

Service Revenue Heterogeneity and Financial Stability of Public Universities in Kenya: Evidence from Panel Data Analysis.

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Abstract

Background: This study examined how service revenue affects the financial stability of public universities in Kenya by categorizing service income into Catering Service Revenue (SRC), Income-Generating Unit Revenue (SRIGU), and Other Service Revenue (SRO). The study was grounded in Resource Dependence Theory and further supported by Resource-Based and Knowledge-Based perspectives.

Materials and Methods: This study used a positivist, quantitative longitudinal approach, drawing on audited financial data from 22 public universities in Kenya for 2018 to 2024. Financial stability was assessed through the Composite Financial Index (CFI), which encompasses liquidity and resource adequacy, operational effectiveness, asset productivity, and debt capacity. Panel regression analysis was employed to evaluate the relationship between the three components of service revenue and financial stability.

Results: Catering Service Revenue demonstrated a positive and statistically significant correlation with financial stability ($\beta = 0.699$, $p = .003$), leading to the rejection of H1. Similarly, Other Service Revenue showed a positive and highly significant relationship ($\beta = 0.868$, $p < .001$), leading to the rejection of H3. Income-Generating Unit Revenue showed a positive but only marginally significant correlation ($\beta = 0.515$, $p = .051$); thus, H2 was not rejected at the 5% significance threshold, although it was significant at the 10% level. Together, the service revenue components accounted for 35.9% of the variance in financial stability, and the overall model was statistically significant ($F = 4.899$, $p < .001$).

Conclusion: This study underscores the importance of diversifying service revenue and advances Resource Dependence Theory by showing that reducing reliance on traditional funding sources requires not only securing alternative revenue streams but also ensuring their financial effectiveness. Integrating Resource-Based and Knowledge-Based perspectives clarifies why institutional capabilities can yield varying financial outcomes. For policy and practice, the findings suggest shifting focus from merely increasing the number or overall income of university enterprises to assessing service activities by profitability, cost recovery, commercial governance, and their net contribution to financial stability. Prioritize knowledge-intensive and capability-aligned services, and conduct thorough evaluations of the commercial performance of formal Income-Generating Units.

Keywords: service revenue; income-generating units; financial stability; Composite Financial Index; public universities; Kenya.

Date of Submission: 20-08-2026

Date of Acceptance: 02-09-2026

I. INTRODUCTION

Financial sustainability has become a strategic concern for public universities as they face rising operating costs, infrastructure needs, expanding academic mandates, and constrained public financing. Universities are expected to widen access, maintain teaching quality, strengthen research and innovation, and contribute to national development, creating persistent tension between institutional missions and available financial resources. Historically, public universities have relied heavily on government appropriations and tuition fees, but fiscal pressures and competing demands on public budgets have weakened the adequacy of this traditional financing model. Consequently, financial resilience increasingly requires universities to supplement traditional funding with alternative revenue sources and to improve their capacity to mobilize and manage institutional resources (Lestari et al., 2026).

The challenge is particularly pressing in African higher education, where rising enrollment and institutional demands coexist with constrained public budgets. In South Africa, for example, government funding and tuition remain the dominant sources of university income, while third-stream income from commercial and related institutional activities remains comparatively limited (Mbhalati, 2024). Similar pressures are evident in Kenya, where public universities increasingly pursue Income-Generating Units (IGUs), commercial enterprises, and professional services to supplement government funding and tuition revenue.

These developments have strengthened interest in the entrepreneurial university, in which universities leverage their knowledge, professional expertise, infrastructure, physical assets, and institutional capabilities to generate resources that support their academic missions. Such activities may include catering, consulting, professional training, laboratory and technical services, conferences, commercial enterprises, and other services. These revenues broadly constitute part of third-stream income, supplementing the traditional streams of government funding and tuition (Mbhalati, 2024). Service revenue is therefore potentially important because it provides universities with opportunities to generate resources over which they exercise greater institutional control. However, revenue-generating activities do not necessarily imply improved financial stability.

Commercial activities may generate substantial gross revenue yet yield limited net financial benefits after operating costs. Their financial contribution may also depend on pricing, governance, cost management, institutional capabilities, and market conditions. Ngcobo (2021), for example, found that although a South African university had diversified across first-, second-, and third-stream income, its revenue-generating strategies were still insufficient to ensure financial sustainability. The important question is therefore not simply whether universities generate service income, but whether specific forms of service revenue strengthen their overall financial condition.

This question is especially relevant in Kenya, where universities have increasingly adopted commercial and entrepreneurial activities in response to financial constraints. Yet existing research largely examines revenue diversification, internally generated income, or entrepreneurial activities in aggregate, offering limited evidence on the financial contribution of specific service-revenue components. Treating service revenue as homogeneous may obscure important differences, as catering operations, formal IGUs, and knowledge-intensive professional services operate in distinct markets and face different resource requirements, cost structures, and operational risks.

This study addresses this gap by examining the relationship between service revenue and financial stability in Kenyan public universities using longitudinal financial data. Service revenue is disaggregated into Catering Service Revenue (SRC), Income-Generating Unit Revenue (SRIGU), and Other Service Revenue (SRO). Financial stability is assessed using the Composite Financial Index (CFI), enabling the analysis to determine whether these revenue components are associated with universities' broader financial condition rather than merely increases in reported revenue.

Accordingly, the study tests three null hypotheses:

H₀₁: Catering Service Revenue has no statistically significant relationship with the financial stability of Kenyan public universities.

H₀₂: Income-Generating Unit Revenue has no statistically significant relationship with the financial stability of Kenyan public universities.

H₀₃: Other Service Revenue has no statistically significant relationship with the financial stability of Kenyan public universities.

The study makes three contributions. First, it extends the third-stream income literature by disaggregating service revenue and shifting attention from revenue generation to revenue productivity. Second, it integrates Resource Dependence Theory with Resource-Based and Knowledge-Based perspectives to explain both why universities pursue alternative service revenue and how institutional resources and capabilities influence its financial contribution. Third, it provides longitudinal evidence from 22 Kenyan public universities for 2018–2024, linking service-revenue components to observed financial outcomes across institutions and over time.

II. LITERATURE REVIEW

2.1 Service Revenue and Financial Stability in Public Universities

Public universities increasingly face rising operating costs, constrained government funding, infrastructure demands, and growing expectations to sustain teaching, research, and community engagement. These pressures have led institutions to supplement government appropriations and tuition with internally

generated income. Service revenue has become a key component of this strategy and includes income from catering, university enterprises, consulting, professional training, laboratory and technical services, conferences, short courses, and other commercial activities. In Kenya, inadequate public financing and ongoing financial sustainability challenges have similarly increased the importance of alternative revenue sources (Kimathi & Irungu, 2024; Riechi, 2024).

Service revenue also forms part of the university's broader Third Mission, which extends beyond teaching and research to economic and social engagement. Compagnucci and Spigarelli (2020), based on a systematic review of 134 studies, show that the Third Mission encompasses knowledge transfer, stakeholder engagement and entrepreneurial activities. Universities can therefore generate supplementary income by leveraging resources such as professional expertise, laboratories, agricultural facilities, conference facilities, equipment, intellectual property and institutional reputation.

However, generating service revenue does not necessarily translate into financial stability. Commercial activities may produce substantial gross revenue while yielding limited or even negative net financial contributions after accounting for staffing, utilities, maintenance, inventory, and other operating costs. Kimathi and Irungu (2024), for example, found that the relationship between revenue diversification and financial sustainability in Kenyan public universities varied by the financial indicator used and emphasized the need to discontinue revenue-generating activities when marginal costs exceed marginal revenues. The relevant issue is therefore not merely whether universities generate service income, but whether such income contributes meaningfully to their overall financial condition.

Accordingly, this study disaggregates service revenue into Catering Service Revenue (SRC), Income-Generating Unit Revenue (SRIGU), and Other Service Revenue (SRO). These components differ across markets, resource requirements, cost structures, and operational risks, and may therefore relate differently to financial stability. Disaggregation allows the study to move beyond treating service revenue as a homogeneous category and to identify which forms of service revenue are financially productive.

2.2 Theoretical Foundation

The theoretical synthesis underpins the analysis of service revenue at a granular level, rather than assuming that all internally generated service income yields an equivalent financial outcome.

2.2.1 Resource Dependence Theory

Resource Dependence Theory, developed by Pfeffer and Salancik (1978), holds that organizations depend on resources controlled by actors in their external environment and become vulnerable when critical resources are concentrated among a small number of providers. Consequently, organizations seek strategies to reduce dependence, manage uncertainty, and gain control over essential resources.

RDT is particularly applicable to public universities because reliance on government appropriations exposes institutions to fiscal constraints, policy changes, and fluctuations in public funding, while reliance on tuition creates vulnerability to enrollment changes, affordability constraints, and fee-collection challenges. Kenyan evidence similarly links heavy reliance on traditional funding sources to financial sustainability challenges (Kimathi & Irungu, 2024; Kabisa & Wanyonyi, 2026). Service revenue from catering, Income-Generating Units (IGUs), consulting, and other professional services can therefore broaden the institutional resource base and reduce excessive dependence on government and tuition. This aligns with Ngcobo et al. (2024), who found that no single university revenue stream was sufficient to ensure financial sustainability.

However, RDT does not fully explain why different service activities produce different financial outcomes. Developing additional revenue sources does not necessarily strengthen financial stability if the activities generate insufficient surpluses or consume substantial institutional resources. The present study therefore extends the application of RDT by arguing that reducing dependence on external resources benefits the organization only when alternative revenue sources are financially productive.

2.2.2 Resource-Based and Knowledge-Based Perspectives

The Resource-Based View (RBV) complements RDT by focusing on the resources and capabilities an organization controls internally. RBV holds that differences in organizational performance can arise from possessing and effectively deploying strategically valuable resources and capabilities (Barney, 1991). Universities possess substantial tangible and intangible resources, including land, buildings, laboratories, equipment,

professional expertise, research capacity, institutional reputation, and stakeholder networks. Effective deployment of these resources can therefore create opportunities to generate supplementary income.

The Knowledge-Based View (KBV) extends this reasoning by treating knowledge as a particularly important organizational resource and emphasizing the organization's role in integrating and applying specialized knowledge (Grant, 1996). In universities, academic and professional expertise can be leveraged through consulting, professional training, short courses, laboratory and technical services, and other knowledge-intensive activities. This application is also consistent with the Third Mission literature, which recognizes knowledge transfer, external engagement, and entrepreneurial activities as important extensions of universities' traditional teaching and research roles (Compagnucci & Spigarelli, 2020).

The three theoretical perspectives are therefore complementary. RDT explains why universities seek service revenue to reduce dependence on government funding and tuition (Pfeffer & Salancik, 1978). RBV explains how institutional resources and capabilities can support performance (Barney, 1991), and KBV emphasizes integrating and applying specialized knowledge as an organizational capability (Grant, 1996). Applied to this study, this integration suggests that service-revenue components may contribute differently to financial stability because universities possess heterogeneous resources, knowledge, and capabilities. This theoretical synthesis therefore provides the basis for disaggregating service revenue into Catering Service Revenue (SRC), Income-Generating Unit Revenue (SRIGU), and Other Service Revenue (SRO), rather than treating service income as a homogeneous category.

2.3 Catering Services Revenue and Financial Viability

Catering is a common service-revenue activity in universities because institutions have an established market of students, staff, and visitors and often possess kitchens, dining, and conference facilities that can support commercial operations. From an RDT perspective, catering provides internally generated income that can supplement government funding and tuition, while RBV explains how universities can use existing infrastructure and institutional markets to generate additional financial resources. However, its financial contribution depends on operating efficiency because food, labor, utilities, procurement, and inventory costs can substantially reduce the surplus generated. Catering revenue is also particularly vulnerable to disruptions in campus activity.

Although the broader third-stream literature recognizes commercial services as potential sources of supplementary university financing, empirical evidence isolating catering revenue and linking it directly to institutional financial stability remains limited. Kenyan studies generally group catering within broader categories of entrepreneurial or internally generated income. Agai (2024), for example, considers hospitality-related activities within revenue diversification but does not isolate catering's contribution to financial stability. The present study addresses this component-level empirical gap by separately examining whether Catering Service Revenue contributes to the financial stability of Kenyan public universities.

2.4 Revenue from Income-Generating Units and Financial Viability

Income-Generating Units (IGUs) are widely used by public universities to supplement government and tuition revenue through activities such as commercial farms, conference facilities, production units, consulting centers, and other institutional enterprises. From a Resource Dependence Theory perspective, IGUs can reduce reliance on externally controlled funding by increasing internally generated resources. The Resource-Based View suggests that their financial performance depends on how effectively universities deploy institutional assets and capabilities.

Empirical evidence, however, indicates that establishing IGUs does not necessarily translate into improved financial stability. Ngcobo et al. (2024) found that diversified revenue-generating activities were insufficient to guarantee university financial sustainability, while Agai (2024) observed that the effectiveness of revenue diversification in Kenyan public universities depends partly on institutional capacity and the management of internally generated resources. Kimathi and Irungu (2024) likewise emphasize the financial viability of revenue-generating activities, recommending discontinuation when marginal costs exceed marginal revenues. These findings suggest that IGUs' contribution depends on profitability, cost control, governance, and commercial efficiency rather than revenue volume alone. Nevertheless, existing Kenyan studies generally examine IGUs within broader measures of internally generated income or revenue diversification. The present study addresses this component-level empirical gap by isolating Income-Generating Unit Revenue (SRIGU) and examining its independent relationship with the financial stability of public universities.

2.5 Other Service Revenue and Financial Stability

Other Service Income includes service-related revenues beyond catering and officially recognized Income Generating Units (IGUs), such as consulting, professional and executive education, technical assistance,

lab evaluations, conferences, workshops, and associated institutional services. These endeavors are particularly significant to the KBV because they enable universities to monetize assets directly tied to their primary academic strengths. Knowledge-centric services can offer advantages over unrelated commercial ventures. Consulting capitalizes on professional expertise; lab testing expands the use of specialized facilities; professional education transforms existing academic expertise into marketable programs; and technical advisory functions provide frameworks for leveraging university knowledge to address external organizational challenges. Such initiatives can advance the Third Mission while generating institutional resources.

Compagnucci and Spigarelli (2020) illustrate that the Third Mission encompasses diverse forms of university involvement and knowledge dissemination rather than a narrowly defined commercial purpose. Ngcobo et al. (2024) advocate harnessing the knowledge and competencies of seasoned university staff as part of revenue-generating strategies. Riechi (2024) similarly notes that revenue diversification is an increasingly vital response to insufficient public funding for public universities in Kenya. Nonetheless, empirical studies that distinguish knowledge- and service-oriented income from broader categories such as internally generated funds, entrepreneurial income, or third-stream revenue remain scarce. Consequently, it remains unclear whether these services make an independently recognizable contribution to universities' overall financial health. This highlights the third empirical gap the study addresses. By distinguishing SRO from catering and formal IGUs, the analysis investigates whether other service activities, closely linked to universities' unique knowledge and professional capacities, contribute independently to financial stability.

2.6 Service Revenue and Financial Stability

The financial advantage of aggregate service revenue ultimately hinges on whether it improves the institution's overall financial position. This distinction is crucial since financial stability encompasses more than just annual revenue generation. A financially stable university requires adequate liquidity and reserves, sustainable operational performance, effective use of institutional resources, and the ability to meet debt obligations. Prior research has employed various metrics for financial sustainability, leading to potentially differing interpretations.

Kimathi and Irungu (2024) discovered that revenue diversification had a significant negative correlation with financial sustainability when assessed using the gearing ratio but a significant positive association when sustainability was gauged with a sustainability ratio. Such findings exemplify the shortcomings of relying on a single financial metric to draw conclusions about an institution's financial condition. The current study tackles this concern by linking service revenue to the Composite Financial Index (CFI), which incorporates the Primary Reserve Ratio, Net Operating Revenue Ratio, Return on Net Assets, and Viability Ratio. Therefore, service revenue is analyzed based on whether it enhances the university's overall financial status rather than merely boosting reported income. This creates a vital conceptual difference between revenue generation and the creation of financial value.

2.7 Research Gaps and Contributions of the Study

The reviewed literature indicates that revenue diversification, third-stream income, and university entrepreneurship can support institutional financial sustainability. However, five interrelated gaps remain. First, a disaggregation gap exists because much of the literature treats internally generated funds, third-stream income, or service revenue as aggregated constructs, despite differences in the markets, cost structures, and risks across catering, formal Income-Generating Units (IGUs), and other services. Such aggregation may obscure differences in their financial contributions (Ngcobo et al., 2024).

Second, a measurement gap persists because financial sustainability is often assessed using individual financial indicators. As Kimathi and Irungu (2024) show, conclusions can vary depending on the measure used. This study instead uses the multidimensional Composite Financial Index (CFI), which incorporates liquidity and reserves, operating performance, asset productivity, and debt capacity. Third, a methodological gap arises from the predominance of cross-sectional surveys, perception-based studies and single-institution case studies. This study provides longitudinal evidence using audited financial data from 22 Kenyan public universities over 2018–2024, enabling examination of relationships between service revenue and financial stability across institutions and over time.

Fourth, a contextual gap persists because empirical evidence on the contribution of specific service-revenue components to the financial stability of Kenyan public universities is limited. Existing local studies have largely focused on revenue diversification or internally generated income more broadly, rather than separately examining catering, formal IGUs, and other service revenue. Finally, a theoretical integration gap remains. Resource Dependence Theory (RDT) explains why universities seek alternative revenues to reduce dependence on government funding and tuition, while the Resource-Based View (RBV) and Knowledge-Based View (KBV)

explain how institutional assets, knowledge, and capabilities can be converted into productive revenue. Integrating these perspectives suggests that alternative revenue strengthens financial stability only when universities possess the capabilities to generate financial value from those resources.

Accordingly, this study contributes by disaggregating service revenue into Catering Service Revenue (SRC), Income-Generating Unit Revenue (SRIGU), and Other Service Revenue (SRO), and by examining their relationships with a multidimensional measure of financial stability using longitudinal data. In doing so, it shifts attention from whether universities generate alternative revenue to which service activities are financially productive, thereby supporting a more selective, capability-based, and financially accountable approach to university entrepreneurship.

III. METHODOLOGY

3.1 Research Design and Data Sources

The study used a quantitative longitudinal design grounded in a positivist research ethic. Of the 37 public universities in Kenya included in the study, 22 reputable institutions were selected for long-term analysis. The analysis produced 154 university-year observations within the service-component model, spanning seven fiscal years from 2018 to 2024. Given that service revenue can vary significantly across universities and over time, this longitudinal approach was particularly useful. Audited financial accounts provided the Services Revenue (SR) data. SR was divided into three categories: Income-Generating Unit Revenue (SRIGU), Other Services Revenue (SRO), and Catering Service Revenue (SRC). The revenue variables were log-transformed before statistical analysis.

3.2 Financial Stability Measurement

Financial stability was operationalized using the Composite Financial Index (CFI) (Prager et al., 2010). The CFI was preferred over a single metric because universities' financial situations are multifaceted. It encompasses four dimensions: Primary Reserve Ratio (PRR), which gauges liquidity and resource sufficiency; Net Operating Revenue Ratio (NORR), which gauges operating performance; Return on Net Assets (RONA), which gauges changes in institutional wealth and asset productivity; and Viability Ratio (VR), which gauges debt capacity. Therefore, rather than increasing only reported income, the resulting composite assesses service revenue's ability to contribute to overall institutional financial stability. The following model was used in the analysis:

$$FS_{it} = \beta_{0it} + \beta_1 \ln SRC_{it} + \beta_2 \ln SRIGU_{it} + \beta_3 \ln SRO_{it} + \epsilon_{it}$$

where FS_{it} represents the financial stability of university i in year t .

3.3 Analytical Procedures

Descriptive statistics summarized the service variables and annual patterns. A pairwise correlation analysis examined initial relationships between service elements and financial stability. Subsequently, panel regression assessed the conditional relationship between service revenue and CFI. The component regression included all 154 observations, consistent with the panel data from 22 universities over seven years.

IV. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Table 1 presents descriptive statistics for service revenue and its components. The statistics indicate considerable variation in service revenue across Kenyan public universities during the study period. Aggregate Service Revenue ($\ln_SR$) had the highest mean (10.6474) and a standard deviation of 1.2972, while the individual components had means of 9.1980 for Catering Service Revenue ($\ln_SRC$), 9.3911 for Income-Generating Unit Revenue ($\ln_SRIGU$), and 8.9268 for Other Service Revenue ($\ln_SRO$). Among the components, SRO exhibited the greatest variability ($SD = 2.0320$), followed by SRIGU ($SD = 1.8026$), suggesting substantial differences among universities in their capacity to generate income from these activities. By comparison, catering revenue was less dispersed ($SD = 1.2245$). The distributions also differed in shape: aggregate service revenue was moderately positively skewed (0.5916); SRC and SRO were negatively skewed (-1.2966 and -0.6976 , respectively); and SRIGU was approximately symmetric (0.0080). Importantly, the Jarque–Bera test was statistically insignificant for all variables ($p > .05$), indicating no evidence to reject the assumption of normality. Overall, the statistics reveal considerable heterogeneity in the scale and composition of service revenue across public universities, supporting the disaggregation of service income into its constituent components when examining its relationship with financial stability.

Table 1 -Descriptive Statistics about Service Revenue and its components

Variable	Min	Max	Mean	Std. Deviation	Skewness	Kurtosis	JB	P-value (JB)
Services Revenue (ln_SR)	7.3485	14.7007	10.6474	1.2972	0.5916	0.3100	1.551	0.462
ln_SRC	3.0362	12.8399	9.1980	1.2245	-1.2966	1.6476	2.525	0.505
ln_SRIGU	3.6484	14.3211	9.3911	1.8026	0.0080	0.0438	1.977	0.374
ln_SRO	0.3001	13.6228	8.9268	2.0320	-0.6976	2.5188	1.127	0.525

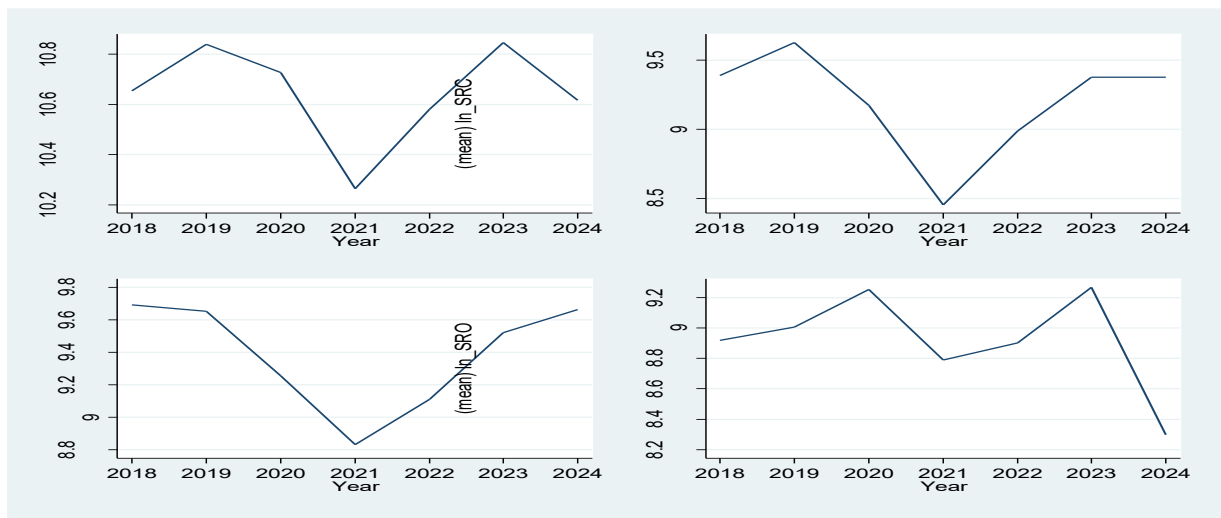


Figure 1-Trend Analysis of the Service Revenue and its components 2018-2024

Figure 1 presents the trend analysis, showing that aggregate service revenue (ln_SR) and its three components fluctuated considerably between 2018 and 2024, with a particularly noticeable deterioration around 2020–2021. Total service revenue increased from 2018 to 2019, declined slightly in 2020, and reached its lowest level in 2021. It then recovered strongly through 2022 and 2023 and declined slightly in 2024. Catering Service Revenue (ln_SRC) followed a broadly similar pattern, rising in 2019, falling sharply to its lowest point in 2021, and subsequently recovering to relatively stable levels by 2023–2024. Income-Generating Unit Revenue (ln_SRIGU) declined consistently from 2018 to a pronounced trough in 2021, then recovered steadily through 2024, indicating a relatively sustained post-2021 improvement. In contrast, Other Service Revenue (ln_SRO) showed greater volatility, rising through 2020, declining in 2021, recovering strongly to its highest level in 2023, and then falling sharply in 2024. Overall, the common deterioration around 2021 highlights the vulnerability of university service-based income to major operational disruptions, while the different recovery patterns show that service-revenue components do not respond uniformly to changing operating conditions, further supporting separate analysis rather than treating service revenue as a homogeneous category.

4.2 Correlation analysis

Table 2 presents the correlational analysis of the service revenue categories. The three service revenue components were positively associated with financial stability. Catering Service Revenue displayed the strongest bivariate association with FS at $r = 0.559$ ($p < .01$). Other Service Revenue followed at $r = 0.389$ ($p < .01$), while SRIGU had the weakest but still statistically significant relationship at $r = 0.205$ ($p < .05$). The components were moderately positively correlated: SRC with SRIGU at 0.434; SRC with SRO at 0.429; and SRIGU with SRO at 0.448.

Table 2 - The Correlation Analysis Results

Variable	FS	ln_SRC	ln_SRIGU	ln_SRO
FS	1			
ln_SRC	0.559***	1		
ln_SRIGU	0.205**	0.434***	1	
ln_SRO	0.389***	0.429***	0.448***	1

*** $p < .01$; ** $p < .05$; * $p < .10$.

The correlational analysis results suggest that universities with stronger service-generating capabilities in one area may also possess capabilities that support other service activities. Entrepreneurial management, commercial infrastructure, and institutional market orientation could underlie these complementarities.

4.3 Component-level regression

Table 3 presents the regression results. The three components of service revenue contribute differently to the financial stability of Kenyan public universities. Catering Service Revenue (ln_SRC) had a positive and statistically significant coefficient of 0.699 ($p = .003$), indicating that increases in catering-related income were associated with improved financial stability, holding the other service components constant. Other Service Revenue (ln_SRO) also had a positive and highly significant effect, with a coefficient of 0.868 ($p < .001$), making it the strongest statistically supported contributor to financial stability among the three components in this specification. By contrast, Income-Generating Unit Revenue (ln_SRIGU) had a positive coefficient of 0.515, but its p -value of .051 places it just outside the conventional 5% significance threshold. The 95% confidence interval for ln_SRIGU narrowly crosses zero (-0.003 to 1.028), reinforcing the conclusion that its positive contribution was not statistically significant, unlike that of catering and other services.

At the model level, the service-revenue variables jointly explain about 35.9% of the variation in financial stability ($R^2 = .359$). The overall model is statistically significant ($F = 4.899$, $p < .001$), indicating that service revenue is an important determinant of financial stability when its components are considered collectively. The results therefore suggest that public universities should not treat all service-based income-generating activities as equally productive. Catering and other service activities appear to contribute more reliably to financial stability, whereas formal IGUs may warrant closer examination of their operational efficiency, cost structures, pricing, governance, and commercial viability. The findings support a more selective approach to university entrepreneurship, in which service activities are assessed by their actual financial contribution rather than merely by the gross revenue they generate.

Table 3 - Regression Analysis Results

FS	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
ln_SRC	0.699	0.229	3.052	0.003	0.236	1.153	***
ln_SRIGU	0.515	0.261	1.973	0.051	-0.003	1.028	*
ln_SRO	0.868	0.0231	37.576	0.000	0.821	0.962	***
Constant	0.863	2.893	0.298	0.766	-4.893	6.619	
Mean dependent var		4.934	SD dependent var		2.58		
R-squared		0.359	Number of obs		132		
F-test		4.899	Prob > F		0		
Akaike crit. (AIC)		387.267	Bayesian crit. (BIC)		397.949		

*** $p < .01$, ** $p < .05$, * $p < .1$

4.4 Discussion

4.4.1 Overall Service Revenue and Financial Stability

Overall, the three service-revenue components explained 35.9% of the variation in financial stability ($R^2 = .359$), and the model was statistically significant ($F = 4.899$, $p < .001$). These findings support the proposition that service revenue can strengthen the financial sustainability of public universities and show that its contribution varies across revenue components. This pattern aligns with RDT, which holds that service activities broaden the institutional resource base and reduce excessive dependence on government and tuition, while RBV/KBV explains how universities can transform their existing assets, expertise and capabilities into productive revenue streams. It also extends Ngcobo et al. (2024), Mbhalati (2024) and Lesuuda (2024) by demonstrating that third-stream income should not be treated as a homogeneous financing category. The practical implication is that universities should move beyond simply pursuing more service revenue toward developing more financially productive service revenue, with individual activities assessed according to profitability, cost recovery, operational efficiency and their net contribution to institutional financial stability.

4.4.2 Catering Service Revenue and Financial Stability

Catering Service Revenue (ln_SRC) was positively and statistically significantly associated with financial stability ($\beta = 0.699$, $p = .003$), indicating that catering activities contribute to public universities' financial resilience. This finding supports Resource Dependence Theory (RDT) because internally generated catering income provides universities with an additional resource stream that can reduce reliance on government appropriations and tuition. It is also consistent with the Resource-Based View (RBV), as universities can leverage existing catering facilities, infrastructure, and established student and staff markets to generate supplementary

income. This result aligns with the literature, which finds that third-stream income can support university financial sustainability, although it should complement rather than replace traditional funding sources (Ngcobo, 2021). The finding therefore suggests that well-managed catering enterprises can strengthen financial stability, although their vulnerability to disruptions in campus activity means that efficiency, cost control, and commercial management remain important.

4.4.3 Income-Generating Unit Revenue and Financial Stability

Income-Generating Unit Revenue (ln_SRIGU) was positively associated with financial stability ($\beta = 0.515$), though the relationship was only marginally significant ($p = .051$) and the confidence interval narrowly included zero. The result provides qualified support for RDT: while IGUs offer universities a mechanism to reduce dependence on traditional funding sources, their mere existence does not automatically translate into stronger financial stability. This finding is particularly consistent with Lesuuda (2024), who found that entrepreneurial activity can enhance financial sustainability in Kenyan public universities but emphasized the importance of institutional autonomy, appropriate incentives, governance, and commercially effective IGU management. It also complements Mbhalati's (2024) finding that commercial third-stream income remains comparatively underdeveloped relative to government and tuition funding in South African public universities. The comparatively weak SRIGU result therefore suggests that universities should focus less on simply establishing IGUs and more on their profitability, operational efficiency, and net contribution to institutional finances.

4.4.4 Other Service Revenue and Financial Stability

Other Service Revenue (ln_SRO) showed a positive, highly significant relationship with financial stability ($\beta = 0.868$, $p < .001$), indicating that service-based activities beyond catering and formal IGUs are an important source of financial support. This finding is particularly consistent with the Knowledge-Based View (KBV), as universities possess specialized knowledge, professional expertise, laboratories, technical facilities, and reputational resources that can be converted into revenue through consultancy, professional training, technical services, and related activities. Compagnucci and Spigarelli (2020) similarly show that the contemporary university's "third mission" encompasses knowledge transfer, external engagement, and entrepreneurial activities extending beyond conventional teaching and research. The result therefore supports greater emphasis on knowledge-intensive service activities that align with universities' distinctive academic capabilities, rather than diversification into commercial ventures in which universities possess limited comparative advantage.

V. SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Findings

The study examined how service revenue affects the financial stability of Kenyan public universities by disaggregating it into Catering Service Revenue (SRC), Income-Generating Unit Revenue (SRIGU), and Other Service Revenue (SRO). Financial stability was measured using the Composite Financial Index (CFI), which incorporates liquidity, operating performance, asset productivity, and debt capacity. The analysis covered 22 public universities from 2018 to 2024, yielding 154 university-year observations. The findings showed that the service-revenue components were positively associated with financial stability, though their effects differed considerably. Catering Service Revenue had a positive and statistically significant effect on financial stability ($\beta = 0.699$, $p = .003$), while Other Service Revenue also had a positive and highly significant effect ($\beta = 0.868$, $p < .001$). Income-Generating Unit Revenue was positive ($\beta = 0.515$) but only marginally significant ($p = .051$), indicating weaker evidence of its contribution to financial stability. Collectively, the service-revenue components explained 35.9% of the variation in financial stability, and the overall regression model was statistically significant ($F = 4.899$, $p < .001$). The results therefore show that service revenue contributes to university financial stability, but the magnitude of that contribution varies across service-revenue components.

5.2 Conclusion

The research concludes that service revenue is pivotal to the financial stability of public universities in Kenya, though its impact varies across service-revenue categories. Regarding the hypotheses examined, H_1 , asserting that Catering Service Revenue has no statistically significant correlation with financial stability, was rejected, as catering revenue showed a strong, statistically significant link to financial stability ($\beta = 0.699$, $p = .003$). H_2 , suggesting that Income-Generating Unit Revenue has no statistically significant link with financial stability, was upheld at the typical 5% significance threshold, since the positive coefficient for SRIGU ($\beta = 0.515$) was only marginally significant ($p = .051$), and its 95% confidence interval encompassed zero. H_3 stated that Other Service Revenue lacks a statistically significant relationship with financial stability, which was rejected, as SRO showed a positive and significant association with financial stability ($\beta = 0.868$, $p < .001$). The findings suggest that the financial gains from university service initiatives vary: catering and other services clearly contribute to financial stability, while the assurance of formal IGUs remains less certain. Consequently, the study questions the

presumption that increasing income-generating activities automatically bolsters institutional finances, advocating for a shift in university entrepreneurship from a focus on gross revenue generation to enhancing revenue productivity. Service activities should be assessed based on profitability, cost recovery, operational efficiency, and their overall role in strengthening financial resilience.

5.3 Recommendations

Public universities should strengthen service revenue as a complementary financing strategy while adopting a selective rather than indiscriminate approach to commercialization. First, universities should expand commercially viable catering, consultancy, professional training, laboratory and technical services, and other knowledge-intensive activities that exploit existing institutional competencies and resources. Second, IGUs should be subjected to regular commercial performance assessment using measures such as contribution margins, operating surpluses, cash generation, cost-recovery ratios and returns on resources employed, rather than being evaluated primarily on gross revenue. The comparatively weak SRIGU result particularly suggests a need to review the governance, pricing, staffing, cost structures and operational efficiency of university enterprises. Third, universities should prioritize service activities aligned with their distinctive academic and professional competencies because these offer opportunities to monetize specialized knowledge, expertise, laboratories and technical facilities. Finally, university councils and management should institutionalize separate management accounting for major commercial activities so that profitable enterprises can be distinguished from activities that generate substantial turnover but little or no net contribution to institutional financial stability.

5.4 Contribution of the Study

The study's central contribution is demonstrating that service-revenue heterogeneity matters for university financial stability. Existing discussions of third-stream income often emphasize whether universities have diversified into commercial and entrepreneurial activities; this study shows that a more important question is which service activities actually contribute to financial stability. The findings consequently shift policy and managerial focus from the quantity of income-generating activities to the quality and financial productivity of those activities. For public universities facing constrained government funding and pressure on tuition income, sustainable entrepreneurship should therefore be based on identifying services in which the institution possesses genuine capabilities, establishing commercially appropriate governance, and ensuring that the resulting activities generate measurable net financial value.

5.4.1 Contribution to Theory

The study contributes to Resource Dependence Theory (RDT) by showing that reducing dependence on traditional funding sources is not simply a matter of creating additional revenue streams; the financial productivity of those streams matters. While RDT explains why universities seek service revenue to reduce reliance on government appropriations and tuition, the heterogeneous results show that alternative revenue sources vary in their capacity to strengthen financial stability. The study further integrates RDT with the Resource-Based View (RBV) and Knowledge-Based View (KBV) by demonstrating how universities can convert internally controlled resources, including knowledge, professional expertise, infrastructure, and institutional capabilities, into financially productive services. The study therefore extends the theoretical discussion from resource diversification to productive resource mobilization, suggesting that financial resilience depends not only on accessing alternative resources but also on the institutional capability to convert them into sustainable financial value.

5.4.2 Contribution to Management

The findings provide university management with evidence to shift from a revenue-generation orientation to a revenue-productivity orientation. The results show that the presence of an IGU or commercial activity should not, in itself, be taken as evidence of successful entrepreneurship. The weaker relationship between SRIGU and financial stability suggests that managers should assess individual enterprises based on profitability, contribution margins, cash generation, working-capital efficiency, and full-cost recovery. University management can therefore use the findings to classify service activities as those to be expanded, restructured, subsidized for strategic reasons, or discontinued. The results particularly support investment in commercially viable services closely aligned with institutional capabilities, while emphasizing stronger governance and accountability for formal IGUs.

5.4.3 Contribution to Practice

The study provides a framework for distinguishing service revenue rather than treating it as a single homogeneous category. This is particularly relevant to university financial planning because the results show that catering, formal IGUs, and other services relate differently to financial stability. University finance offices can therefore incorporate service-level performance measures into budgeting and financial reporting, including revenue growth, direct costs, contribution margins, cash conversion, and net financial contribution. The findings

also encourage universities to leverage underutilized knowledge and physical resources through consultancy, professional training, laboratory testing, technical services, and other market-responsive activities that remain closely connected to the universities' core academic competencies.

5.4.4 Contribution to Higher-Education Policy

The findings have implications for higher-education financing policy. Service revenue should be viewed as complementary to, rather than a substitute for, adequate public financing. The study's positive relationships indicate that universities can strengthen their financial resilience through internally generated resources. However, differences across components suggest that institutional capacity to generate such income is unlikely to be uniform. Policies that simply require universities to compensate for declining public funding through IGUs may therefore disadvantage institutions with fewer exploitable assets or limited entrepreneurial capacity. An enabling policy environment should instead provide universities with sufficient managerial autonomy to commercialize appropriate services, retain and reinvest internally generated surpluses, establish appropriate enterprise governance structures, and incentivize staff participation in consulting and other knowledge-based activities that generate revenue.

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