Influence Of Revenue Streams On Financial Sustainability: Evidence From Kenyan Public Universities

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Abstract

This paper discusses the influence of various revenue streams (government grants, student fees, internally generated revenue, and endowment trust funds) on the financial sustainability of Kenyan public universities from the perspective of resource dependency theory. A longitudinal survey research approach was used and the final sample consisted of 31 public chartered universities in Kenya that had operated continuously for more than five years as of 2015. Panel data were extracted from the annual financial statements of these universities and other secondary data sources for the period from 2015 to 2020. A random effects regression model was applied to determine the correlation between the different revenue streams and financial sustainability. This study found that both government grants and student fees have significant relationships with the current ratio. By contrast, internally generated revenue and endowment trust funds have insignificant relationships with the current ratio. Not only do this study’s findings contribute to existing empirical literature, but the results will also be beneficial to multiple stakeholders, such as university management, stakeholders, and researchers.

Keywords: Government grants, student fees, internally-generated revenue, endowment trust funds, resource dependency theory.
Introduction

Financial sustainability (FS) for public universities is an issue of global concern owing to the increasing cost of providing higher education. Declining amounts of government grants and student enrollment rates are critical challenges facing public universities (Marginson, 2017; Wu, 2017). Despite their decreasing funds and increasing costs, demands for the sustainability of these institutions remain. Abooki and Kamanzi (2018) found a persistent decline in funding for public universities, causing these institutions to experience serious financial problems. These challenges have hindered public higher learning institutes from delivering their mandate of offering quality education. In sub-Saharan Africa, particularly, owing to decreased funding, public universities have started pursuing alternative income streams to support their operations and deliver their mandate while remaining globally competitive (Abooki & Kamanzi, 2018; Oti & Odey, 2017; Rohayati, Najdi and Williamson, 2016; Teferra, 2015; World Bank, 2017).

In Kenya, income from capitation fees is diminishing for public universities, limiting their effectiveness at performing duties related to teaching, research, and extension programs (Archuleta, Dale & Spann, 2013). For instance, in the financial year 2020/2021, the university budget deficit was KES 9.4 billion (Republic of Kenya, 2020). In addition, a report by the Auditor General of Kenya for the financial year 2018/2019 revealed that major universities—Kenyatta University, Nairobi University, and Jomo Kenyatta University—were insolvent. Kenyan public universities face varied financial challenges attributable to the continuous decline in their traditional sources of revenue (government grant and student fees), posing a threat to their survival. Over the last 30 years, the increasing cost of providing university education has been accompanied by a widening funding gap (Wachira, 2018). Empirical evidence reveals that most public universities largely fund their operations through the traditional revenue sources of government grants and student fees (Hearn, 2015; Johnstone, 2013; Teferra, 2013; World Bank, 2010).

These funding problems originated in 1985 when the government introduced the 8-4-4 system, replacing the 7-4-2-3 system. In 1990, approximately 10,000 students enrolled in public universities, compared to the 8,000 students in the previous system. This led to a steep rise in operation costs, which could not be supported by existing budget allocations. Therefore, a cost-sharing scheme was introduced, involving parents, guardians, and universities. Since 1995, the number of students has tripled to 42,913, forcing the government to place them in public and private universities. By 2018, this number rose to 90,755, thereby increasing the operational costs of universities. This trend worsened the budget deficit in state universities as financial allocation was wired in public and private universities, and it could not accommodate the increased student admissions.

Additionally, public universities have been witnessing decreased self-sponsored student enrolment following reforms introduced by the Ministry of Education in 2016, wherein all students who scored C+ and above were admitted to universities under government sponsorship (Kenya National Bureau of Statistics, 2019). This was a big blow to public universities’ revenue from self-sponsored student fees. It further widened the budget deficit and led to a financial crisis among
universities. The Kenya National Bureau of Statistics (2019) disclosed that the funding cost per student was KES 70,000 annually regardless of the study program, which was below the annual expected costs of KES 144,000 and KES 600,000 for the arts and dentistry programs, respectively.

From 2018, the government adapted a system known as differentiated unit cost (DUC) to fund students in universities, whereby funding is based on the cost associated with a degree program (Republic of Kenya, 2019). However, implementing the DUC did not yield the expected results. Therefore, there was a need to explore other funding approaches, such as increasing tuition fees, reducing the workforce, and paying staff based on productivity (Njuki, 2021; Ntaragwi, 2021). These reforms were supported by the World Bank (2021), which recommended a review of the tuition fees policy applicable to Kenyan universities to address their FS.

A report by the Auditor General of Kenya revealed that most state universities encounter serious financial difficulties as they are unable to meet staff operating costs and supplier payments (Auditor General Kenya, 2016). Most capital projects in public universities have been abandoned. Furthermore, physical facilities are in a state of disrepair and these universities are unable to remit approximately 74% of salary deductions to the Savings and Credit Co-operative Societies (Omondi & Muturi, 2013; Sacco Societies Regulatory Authority, 2020).

Moreover, since 2020, the COVID-19 pandemic has aggravated the financial problems of all universities. The Kenyan government ordered the closure of all learning institutions to prevent the infection’s spread, which forced many universities to begin offering e-learning courses. This meant that most universities had to acquire expensive remote instructional devices, which in turn increased their operational costs. The clients of these universities are students whose parents and guardians were unable to pay the tuition fees owing to the tough economic conditions caused by the COVID-19 pandemic; consequently, many universities experienced revenue losses. Thus, public universities’ tendency to rely on traditional sources of revenue has resulted in many of them being unable to pay their employees and afford other expenses.

Research predicts that most higher learning institutions (HLIs) will close by 2028 (Alhassan, 2018; Citifmonline, 2018; Eide, 2018; Horn, 2018). These predictions make it important to address the FS problems faced by Kenyan public universities. Further, the revenue and survival of higher education institutions (HEIs) has attracted the interest of many researchers (Abooki & Kamanzi, 2018; Ahmed, Soon and Ting 2015; Ahmed, Siraj and Ismail 2019; Estermann, 2020; Mamo, 2015; Namalefia, 2014; Webb, 2015). However, most studies fail to discuss the impact of revenue streams and the element of timing difference. Accordingly, this study aims to investigate the influence of revenue streams on the FS of public universities in Kenya.

**Literature review**

**Theoretical review**

This study adopted the perspective of resource dependency theory to analyze the FS challenges of universities. This theory was proposed by Weber (1947), promulgated by Pfeffer and Salancik
Resource dependency theory states that resources are vital to the success of institutions that rely upon financial resources for sustainability. Consequently, denying them basic financial resources creates vulnerability and undermines institutional performance. An institution faces challenges and risks when resources become limited, forcing it to seek funds from alternative sources (Odhambo, 2013). To combat this risk, institutions should be guaranteed continuous funds to support their daily operations.

In the university context, the resource dependency theory argues that utilizing multiple sources of revenue places a university in a better position as it is less reliant on a single source of revenue. Furthermore, once financing is concentrated in a limited source, a revenue decline can lead to a major budget deficit. By contrast, when revenue is obtained from different streams that lack a strong positive association, a decline in financing from one of the sources may be offset by an increase from another source. In this case, actual revenue remains close to the projected revenue and the absolute risk to the institution is reduced (Markowitz, 1952). The financial health of higher learning institutions depends largely on their ability to diversify revenue streams (Johnstone, 2013). This study therefore analyzed various revenue streams and investigated their impact on the FS of Kenyan public universities.

**Empirical review**

**Financial sustainability**

FS refers to the ability of an institution to meet its current financial obligations as they become due (Lucianelli & Citro, 2017). Generally, this is referred to as the liquidity position. Researchers use leverage, liquidity, and net operating ratio to measure FS (Afriye, 2015; Cernostana, 2017; Nalwoga, 2021; Sami & Sree, 2017; Wachira, 2018; Webb, 2015). This study considered the current ratio to assess the FS of public universities in Kenya.

Many factors affect and are important for FS. Minyoso (2020) revealed that financial investment, financial risk, and liquidity management have a positive effect on FS. Kharlamova and Sazonov (2014) argued that any university’s FS is secured when adequate income is produced to empower the university to prioritize future academic and research activities. Cernostana (2017) posited that universities’ FS is of central significance as it involves the issue of the sustainability of the institution in the future. Chumba, Muturi and Oluoch, (2020) indicated that adopting effective structures for donor funding improves the FS of Kenyan universities. Many other studies have also emphasized the importance of FS in HLIs (Afriye, 2015; Akeel, Bell and Mitchell, 2019; Sazonou, Kharlamova1, Chekhovskaya1 and Polyanskayal, 2015; Murage & Onyuma, 2015; Rymanou, 2010; Sergei, Ekaterina, Irina and Elena, 2015). Most of these studies concentrated on the determinants of FS, as opposed to revenue streams; the latter forms of the focus of our study.

**Government grants**

Government grants are funds allocated by the government for public universities to provide higher education opportunities to its citizens. Gudo (2014) argued that the strategy employed by the
government of Kenya to allocate funds to public universities is inadequate as it does not alleviate the financial struggles of the universities. Munene (2019) found that the financial difficulties faced by public universities in Kenya negatively affected their operations, raising concerns over their long-term survival.

Meanwhile, others have also examined the positive effects of government funding on HLIs. Mutiso, Onyango and Nyagol (2015) found that government capitation improved the quality of education in Kenyan public universities by 57.3%. Panigrahi (2018) documented a positive correlation between state funds and the outcomes of HLIs in India. The author concluded that, in addition to state funds, a mix of various funding methods such as a public exchequer, student fees, graduate tax, and private sector funding, can positively impact the financial performance of HLIs.

Ahmed, Siraj and Ismail (2019) found that a majority of the public HLIs (PHLI) in Malaysia are dependent on government funds. Methodologically, the authors considered qualitative and quantitative data; in this study, we only use quantitative data. Ahmed (2015) used public subsidies and tuition income to investigate the financing of private and public HLIs in Nigeria. The author’s findings showed that HLIs only receive small allocations from the government, which need to be supplemented through other revenue sources. However, the author only considered tuition income and public subsidies as funding sources, ignoring other sources such as donations. Speck (2010) suggested that most universities and colleges have experienced decreased state funding. Given this evidence, we adopt the resource dependency theory perspective, which proposes that institutions relying on multiple sources of revenue are more successful than those depending on a single source, to propose the following hypothesis:

$$H_{01}$$: Government grants have no relationship with the FS of public universities in Kenya.

**Student fees**

Student fees include income in the form of fees received from both government and self-sponsored students. Oketch (2016) established that student fees can be an immense earning source that helps universities in meeting their obligations. Omona (2012) reported that universities that depend significantly on fees from students are at risk of experiencing financial challenges. Rwebiita (2020) added that the unit cost of offering quality education is higher than the fees received from students, thereby leaving universities to finance the balance. Estermann (2020) examined the effect of the diversification of income streams on European universities’ FS. The author found that student fees significantly influenced the financial status of most universities. The author used questionnaires, case studies, and seminars to collect data; conversely, our study uses secondary data.

Webb (2015) found that in universities and colleges in the United States of America, diversifying revenue increases the total income per student and improves the financial outcomes. The author applied a fixed effects regression analysis, resource dependency theory, and modern portfolio theory in their analysis. Here, we use random effects and resource dependency theory and consider only public universities. Lee, Kim and Lee (2020), applying agency theory, assessed the constraints imposed by tuition fees on the financial management of private universities in Korea.
The authors found that a rise in tuition fees is negatively affected by an increase in government subsidies. In this study, we use resource dependence theory, which asserts that a decline in one source of revenue may be offset by an increase in revenue from a different source. Based on this argument, we hypothesized the following:

H02. Student fees have no relationship with the FS of public universities in Kenya.

**Internally generated revenue**

Internally generated revenue is the income generated by commercial activities. Afriye (2015), using a predictive model, examined the factors affecting the FS of Ghanian HEIs. The author found a positive relationship between internally generated funds and HEIs’ growth. Compared to the author’s predictive model, we used a random effects model. Ahmed, Soon and Ting (2015) assessed the activities involved in the income generation of public universities in Malaysia. The authors noted that income generated through commercial services (e.g., shops, farming, and rentals) is critical to the manageability of universities. The authors used a qualitative approach through purposeful random sampling, while primary data were analyzed using an interactive model. In comparison, this study considered a census-based quantitative approach and used a random effect model for the analysis.

Murage and Onyuma (2015) found that income-generating activities positively and significantly impact the performance of PHLIs in Kenya. Mamo (2015) found that, in sub-Saharan universities, external revenue contributed more to university finances than did recurrent allocations from the government. The author used interviews and case studies to collect data, but the sample covered only three public universities. Based on this literature, we hypothesize the following based on resource dependency theory:

H03. Internally generated revenue has no relationship with the FS of public universities in Kenya.

**Endowment trust fund**

Chumba, Muturi and Oluoch (2020) examined green finance, unpacking donor funding and the FS of universities in Kenya. The authors found a positive association between donor funding and FS. These authors collected both secondary and primary data on public and private universities through the census method. Chumba, Muturi and Oluoch (2019) investigated the influence of financial investment strategies on the FS of universities in Kenya. The author argued that mobilizing resources may be necessary for boosting FS. Methodologically, the authors collected data from Kenyan private and public universities through the sampling method.

Mutinda and Ngahu (2015) assessed the determinants of non-governmental organizations’ (NGO) FS in Nakuru County, Kenya. The authors found that financial resource mobilization has a non-significant influence on FS. The authors collected data on Kenyan NGOs via questionnaires using stratified random sampling. Roy (2016) found that funds from donations are usually provided to an organization to assist in activities to attain a sound financial position. The author used the resource dependency and institutional theories.
Cheboi (2014) investigated the impact of donor funds on the performance of organizations in Kenyan government ministries, using total debt in government ministries as a control variable. The author found that donor funds have a negative and significant association with financial performance. Thelin and Trollinger (2014) and Frølich, Schmidt and Rosa (2010) found that contributions from corporations, agencies, and individuals positively and significantly affect the revenue base. Finally, Johnstone (2013) posited that the financial health of HEIs depends mostly on their ability to increase their revenue streams. Considering the resource dependency theory and the aforementioned literature, we hypothesize the following:

H04: Endowment trust funds have no relationship with the FS of Kenyan public universities.

Methods

Data collection
This study applied a quantitative approach wherein panel data were derived from the annual financial statements of universities over a 6-year period ranging from 2015 to 2020. A census was employed to collect data from 31 public universities that had continuously operated for five years or more as of 2015, as per the Commission for University Education; universities that did not clear this operation criterion were excluded. Secondary data were collected from the public universities, Kenya National Auditor Office (KENAO), Kenya National Bureau of Statistics, and reports and journals from the Ministry of Education. The collected data comprised information on government grants, student fees, income-generating revenue, and endowment trust funds. Ogboi and Unuafe (2013) posited that panel data provide more information, less collinearity, more variability between variables, more levels of freedom and efficiency, and minimize the bias that may be caused by aggregating individual institutions.

Measurement of variables and the research model
Regression analysis was used to examine the association between the variables. FS was the dependent variable, measured by the current ratio, while the independent variables consisted of revenue stream variables, such as government grants (GG), student fees (SF), internally generated revenue (IGR), and endowment trust funds (ETF). Institutional characteristics such as university size (SIZE) were used as control variables. Table 1 presents a summary of the operationalization of the variables.

The regression model applied is as follows:

\[ CR_{it} = \beta_0 + \beta_1 GG_{it} + \beta_2 SF_{it} + \beta_3 IGR_{it} + \beta_4 ETF_{it} + \beta_5 SIZE_{it} + \epsilon \]

Here, CR is the current ratio; i = 1, …, 31 universities; t = 1, …, 6 years; \( \beta_0 \) is the regression constant; \( \beta_1 \) … \( \beta_4 \) are the estimated coefficients; GG, SF, IGR, ETF, and SIZE represent government grants, student fees income, internally generated revenue, endowment trust funds, and size of university, respectively; and \( \epsilon \) represents the error term.

Table 1: Operationalization of the variables
Variable | Indicators | Measurements | Sources
---|---|---|---
Dependent | Current ratio | Current assets to current liabilities | Annual financial reports
Independent | Government grant | Government grant to total revenue | Annual financial reports
Independent | Student fees | Student fees to total revenue | Annual financial reports
Independent | Internally generated revenue | Internally generated revenue to total revenue | Annual financial reports
Independent | Endowment trust fund | Endowment trust fund to total revenue | Annual financial reports
Control | University size | Log of total assets | Annual financial reports

Results and discussion

Descriptive analysis

Table 2 presents descriptive statistics on the revenue streams and the FS of the sample public universities.

Table 2: Descriptive data

<table>
<thead>
<tr>
<th>Variable</th>
<th>Indicators</th>
<th>N</th>
<th>Mean</th>
<th>Maximum</th>
<th>Minimum</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent</td>
<td>Current ratio</td>
<td>186</td>
<td>0.56</td>
<td>0.58</td>
<td>0.53</td>
<td>0.01</td>
</tr>
<tr>
<td>Independent</td>
<td>Government grants</td>
<td>186</td>
<td>0.43</td>
<td>0.48</td>
<td>0.41</td>
<td>0.01</td>
</tr>
<tr>
<td>Independent</td>
<td>Student fees</td>
<td>186</td>
<td>0.36</td>
<td>0.39</td>
<td>0.34</td>
<td>0.01</td>
</tr>
<tr>
<td>Independent</td>
<td>Internally generated revenue</td>
<td>186</td>
<td>0.03</td>
<td>0.04</td>
<td>0.01</td>
<td>0.00</td>
</tr>
<tr>
<td>Independent</td>
<td>Endowment trust fund</td>
<td>186</td>
<td>0.02</td>
<td>0.06</td>
<td>0.00</td>
<td>0.01</td>
</tr>
<tr>
<td>Control</td>
<td>University size</td>
<td>186</td>
<td>8.54</td>
<td>9.89</td>
<td>5.08</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Our results indicated that the current ratio was between 0.53 and 0.58, with a mean of 0.56 and standard deviation of 0.01. Government grants were between 0.41 and 0.48, with a mean of 0.43 and standard deviation of 0.01. The ratio of student fees to total revenue was between 0.34 and
0.39, with an average of 0.36 and standard deviation of 0.01. In internally generated revenue, the ratio was between 0.01 and 0.04, with a mean of 0.03 and standard deviation of 0.00. The ratio of endowment trust fund to total revenue was between 0.00 and 0.06, with a mean of 0.02 and standard deviation of 0.01. University size was between 5.08 and 9.89, with an average of 8.54 and standard deviation of 0.01.

Correlation analysis
Table 3 presents the correlation results. The correlation between current ratio and government grants was positive and significant ($r = 0.282$, $p < 0.00$). Our results indicate that a university with a larger government grant also shows a higher current ratio. The relationship between student fees and current ratio was positive and significant ($r = 0.276$, $p < 0.00$). Thus, higher income from fees tends to be accompanied by a higher current ratio.

The correlation between internally generated revenue and current ratio was positive, but non-significant ($r = 0.089$, $p < 0.234$). Similarly, the correlation between the current ratio and the endowment trust fund was positive and non-significant ($r = 0.136$, $p < 0.117$). Finally, the correlation between university size and current ratio was negative and non-significant ($r = -0.165$, $p$-value $> 0.05$). Our results indicate that while the current ratio showed some correlation with internally generated revenue, endowment kitty and trust funds, and university size, these correlations were not significant.

To check for multicollinearity problems, we used the variance inflation factor (VIF). The VIF values were below 10, implying that there was no multicollinearity problem (Table 3).

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Current ratio</th>
<th>Government grants</th>
<th>Student fees</th>
<th>Internally generated revenue</th>
<th>Endowment trust fund</th>
<th>Size of university</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current ratio</td>
<td>1.0000</td>
<td>-----</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government grants</td>
<td>0.2816*</td>
<td>1.0000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.339</td>
</tr>
<tr>
<td>Student fees</td>
<td>0.0001</td>
<td>-----</td>
<td>0.2200*</td>
<td>1.0000</td>
<td></td>
<td></td>
<td>1.146</td>
</tr>
<tr>
<td>Internally generated revenue</td>
<td>0.0894*</td>
<td>-0.1342*</td>
<td>0.1945*</td>
<td>1.0000</td>
<td></td>
<td></td>
<td>1.173</td>
</tr>
<tr>
<td>Endowment trust fund</td>
<td>0.2341</td>
<td>0.1428</td>
<td>0.0243</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>University size</td>
<td>-0.164*</td>
<td>-0.0784*</td>
<td>-0.173*</td>
<td>-0.0489*</td>
<td>0.0129*</td>
<td>1.0000</td>
<td>1.026</td>
</tr>
</tbody>
</table>

Table 3: Correlation matrix and variance inflation factor
* denotes r= correlation

We conducted the Breusch-Pagan Lagrangian multiplier and Hausman tests to determine a suitable model for the study (Table 4). The Breusch-Pagan Lagrangian multiplier results revealed a p-value of 0.016, which was less than 0.05. This indicated that the pooled ordinary least squares (OLS) model was inappropriate. The Hausman test shows whether a fixed effects or random effects model is appropriate. Our findings showed a p-value of 0.28, which was more than 0.05. Further, as per the comparison results in Table 5 for the fixed and random effect models, the random effect model was superior to the other two models as it had random variations across the error term, which considers specific entities as independent variables (Green, 2012). Thus, we selected the random effects model for explaining the relationship between the different revenue streams and FS.

Table 4: Panel model test

<table>
<thead>
<tr>
<th>Test</th>
<th>Chi –Sq Statistic</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breusch-Pagan LM test</td>
<td>8.669</td>
<td>0.016</td>
</tr>
<tr>
<td>Hausman test</td>
<td>6.185</td>
<td>0.282</td>
</tr>
</tbody>
</table>

Table 5: Cross-section fixed effects test comparison

<table>
<thead>
<tr>
<th>Variable</th>
<th>Fixed</th>
<th>Random</th>
<th>Var. (Diff.)</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government grants</td>
<td>0.258639</td>
<td>0.27931</td>
<td>0.000595</td>
<td>0.7340</td>
</tr>
<tr>
<td>Student fees</td>
<td>0.082932</td>
<td>0.19235</td>
<td>0.001624</td>
<td>0.2494</td>
</tr>
<tr>
<td>Internally generated revenue</td>
<td>0.267539</td>
<td>0.25121</td>
<td>0.000993</td>
<td>0.3843</td>
</tr>
<tr>
<td>Endowment trust funds</td>
<td>0.226445</td>
<td>0.22172</td>
<td>0.000295</td>
<td>0.8281</td>
</tr>
<tr>
<td>University size</td>
<td>-0.040613</td>
<td>-0.05264</td>
<td>-0.072258</td>
<td>0.0845</td>
</tr>
</tbody>
</table>

Regression results

Table 6 presents the regression results.

Table 6: Random effects regression results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-statistics</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>0.379833</td>
<td>0.03453</td>
<td>13.28840</td>
<td>0.0000</td>
</tr>
<tr>
<td>Government grants</td>
<td>0.27931</td>
<td>0.057347</td>
<td>4.566543</td>
<td>0.0000</td>
</tr>
<tr>
<td>Student fees</td>
<td>0.19235</td>
<td>0.065317</td>
<td>2.154095</td>
<td>0.0427</td>
</tr>
<tr>
<td>Internally generated revenue</td>
<td>0.25121</td>
<td>0.092712</td>
<td>2.637412</td>
<td>0.0198</td>
</tr>
<tr>
<td>Endowment trust funds</td>
<td>0.22172</td>
<td>0.058343</td>
<td>4.214325</td>
<td>0.0001</td>
</tr>
</tbody>
</table>
The coefficient of determination ($R^2$) was 0.205. This implies that 20.5% of the variation in FS is explained by revenue streams. Our results indicated that the association between the dependent variable and the independent variables was significant, with $F = 8.284$ ($p < 0.05$). The study model is as follows:

$$FS=0.379833 + 0.27931(GG) + 0.19235(SF) + 0.25121(IGR) + 0.22172(EFT) - 0.005264(\text{SIZE}) + \epsilon$$

The model results revealed that the revenue stream variables significantly affected the FS of public universities in Kenya, and a contrast with university size. Next, we discuss the results with respect to our hypotheses. Table 6 shows that government grants had a positive and significant effect on FS ($\beta = 0.2793$, $p = 0.00$). Our findings indicated an increase in government grants can lead to an increase in FS. Hence, hypothesis $H_01$ is rejected. This finding supports Mamo’s (2015) and Mutiso, Onyango and Nyagol’s (2015) findings in the context of sub-Saharan Africa, in general, and Kenya, in particular, respectively. The former established that government funds positively influence the performance of universities in sub-Saharan African countries. The latter observed that government capitation has a significant influence on the financial performance and standard of education in HEIs in Kenya. Our findings are also in line with those of Ahmed (2015), Ahmad, Siraj and Ismail (2019), and Panigrahi (2018).

Second, Student fees had a positive and important effect on Kenyan public universities’ FS ($\beta = 0.1924$, $p = 0.04$). Our result implied that income received from student fees supports daily activities in public universities, making them financially sustainable. Therefore, hypothesis $H_{02}$ was rejected. Our findings confirm the work of many authors, such as Webb (2015), who found that tuition fees significantly contribute to the survival of universities and colleges during tough economic conditions; Murage and Onyuma (2015), who observed that fee income from Module II programs contribute higher returns compared to income-generating activities; and Mutiso, Onyango and Nyagol (2015), who noted that tuition fees have a significant influence on the performance and quality of education in HEIs in Kenya. Moreover, these findings are consistent with those of Estermann (2020) and Young et al. (2020).

Third, internally generated revenue positively and significantly affects the current ratio ($\beta = 0.2512$, $p = 0.02$). We find that an increase in internally generated revenue results in an increase in FS. Thus, hypothesis $H_{03}$ is rejected. Our study’s findings agree with the findings of multiple authors such as Ahmad, Soon and Ting (2015), who established that income generated through commercial services is crucial to the growth and survival of a university; Afriye (2015), who found that internally generated income has a positive correlation with the FS of Ghanaian HEIs; and
Murage and Onyuma (2015), who established that internally generated activities are a profitable source of income to fund PHLIs.

Finally, endowment trust funds have a positive and significant correlation with the FS of public universities in Kenya ($\beta = 0.2217$, $p = 0.00$). Our findings show that increasing endowment trust funds increases FS. Thus, $H_04$ is rejected. Our findings confirm the work of many authors such as Chumba, Muturi and Oluoch (2019), who reported that harnessing endowment kitties in Kenyan universities can enhance the investment project, which increases the revenue base; Ahmed et al. (2019), who found that endowment funds are a core source of revenue in PHLIs in Malaysia; and Divecha (2014), who noted that international funding, fundraising, and corporate donor sourcing are positively correlated with the FS of Kenyan NGOs. Finally, our results accord with those of Cheboi (2014), Chumba, Muturi, and Oluoch (2020), Mutinda and Ngahu (2015), and Roy (2016).

**Conclusion**

This study investigated the influence of revenue streams (specifically, government grants, student fees, internally generated revenue, and endowment trust funds) on the FS of public universities in Kenya. FS was measured using the current ratio. Our results revealed that Kenyan public universities are insolvent as none of them attained the recommended current ratio of 2:1, which is the general rule of thumb for all businesses. Furthermore, the results indicated that government grants and student fees have positive and significant correlations with the current ratio. Conversely, internally generated revenue and endowment trust funds have non-significant correlations with the current ratio. Nevertheless, our hypothesis tests showed that the current ratio is positively and significantly affected by all four revenue streams. Finally, we found that university size did not seem to affect the current ratio.

Our findings are beneficial to university management and stakeholders as they reveal weak income streams and highlight the need to improve them by strategizing innovative ways to boost the revenue base. Lastly, this study expands current literature on the influence of revenue streams on the FS of public universities, particularly in Kenya.

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**References**


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