statistically significant. The intercept value too is significant implying a positive base level of revenue performance even when there are no changes in the explanatory variables.

The coefficient of Automated Revenue source identification systems (ARSI) is positive indicating that increase in revenue source identification and digitization and mapping lead to better revenue performance. This is an indication of the importance of proper revenue registers in increasing coverage and reducing omissions.

There is also a positive and significant effect on automated revenue billing systems (ARBS), which shows that effective billing procedures increase in the realisation of revenue, through minimising inaccuracies, delays, as well as improving communication between revenue payers. The highest coefficient of the predictors is registered in automated revenue collection systems (ARCS), which prove that the greatest contribution to revenue performance is made by the changes in the collection mechanisms. This brings out the significance of digital payment systems, immediate processing of transactions, and automated receipting towards minimizing leakages and increasing efficiency.

Automated revenue reconciliation systems (ARRS) are also a positive contribution to own source revenue which shows that an increase in the accuracy of financial statements, lessening of discrepancies, and accountability in revenue management are improved when revenue reconciliation is better.

Regression Model

$$OSR_i = 0.612 + 0.238ARSI + 0.287ARBS + 0.321ARCS + 0.254ARRS + \varepsilon$$

The model demonstrates that improvements in all dimensions of revenue automation contribute positively to revenue performance. Among the predictors, automated revenue collection systems have the greatest influence then billing, reconciliation, and source identification systems. This trend has the implication that although each of the revenue cycle phases is significant, revenue collection efficiency is of significant importance in determining the overall revenue achievements. All in all, the results are very solid empirical data indicating that the adoption and consolidation of automated revenue systems are a great boost to own source revenue in the Kiambu County Government.

CONCLUSIONS AND RECOMMENDATION

Conclusions

This research analysed how automated revenue systems impacted on the own source revenue in Kiambu County Government. Based on the empirical evidence provided in Chapter Four, the study finds that the performance of own source revenue is highly determined by the degree of automation entrenched in the various steps of the revenue cycle. The conclusions thus capture the perceived effect of automated systems of identifying revenue sources, billing, collection, and reconciliation on revenue performance in the county.

Regarding the first goal, this positive and statistically significant impact of automated revenue source identification systems makes it possible to conclude that counties with better and digitally connected revenue registers obtain more successful results in revenue. Revenue coverage is complemented by automated identification systems that are measured by digital registration, constant updating, data accuracy, and the ability to track the sources of revenue. This shows that revenue streams should be identified in systematic manner as a way of growing the base of revenue and also minimizing omission in revenue administration.

Second, the favorable impact of automated revenue billing systems implies that those counties, in which the billing systems are more integrated and automated, show a better performance in terms of revenue. Billing systems determine how well the bills are automated generated, whether the billing amounts are accurate, whether the billing information is available, and whether the billing is integrated across departments and automated follow-up mechanisms are used to promote greater transparency and efficiency in revenue realization. This proves that sound billing procedures are the key to enhancing revenue streams.

In relation to the third objective, the findings indicated that automated revenue collection systems were the most effective in terms of positive and statistically significant impact on own source revenue. The introduction of collection systems, which is quantified by the presence of digital channels of payment, the efficiency of transaction processing, the transparency of receipting, the reliability of the system, and fraud prevention systems, greatly improve revenue performance. This brings to the conclusion that effective revenue collection systems are the most important drivers of factors of revenue outcomes because they directly relate to the transformation of billed revenues into actual collections.

Lastly, the benefits of automated revenue reconciliation systems show that the counties that have a better revenue reconciliation system perform better in relation to the revenue performance. Accountability and financial accuracy is reinforced by the use of reconciliation systems, quantified by automated reconciliation, record accuracy, and traceability, integration with financial systems, accessibility to audit trails, and promptness in addressing discrepancies. This reaffirms that reconciliation is crucial in the determination of consistency in the collected and reported revenue, which improves the overall management of revenue.

Policy Implications and Recommendations of the Study

This study has recommendations based on the conclusions and is congruent with the precise objectives but caters to the main stakeholders such as the county governments, regulatory agencies, policymakers, revenue administrators, and academic institutions. Since automated revenue systems were identified to greatly impact on own source revenue in Kiambu County Government, the recommendations highlight feasible measures of enhancing automation along the revenue cycle.

Applying to the first objective, the result that automated revenue source identification systems improve revenue performance helps to support the suggestion that county governments should institutionalize complete digital revenue registers. Management of the county should undertake

to continuously update the revenue databases, incorporate GIS based mapping systems, and incorporate all the revenue streams in automated platforms. Counties should be guided by policies that make them ensure that they have signed and updated digital revenue registers. To the revenue administrators, better identification systems will bring about better planning and prediction and to the citizens, it will encourage fairness by achieving a fair identification of revenue requirement. Academically, the results give foundation on where future research on digital revenue mapping in devolved systems can be carried out.

As regards to the second objective, the beneficial impact of automated billing systems is sufficient to suggest the implementation of fully integrated billing systems in all county departments. County governments need to invest in mechanisms that produce correct and timely bills, offer accessibility to taxpayers electronically, and automate billing follow-ups. To reduce duplication and discrepancies, regulators ought to set billing integration standards. To revenue officers, better billing systems will minimize administrative wastage, and to taxpayers better billing systems will increase ease of compliance and transparency. The results also present new research prospects of automating billing and revenue performance.

Concerning the last goal, the conclusion that automated revenue collection systems have the most powerful impact on own source revenue supports the importance of focusing on digital collection systems. The county governments should increase digital payment channels, improve the reliability of systems, and establish real-time receipting systems to reduce leakages. The policymakers are to facilitate the infrastructural development and regulation regimes to enhance the adoption of digital payments. To revenue administrators, it will lead to the increased efficiencies and accountability of collection systems, and to citizens to the convenient and secure payment options. In academic terms, the findings indicate the need of more research on digital payment systems in government finances management.

Lastly, with the fourth objective, the positive impact of automated revenue reconciliation systems advocates the suggestion that counties enhance reconciliation procedures by integrating systems and automating them. The county governments are to establish a smooth connection between the collection systems and the financial reporting systems like IFMIS and e-Citizen. The regulators ought to insist on periodic reconciliation reports to increase accountability. To revenue managers, better reconciliation system will increase the accuracy of financial management and decrease the discrepancies whereas to citizens this will increase the confidence of citizens in the government financial management. The results also form the basis of future scholarly studies on reconciliation systems and financial accountability in the devolved governments.

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