

**PERFORMANCE OF INCOME-GENERATING PROJECTS IN FINANCING  
BUDGET DEFICITS IN THE SELECTED PUBLIC UNIVERSITIES IN  
TANZANIA**

**BY**

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RESEARCH AND EVALUATION**

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## DECLARATION

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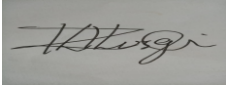
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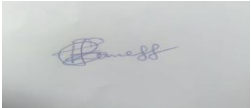
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## DEDICATION

This dissertation is lovingly dedicated to the memory of my late father, Samson Magara Mgejwa, who departed during the research stage of my PhD. His unwavering love, guidance, and wisdom continue to inspire me every day. Though he is no longer here in person, his spirit and values have been a constant source of strength throughout this journey. This work stands as a tribute to his life, his sacrifices, and his profound influence on who I am today. I hope that this achievement reflects the dreams he had for me and honors his legacy. Let him continue to rest in peace. He will remain forever in my heart.

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## ABSTRACT

Globally, the literature shows that income generation projects (IGPs) in public universities have become an essential strategy for universities to address their financial shortfalls caused by underfunding from national budgets, massification of higher education, and rising operational demands. In Tanzania, persistent budget shortfalls and surging enrolments have made IGPs a vital strategy for sustaining higher education institutions. Various studies have attempted to analyze the impact of IGPs on finances, but they have mainly concentrated on the impact criteria without exploring the broader context of relevance, effectiveness and sustainability of IGPs. While positive outcomes have been noted, public universities still experience financial shortfalls in Tanzania. The current study intended to come up with the current performance of IGPs in Tanzania in terms of its relevance, effectiveness and sustainability and suggest what should be done to make the IGPs more effective in financing the budget deficit in public universities. To achieve this aim, the current study was guided by the following objectives; to determine the relevance of the IGPs on financing budget deficits in public universities, to examine the effectiveness of the IGPs on financing budget deficits in public universities, to determine the sustainability of the IGPs on financing budget deficits in public universities and exploring the perceptions and experiences of some university stakeholders regarding the relevance, effectiveness, and sustainability of income-generation projects in financing budget deficits in public universities. This study was guided by resource Dependency Theory; the application of this theory provided a framework for analyzing the relationships between the three key dimensions of IGPs: relevance, effectiveness and sustainability of their impact on budget deficit financing. The study utilized an explanatory sequential design under pragmatism research philosophy, allowing the researcher to collect and analyze data in two phases. The target population were five public universities in Tanzania with 4523 respondents. Simple random sampling and purposive sampling were used to select a sample size of 303 respondents. The sample size was derived using Yamane's formula for sample size. Questionnaires and interview schedules were used for data collection. Quantitative analysis was performed using hierarchical multiple linear regression, and qualitative data were analyzed using thematic analysis. Quantitative findings indicated a significant positive relationship between relevance of IGPs and budget deficit financing ( $B=0.108$ ,  $\beta=0.123$ ,  $T=3.022$ ,  $p<.05$ ) as well as sustainability of IGPs and budget deficit financing ( $B=0.628$ ,  $\beta=0.694$ ,  $T=17.278$ ,  $p<.05$ ). Furthermore, effectiveness of IGPs showed no significant relationship ( $B=0.002$ ,  $\beta=0.002$ ,  $T=0.055$ ,  $p>0.05$ ). Qualitative findings provided deeper explanations of these relationships. Respondents said that the current significant results for relevance and sustainability was because IGPs in public universities are currently strategically aligned with institutional goals, and designed to last for a long. Furthermore, the respondents said that needs assessments and stakeholder engagement maintained the relevance and sustainability of IGPs on financing budget deficits. Meanwhile, the qualitative findings explained the statistically insignificant relationship for the effectiveness of IGPs, revealing challenges such as inconsistent revenue streams, operational inefficiencies caused by ineffective management, and limited adaptability of IGPs in dynamic financial contexts. The study concluded that relevance and sustainability are essential drivers of the financial success of IGPs in addressing budget deficits, while effectiveness of IGPs is constrained by structural and operational challenges. Public universities in Tanzania should continue to prioritize aligning IGPs with institutional strategies, conducting regular needs assessments, and fostering community and stakeholder engagement to enhance relevance. Additionally, using sustainability measures such as financial planning, adaptability, and performance tracking into project design is crucial. Lastly, operational limitations of IGPs should be addressed to make them more effective.

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**LIST OF ACRONYMS AND ABBREVIATION**

GDP	–	Gross Domestic Product
GPE	–	Global Partnership for Education
HE	–	Higher Education
HEIs	–	Higher Education Institutions
HEP	–	Higher Education Policy
IGPs	–	Income-generation Projects
OECD	–	Organization for Economic Co-operation and Development
RDT	–	Resource Dependency Theory
SDG 4	–	Sustainable Development Goal 4
SSA	–	Sub-Saharan African (SSA)
UDSM	–	University of Dar es Salaam
USAID	–	United States Agency for International Development

## CHAPTER ONE

### INTRODUCTION TO THE STUDY

#### 1.1 Introduction

Income-generation projects play a crucial role in addressing budget deficits faced by public universities, particularly in developing economies. As governments are increasingly challenged to meet the growing demand for essential services while operating under limited financial resources, these projects provide an effective means of enhancing revenue streams. By implementing initiatives that engage local communities and promote sustainable economic activities, public universities can generate additional funding to support their operations and academic programs. This chapter was organized into the following sub-parts: background of the study, statement of the problem, objectives of the study, research question and hypothesis, purpose of the study, assumptions of the study, justification of the study, scope of the study, limitations of the study, theoretical framework, conceptual framework and operational definition of terms.

#### 1.2 Background to the Study

Budget deficits in public universities have emerged as a persistent global challenge as institutions struggle to meet rising operational and development costs with limited government allocations and tuition revenue (UNESCO, 2022). The rapid growth in higher education enrollment worldwide has intensified financial pressures, making the gap between anticipated income and actual expenditure wider for publicly funded universities (Murthi & Bassett, 2020). Studies affirm that underfunding threatens the delivery of quality education, research productivity, and institutional sustainability, especially as universities carry national responsibilities for developing human capital

and driving socioeconomic transformation (Awotwe et al., 2020; Bakbergenovich, 2021; Komba, 2020). As public financing becomes increasingly insufficient, universities globally are compelled to search for alternative financing strategies to reduce or eliminate budget deficits (Salmi, 2020).

Across Asia, public universities in China, India, and Malaysia face persistent financial gaps due to massification, rising operational expenses, and stagnant public funding (OECD, 2020). These deficits have forced Asian universities to intensify entrepreneurial activities such as research commercialization and consultancy services as alternative revenue sources (UNESCO, 2022). Similar challenges exist in Europe where austerity policies and declining state support since the 1980s have resulted in recurring institutional deficits in countries such as the United Kingdom and the Netherlands (Kitaev, 1992; OECD, 2008). European universities have increasingly embraced income diversification strategies, including industry partnerships and fee-paying programs, as mechanisms to address funding shortfalls (European Commission, 2021). In Australia, universities operate under a high-cost system where dependence on government funding and international student fees exposes institutions to recurrent deficits during financial shocks, prompting them to expand institutional enterprises as an alternative source of revenue (Universities Australia, 2022).

In Africa, budget deficits remain widespread as public financing fails to match the expansion of higher education systems (African Union, 2018). In West Africa, universities in Ghana and Nigeria report significant deficits resulting from shrinking government allocations, increased student enrollment, and rising institutional expenses (Eduafol & Jochebed, 2020). These funding gaps have led institutions to adopt income-generating ventures such as commercial farms, consultancy bureaus, and fee-based

programs to cushion the deficits (Goodluck, 2018). North African countries like Egypt and Algeria face similar challenges, where overstretched public budgets have resulted in infrastructural decay and quality deterioration, prompting universities to seek alternative income streams (World Bank, 2020). In Southern Africa, universities in Zimbabwe struggle with severe deficits caused by economic instability and reduced state funding, forcing institutions to explore entrepreneurial projects as a survival strategy (Chinyoka & Mutambara, 2020). Central African universities also face chronic budget shortfalls, which hinder research development and teaching quality, thus making internally generated revenue a necessary complement to state budgets (Ndangam, 2019).

East African universities have confronted similar funding pressures as enrollment expands faster than public financing (Mukhwana et al., 2020). Kenyan universities face large structural deficits linked to reduced government capitation, forcing institutions to depend increasingly on self-sponsored programs and university enterprises (Oketch, 2021). Ugandan universities such as Makerere have long relied on tuition income and income-generating projects to supplement chronic underfunding, yet deficits persist despite these efforts (Amutuhaire, 2022). In Rwanda, the University of Rwanda has adopted public-private partnerships and innovation hubs to diversify income as a response to recurrent funding gaps (Ntawiha et al., 2018). Burundi likewise faces severe public funding constraints that continue to push its universities toward small-scale income-generating initiatives to meet operational obligations (ESSA, 2024).

In Tanzania, budget deficits in public universities are well documented and reflect long-term patterns of underfunding and inconsistent government disbursements (Mgaiwa, 2018). The Higher Education Training Policy (1999) mandates the government to

finance public higher education institutions, yet empirical evidence shows that approved budgets are frequently below institutional requirements and disbursements often fall short of approvals (Ishengoma, 2013; Ministry of Education, 2021). Studies show that public universities rely on unstable and declining government funding, which results in annual budget deficits that constrain academic quality, research capacity, and infrastructure development (Komba, 2020). Evidence from the University of Dar es Salaam indicates that between 2015 and 2021, only about 75% of the requested budget was approved, forcing the institution to rely heavily on income-generating projects to finance the remaining deficit (UDSM, 2022). Although Tanzanian universities have invested in initiatives such as consultancy services, graduate programs, short courses, and applied research, these income-generating projects remain insufficient to fully cover the deficit caused by inadequate government funding (Galabawa, 1991; World Bank, 2019).

Given these persistent financial gaps, income-generating projects have become a central alternative financing mechanism intended to reduce budget deficits and enhance fiscal sustainability in public universities (Zatonatska et al., 2019). Studies acknowledge that while IGPs provide supplementary income, their relevance, effectiveness, and sustainability in financing budget deficits vary widely across institutions and contexts (Murage & Onyuma, 2015). Evidence suggests that IGPs have the potential to reduce the burden of budget deficits, but they often fall short of generating adequate revenue to meet institutional needs, reflecting a need for critical evaluation of their performance and strategic contribution (Mukhwana et al., 2020).

Thus, although public universities in Tanzania and elsewhere increasingly depend on income-generating projects as an alternative mechanism for financing budget deficits,

empirical evidence indicates that these initiatives have not fully achieved the intended objective of bridging the persistent financial gaps (Mgaiwa, 2018). This situation creates a pressing need to examine the relevance, effectiveness, and sustainability of income-generating projects as a strategy for financing budget deficits in Tanzanian public universities (Murage & Onyuma, 2015).

### **1.3 Statement of the Problem**

Many African universities, particularly public universities, struggle to meet their estimated budgets due to low government budget approval rates and under-budgeting issues (Amutuhaire, 2022). The University of Dar es Salaam (UDSM) is an example where the government's approval rate of their budget is only 90%, with actual receipts averaging just 75% of the government-approved budget, leading to a 10% budget deficit (Mgaiwa, 2018; UDSM Facts and Figures, 2022). The budget deficits have adversely affected the provision of quality education in public universities (Komba, 2020; Mgaiwa, 2018). Public universities-initiated Income-generation Projects (IGPs) to supplement their budget deficits caused by inadequate national funding (Murage & Onyuma, 2015; Ukpong & Uzoigwe, 2019). Existing studies suggest that IGPs have a positive impact; however, financial distress persists in many public universities despite these efforts (Murage & Onyuma, 2018). There is insufficient understanding of the reasons behind the successes and failures of IGPs in addressing budget deficits among public universities. Previous studies have focused only on the impact of IGPs without assessing other crucial evaluation criteria.

The known factors show the financial challenges public universities face and the introduction of IGPs as a response. However, the gap lies in understanding why these IGPs are still a long way from fully resolving the budget deficits. Specifically, the mechanisms of IGP performance and their effectiveness, sustainability, and relevance

have yet to be evaluated. Various studies have attempted to analyze the impact of IGPs on financing, but they have mainly concentrated on the impact criteria without exploring the broader context of sustainability and effectiveness. While positive outcomes have been noted, there is a shortage of detailed investigations into the relevance, effectiveness, and sustainability of IGPs in achieving their intended financial objectives.

The current study aimed to fill this gap by thoroughly exploring why income-generating projects are not successfully resolving budget deficits in public universities in Tanzania. The study used three evaluation criteria: relevance, sustainability, and effectiveness of IGPs, thereby offering a more nuanced understanding of their role in addressing financial challenges.

#### **1.4 Purpose of the Study**

This study explored the criteria that enhance income-generating projects' effectiveness in solving budget deficits among public universities in Tanzania.

#### **1.5 Objectives of the Study**

- i. To determine the relevance of the adopted IGPs on financing budget deficits in public universities
- ii. To examine the effectiveness of the adopted IGPs on financing budget deficits in public universities
- iii. To determine the sustainability of the adopted IGPs on financing budget deficits in public universities.
- iv. To explore the perceptions and experiences of some university stakeholders regarding the relevance, effectiveness, and sustainability of income-generation projects in financing budget deficits in public universities.

### **1.7 Research Hypotheses**

- i. There is no significant relationship between the relevance of the adopted IGPs and the financing budget deficit among public universities
- ii. There is no significant relationship between the effectiveness of the adopted IGPs and financing budget deficits among public universities.
- iii. There is no significant relationship between the sustainability of the adopted IGPs and the financing budget deficit among public universities.

### **1.8 Research Question**

What are the perceptions and experiences of some university stakeholders regarding the relevance, effectiveness, and sustainability of income-generation projects in financing budget deficits in public universities?

### **1.9 Justification of the Study**

The justification for this study is rooted in the ongoing challenge of budget deficits faced by public universities in Tanzania. Despite previous research highlighting the positive impact of Income-Generating Projects (IGPs) on financing, there remains a lack of comprehensive analyses that evaluate these projects based on their relevance, effectiveness, and sustainability. The recurring issue of budget deficits indicates that the existing IGPs may not be adequately addressing the financial needs of these institutions. By focusing on these three criteria, this study aimed to provide a nuanced understanding of how IGPs function within the context of Tanzanian public universities.

Furthermore, the findings were expected to contribute to the existing body of knowledge by filling the gap regarding the sustainability, relevance, effectiveness, and actual performance of different income-generating activities. Thoughts garnered from

this research could be useful for policymakers and university administrators in optimizing current income-generation projects or developing new strategies that could strengthen the financial stability of higher education institutions in Tanzania. Generally, by evaluating the sustainability, effectiveness and relevance of IGPs, this study endeavored to offer practical recommendations for enhancing their contribution to reducing budget deficits, ensuring that higher education can be sustainable and resilient in the face of financial challenges.

### **1.10 Significance of the Study**

This study is significant because it addressed the persistent financial challenges facing public universities in Tanzania, particularly the increasing budget deficits resulting from limited government subventions, rising operational costs, and expanding institutional demands. By focusing on Income-Generation Projects (IGPs) as alternative financing mechanisms, the study provides essential insights into how universities can enhance financial sustainability. The significance of the study is therefore presented in line with each specific research objective, highlighting theoretical, practical, and policy contributions.

#### **1.10.1 Significance of the Study Based on the Relevance of IGPs and Budget Deficit Financing in Public Universities**

The study is significant in demonstrating how the relevance of IGPs influences their ability to contribute meaningfully to financing budget deficits. By linking IGP relevance to institutional missions, stakeholder needs, and community demand, the study enriches theoretical understanding under the Resource-Dependency Theory (RDT). Practically, the findings inform university managers on the importance of

aligning IGPs with core competencies and market demands to maximize revenue generation. For policymakers, the study provides evidence to support frameworks that encourage strategic, relevant, and market-oriented income-generation ventures in public universities.

### **1.10.2 Significance Based on Effectiveness of IGPs and Budget Deficit Financing in Public Universities**

The significance of this study also lies in assessing the effectiveness of IGPs in generating consistent and adequate revenue streams. The findings contribute theoretically by showing how effective resource mobilization mechanisms serve as adaptive responses to financial constraints, as proposed by RDT. Practically, the results guide university administrators in identifying high-performing projects, improving management structures, and addressing inefficiencies that undermine revenue generation. The study further supports policy development by providing evidence for interventions that strengthen governance, accountability, and performance evaluation in IGP management.

### **1.10.3 Significance Based on Sustainability of IGPs and Budget Deficit Finding in Public Universities**

The study is significant in providing empirical insights into the sustainability of IGPs, demonstrating how long-term viability depends on sound financial planning, risk management, innovation, and diversification. Theoretically, the findings extend RDT by showing how universities maintain autonomy and resilience through sustainable resource strategies. Practically, the study equips university leaders with strategies for sustaining IGPs beyond short-term gains, such as reinvestment, quality improvement, and partnership development. On a policy level, the study highlights the need for supportive regulatory environments that encourage continuous innovation, capacity building, and long-term funding models in higher education.

### **1.10.4 Significance Based on the Perceptions and Experiences of University Stakeholders regarding the relevance, effectiveness, and sustainability of IGPs in financing budget deficits.**

The significance of this study is further reflected in the qualitative exploration of stakeholder perceptions and experiences, which adds depth to understanding financial decision-making in public universities. Theoretically, the study enhances knowledge by integrating subjective viewpoints with objective financial performance, providing a holistic understanding consistent with pragmatist and mixed-methods paradigms. Practically, the insights inform universities about stakeholder concerns, managerial challenges, and opportunities for improving IGP operations. For policymakers, the findings underscore the importance of inclusive policy formulation that incorporates stakeholder voices, thereby enhancing acceptance, implementation, and effectiveness of income-generation strategies in the higher education sector.

### **1.10.5 Overall Contribution of the Study**

By presenting significance aligned with each research objective, this study contributes to theory, practice, and policy in higher education financing. It also supports national and global agendas, including Tanzania's education financing priorities and Sustainable Development Goals (SDGs 4 and 17), which emphasize quality education and partnerships for sustainable development. Ultimately, the study generates actionable knowledge that can strengthen financial sustainability in Tanzanian public universities and serve as a model for other institutions in resource-constrained environments.

### **1.11 Assumptions of the Study**

This study assumed that the public universities under study have income-generation projects used to generate income to supplement their budgets. The study also assumed that the available income-generation projects are functioning and that employees in public universities are aware of these projects. Therefore, the issue of data availability was assumed not to hinder the completion of this study.

### **1.12 Scope of the Study**

This study was confined to exploring the IGPs adopted by public universities to examine the effect of relevance, effectiveness and sustainability of the adopted IGPs on financing the budget deficit. This study focused on Morogoro, Zanzibar and Dar es Salaam public universities in the United Republic of Tanzania. The respondents were budget officers, accountants and academic staff. The official data collection started in June 2024 after the proposal defense was conducted in November 2023.

### **1.13 Limitation of the Study**

The current study was limited in several ways that may influence the interpretation and generalization of its findings. First, the study was limited by geographical scope, as it

focused only on public universities located in Zanzibar, Morogoro, and Dar es Salaam in the United Republic of Tanzania. Although these regions host some of the oldest and largest universities with well-established income-generation initiatives, the findings may not fully represent the experiences of public universities in other regions of the country. Conducting the study in these areas was also financially demanding, as the researcher incurred travel costs associated with bus and flight transportation. To mitigate this limitation, the researcher ensured that adequate financial resources were mobilized early and managed efficiently to support fieldwork activities.

Second, the study adopted a mixed-methods explanatory sequential design, which required the collection and analysis of data in two distinct phases. The first phase involved the development of quantitative instruments and the collection and analysis of quantitative data. These results informed the second phase, where qualitative tools were constructed to explore stakeholder experiences and perceptions in depth. Although this design strengthened the integration of findings and minimized the weaknesses associated with relying on a single method, it was time-consuming and methodologically complex. The researcher addressed this limitation by adhering strictly to the research timeline and ensuring proper planning and coordination across both phases.

Third, the study was limited by the nature of participants, as it involved university stakeholders only, including administrators, staff, and individuals directly engaged in income-generation projects. Stakeholders external to the universities such as community beneficiaries, industry partners, or government officials were not included. Their perspectives might have provided additional insights into the effectiveness, sustainability, and broader societal relevance of income-generation projects. As a

mitigation measure, the study ensured a diverse representation of internal university stakeholders to capture a wide range of institutional experiences.

Generally, although the study encountered constraints related to geographical coverage, financial costs, methodological complexity, and participant scope, these limitations were carefully managed through strategic planning, adequate financial preparation, and adherence to systematic research procedures. The measures taken enabled the researcher to generate reliable and meaningful findings that contribute significantly to the understanding of how income-generation projects finance budget deficits in Tanzanian public universities.

#### **1.14 Theoretical Framework**

Swanson (2013), as quoted by Kivunja (2018), explicitly asserts, “The theoretical framework is the structure that can hold or support a theory of a research study”. The theoretical framework for your research proposal or thesis is not a summary of your thoughts about your research. Instead, it is a synthesis of the thoughts of giants in your field of research as they relate to your proposed research or thesis, as you understand those theories, and how you will use those theories to understand your data (Kivunja, 2018). In essence, the theoretical framework comprises what leaders in the field of research say about the research question, the problem you plan to investigate and might even include suggestions of how to solve that problem, including how to interpret the findings in your data. Resource Dependence Theory (RDT) guided the current study.

##### **1.14.1 Resource Dependency Theory**

In this study, the Resource-Dependency Theory (RDT) provided the foundation for understanding how Tanzanian public universities utilize income-generation projects (IGPs) to mitigate budget deficits. Originally proposed by Pfeffer and Salancik (1978),

RDT explains how organizations rely on external resources to survive and thrive in environments where those resources are often controlled by others. This dependence creates vulnerabilities and interdependencies, which organizations must strategically manage to ensure their stability and success.

At its core, RDT argues that organizations actively engage with their external environments to acquire and maintain resources critical to their operations (Pfeffer and Salancik, 1978). This interaction is not passive; organizations strategically align themselves with external entities, adapt to changing resource conditions, and seek to reduce vulnerabilities by diversifying and controlling resource flows. For universities facing financial challenges, such as reduced government funding, these theoretical principles are particularly relevant, as they highlight the importance of external partnerships, adaptability, and strategic alignment.

### **Key Concepts of Resource-Dependency Theory**

The theory is built upon several key concepts that align closely with the objectives and findings of this study.

#### **i. Resource Acquisition and Dependency**

RDT emphasizes that organizations are inherently dependent on external resources, which are often scarce and unevenly distributed. For public universities, funding from government sources is one such resource. However, when these resources become insufficient, universities must turn to alternative funding mechanisms like IGPs to secure the financial means necessary for their operations. This study investigated the extent to which the relevance, effectiveness, and sustainability of IGPs helped universities manage these dependencies.

**ii. Interdependence with External Stakeholders**

Organizations do not operate in isolation but instead exist within a network of interdependencies with stakeholders who control critical resources. Universities, for instance, rely on stakeholders such as local communities, businesses, donors, and government agencies. According to RDT, organizations that strategically align their goals with stakeholder needs are better positioned to access the resources they require (Pfeffer and Salancik, 1978). This study found a strong link between the relevance of IGPs and budget deficit financing, reflecting the importance of stakeholder alignment.

### **iii. Adaptability and Resource Sustainability**

RDT founders believe that adaptability is essential for organizations to navigate uncertainties in their resource environments (Pfeffer and Salancik, 1978). Universities can reduce dependency risks by diversifying their income streams, fostering partnerships, and designing sustainable projects. In this study, sustainability emerged as a key factor, as IGPs with diverse funding sources and long-term viability were more effective in addressing budget deficits.

### **iv. Operational Challenges within Resource Dependencies**

While RDT primarily focuses on external resource relationships, it also acknowledges that internal organizational constraints can impact how resources are utilized (Pfeffer and Salancik, 1978). This was evident in the study's findings, as the effectiveness of IGPs was constrained by bureaucratic inefficiencies and inconsistent resource management. Addressing these internal challenges is critical for maximizing resource utilization, as proposed by the theory.

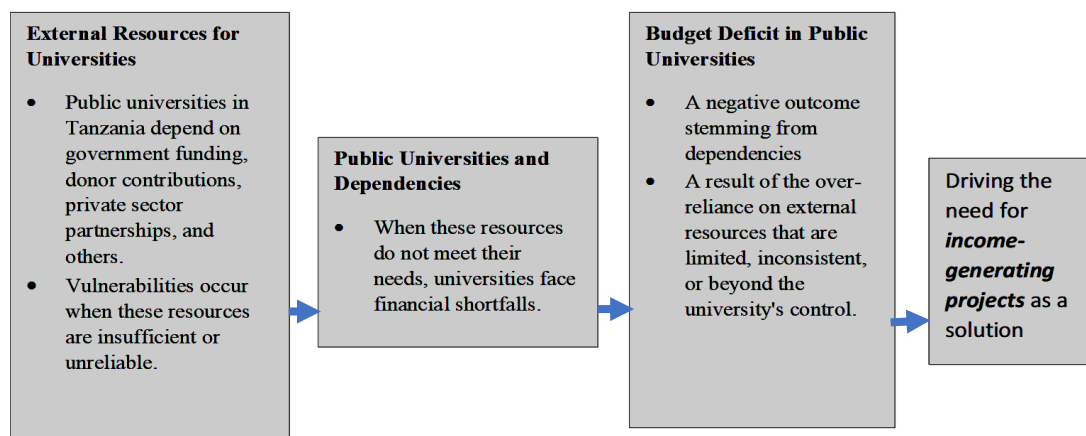
The adoption of Resource-Dependency Theory in this study allowed for a deeper understanding of how Tanzanian public universities respond to external financial challenges. The theory provided a framework for analyzing the relationships between the three key dimensions of IGPs; relevance, effectiveness and sustainability of their impact on budget deficit financing.

Specifically, the significant relationship between the relevance of IGPs and budget deficit financing aligned with RDT's assertion that organizations must strategically align their goals with external demands (Pfeffer and Salancik, 1978). By designing projects that address stakeholder priorities, universities enhance their ability to secure external funding and reduce dependency risks.

The challenges related to the effectiveness of IGPs, such as inefficiencies and operational barriers, also resonate with the theory's acknowledgment that internal constraints can hinder the organization's ability to fully leverage external resources.

Also, the positive relationship between the sustainability of IGPs and financing budget deficits demonstrated how adaptability and diversification enable public universities to stabilize their resource bases, a concept strongly supported by RDT.

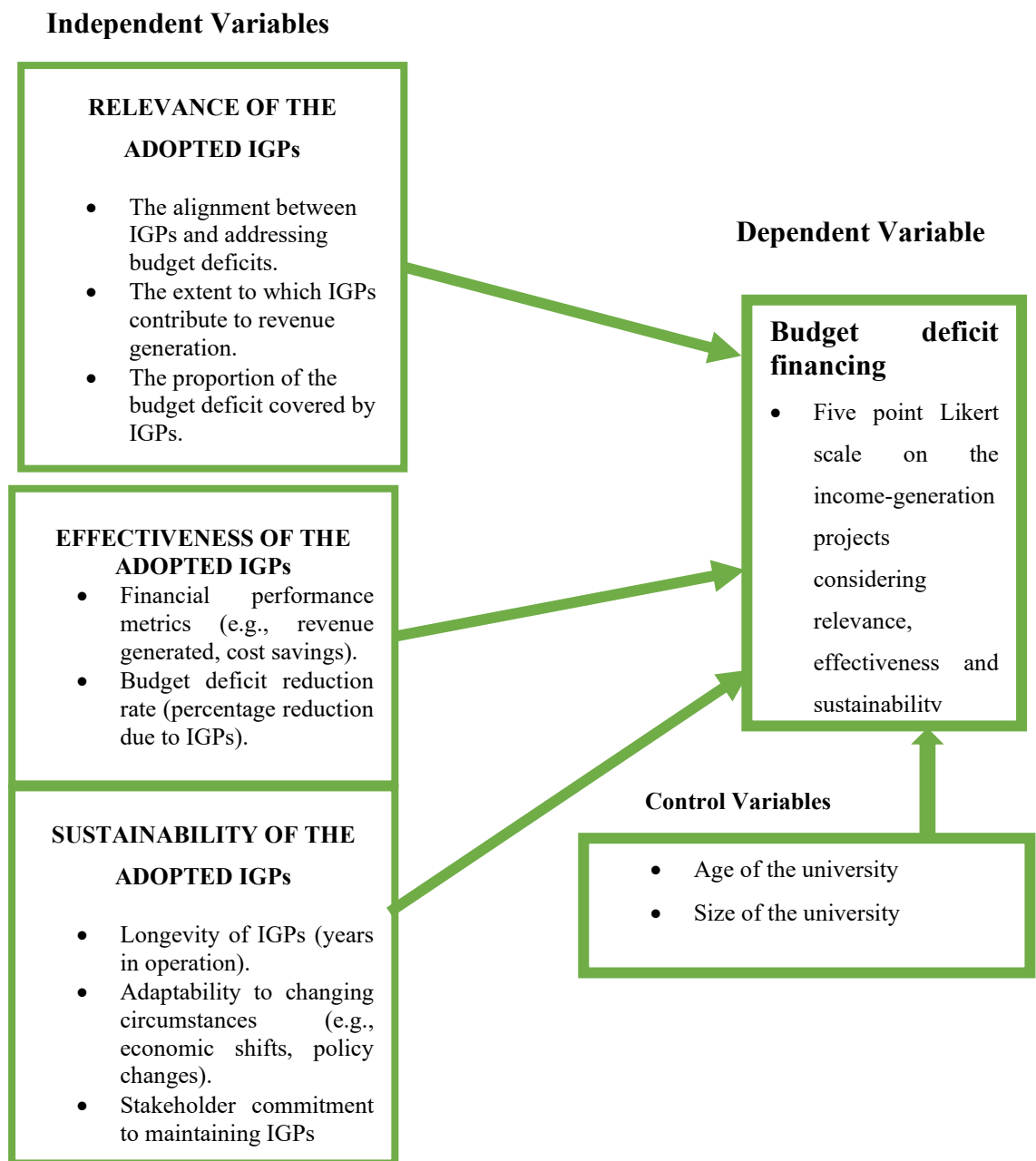
Resource-Dependency Theory provided a robust theoretical framework for this study, aligning well with the findings on how universities manage financial challenges through IGPs. By strategically engaging with stakeholders, diversifying resource streams, and addressing internal inefficiencies, public universities can reduce their reliance on unstable funding sources and achieve greater financial stability. This theory not only supported the analysis of the findings but also offered a practical understanding of how resource management strategies can be improved in the context of Tanzanian public universities.



**Figure 2.1: IGPs as a Result of Insufficient or Unreliable Funding from External Actors**

**Source: Author's Idea (2025) Adopted from Pfeffer and Salancik (1978).**

## 1.15 Conceptual Framework



**Figure 2.2: Conceptual framework showing the relationship between independent variables and dependent variable**

**Source: Researcher's Concept (2025)**

From Figure 2.1, the independent variables are the relevance, effectiveness, and sustainability of IGPs, while the dependent variable is the financing budget deficit. If the IGPs are not relevant, effective, and sustainable in financing the budget deficit, they cannot help collect more revenue from them.

Key Variables of the study are indicated in the conceptual framework.

### 1. **Relevance of Adopted IGPs**

- **Independent Variable (IV):** The adopted income-generation projects (IGPs) at public universities.
- **Dependent Variable (DV):** Financing budget deficit.
- **Objective:** To assess how relevant the adopted IGPs are in addressing the financing budget deficit.

### 2. **Effectiveness of Adopted IGPs**

- **Independent Variable:** The same adopted IGPs.
- **Dependent Variable:** Financing budget deficit.
- **Objective:** To evaluate the effectiveness of these IGPs in mitigating budget deficits.

### 3. **Sustainability of Adopted IGPs**

- **Independent Variable:** The continued implementation of IGPs.
- **Dependent Variable:** Financing budget deficit.
- **Objective:** To determine the long-term sustainability of the adopted IGPs in managing budget deficits.

## **1.16 Operational Definition of Terms**

### **Income-Generating Projects (IGPs)**

According to Cloete and Maasen (2015), income-generating projects in universities refer to entrepreneurial or commercial activities established to supplement institutional income beyond government subventions. Similarly, Varghese (2016) defines IGPs as innovative financial ventures undertaken by higher learning institutions to diversify revenue sources, enhance institutional autonomy, and reduce dependence on a single funding stream. In this study, income-generating projects refer to all commercial, entrepreneurial, or investment activities operated by public universities in Tanzania particularly those in Dar es Salaam, Morogoro, and Zanzibar designed to generate additional revenue to finance budget deficits and improve financial sustainability.

### **Relevance**

According to the OECD/DAC evaluation framework, relevance refers to the degree to which a project's objectives and design are consistent with beneficiary needs, institutional priorities, and contextual changes (OECD, 2010). Rossi, Lipsey, and Henry (2019) similarly define relevance as the alignment of an intervention with identified needs, demands, and strategic goals of stakeholders or institutions. In this study, relevance refers to the extent to which university income-generating projects are aligned with institutional financial needs, stakeholder expectations, and market demands, thereby contributing meaningfully to reducing budget deficits in public universities.

**Effectiveness**

OECD (2010) defines effectiveness as the extent to which an intervention achieves its planned objectives and produces intended results. Weiss (1998) further notes that effectiveness captures the actual outcomes of a program relative to its goals and examines whether observed changes can be attributed to the intervention. In this study, effectiveness refers to the degree to which the adopted income-generating projects in public universities successfully generate revenue, meet performance expectations, and contribute to financing budget deficits as intended.

**Sustainability**

According to the OECD (2002), sustainability refers to the extent to which the benefits of an intervention continue after external support has ended. Chambers (2014) similarly defines sustainability as the durability and long-term continuity of project outcomes; financially, institutionally, socially, or environmentally. In this study, sustainability refers to the ability of income-generating projects in public universities to continue producing financial benefits over time ensuring long-term viability and consistent contribution to financing budget deficits, even amid changing economic and institutional conditions.

**Public University**

Tapfuma et al. (2021) describe a public university as an institution of higher learning primarily financed by the government and established to provide education as a public service. Altbach, Reisberg, and Rumbley (2009) similarly define public universities as state-supported institutions whose operations, governance, and financing rely significantly on national or regional government funding. In this study, public

universities refer to government-funded higher education institutions in Tanzania that rely heavily on state subventions and operate income-generating projects to mitigate recurring budget deficits.

### **Budget Deficit**

According to Mishkin (2019), a budget deficit occurs when an entity's expenditures exceed its revenues within a given financial period. Likewise, Gregory and Stuart (2018) define a deficit as the financial imbalance arising when spending surpasses available financial resources, necessitating alternative funding measures. In this study, a budget deficit refers specifically to the financial shortfall experienced by public universities when government allocations and internally generated revenue fall below operational and development needs thereby compelling universities to adopt income-generating projects as a strategy for closing the funding gap.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter deals with the literature review. It is organized into the following parts: a general literature review, empirical studies based on objectives, the research gap, and a summary of the chapter.

#### **2.2 Major Concepts**

##### **2.2.1 Income-generation Projects**

Every university is the result of a unique process of intellectual and economic growth, so it must strike a balance between teaching, research, and a wide range of revenue-generating activities. Due to numerous external, overpowering influences, the governments are currently pressuring colleges to adopt an entrepreneurial perspective (Gibb & Hannon, 2006). To avoid compound administrative terms and conditions together with government funding, it is the university's responsibility to raise money from non-funding institutions (Wächter et al., 2012).

The curricula offered by public universities expand over time; as a result, there will always be a need for more staff, logistics, and related expenses. Due to the fact that the government is unable to fully support all of the public universities' demands, each public university is required to contribute to boosting fiscal competence. In order to increase revenue and supplement the government's diminishing resources, the government promotes state-owned academic schools to enter the corporate world. This is where income-generating projects are initiated.

In Tanzania, the government has issued an urgent call for the development and implementation of resource mobilization and generation schemes that will increase the university's resources and close the budget gap for any necessary expenditure items the

university may incur. The emergence of income-generating projects (IGPs) in public universities has been conceived as an immediate response to this call. Higher Education Policy 1999 states that;

“Public institutions are expected to generate income to supplement subventions from the government. However, such activities must not distract from the main mission of the institutions. Institutions shall target those income-generating activities that relate to their mission and where they can make use of their expertise. Such activities shall include: consultancies, commissioned research, specialized short courses, and other training programs with much of the generated income ploughed back into the institutions (HEP, 1999)”

### **2.2.2 Financing Budget Deficits**

A budget deficit in universities occurs when the university's expenditure is higher than the collected revenue. Sometimes it may be caused by low government budget approval rates or under/over-estimation of the budget done by the university themselves, this is common in countries where the universities have the mandate of collecting revenues and transferring them to the government then requesting the government to approve university budgets while considering what they have collected during the academic year. So, the government may approve some percentages of the requested budget and create budget deficits that can only be solved by using the initiation of income-generation projects in universities that can generate income to finance the deficits.

### **2.3 General Literature Review**

The only way to achieve a strong financing system for education at any level is to have effective mechanisms that will help in the generation of income for education (Mgaiwa, 2018). Furthermore, UNESCO (2016) indicated that most nations encounter challenges in tracking the accurate flows of financing in education. These challenges arose due to the existence of a wide range of educational financing models and these financings are frequently either explicitly or implicitly related to students and student numbers. It has

become a big challenge to most higher education institutions in Africa as the number of students who are enrolled in universities are increasing while the ability of universities to accommodate them is limited with the sources of revenues that are used to finance education (Teferra, 2015). Most countries in Africa have been depending on the finances of their governments to run public universities. Since the national budgets are for many sectors, higher education is highly affected because they receive little amount that does not cover their requested budgets, and therefore, universities have opted to establish income-generation projects to ensure that they manage to curb the shortage of financial resources for their survival.

## **2.4 Empirical Studies**

### **2.4.1 Income-generating Projects in Public Universities**

Mahmud, Nuryatin, and Susilowati (2022) identified income-generating activities and explored its management model in public universities in Indonesia. In-depth interviews and documentation were used to collect data. The sample was selected from the target population of 26 study programs. Government subsidy, which is meant to cater to tuition and operational expenses, has been inadequate. Therefore, activities in the laboratory can be optimized as an income generator. The results of mapping activities in the laboratory and study programs are seminars, conferences, workshops, building rent, ballroom rent, laboratory services, vehicle rent, and scientific consulting services. Income-generating supplemented the budget of the university. The income is beneficial to hire additional project personnel, purchase supplies, materials and equipment, and improve facilities needed for instruction, research, extension, training, and productive activities. The development pattern of income-generating management through partnership and cooperation between the rectors, head of the business development agency, deans, and head of a study program, also a laboratory, so that all forms of

activities that become financial sources can be monitored and evaluated. Moreover, the preparation of the accountability report must be transparent and accountable. Mahmud, Nuryatin, and Susilowati (2022) offered a relevant discussion of Income-Generating Projects (IGPs) as a practical alternative for public universities in Indonesia to supplement inadequate government funding. By identifying activities such as laboratory services, facility rentals, seminars, and consulting services, the study demonstrates how universities can capitalize on existing resources and infrastructure to generate additional income. This aligns with the growing need for universities to diversify revenue streams to address operational expenses and reduce reliance on government subsidies.

Furthermore, Susilowati's (2022) study highlighted how IGPs not only provide financial support but also contribute to enhancing instruction, research, and training through improved facilities and resources. This insisted on their dual role as revenue generators and contributors to academic and institutional development. The collaboration among key university stakeholders in managing these activities ensures proper oversight, accountability, and strategic alignment with institutional goals. These findings illustrate the potential of IGPs as sustainable income alternatives when managed effectively.

However, while the study emphasized the benefits of IGPs, it does not examine deeply into their effectiveness in addressing specific financial challenges, such as budget deficits, in universities. The focus remains on the activities' capacity to supplement budgets rather than their long-term financial impact or ability to fully resolve funding gaps. Additionally, the role of stakeholder engagement and market dynamics in enhancing IGP performance is not extensively explored, leaving room for further investigation.

Ahmad, Soon, and Ting (2015) conducted a study on income-generation activities among academic staff at Malaysian public universities. The study employed the qualitative method by conducting interviews as a medium to provide insights to the researcher. Then, the interview data are analysed using the Interactive Model. The results show that the main income-generation activities originated from research and consultancy whilst commercialization contributed the most significant income towards the university. In conclusion, the income generated by the academic staff is of utmost importance to the development and sustainability of a university. Ahmad, Soon, and Ting (2015) provided an insightful analysis of income-generation activities led by academic staff at Malaysian public universities. Their study highlighted the role of research, consultancy, and commercialization as key contributors to university income, emphasizing the significant financial potential of leveraging academic expertise. By showcasing commercialization as the most impactful revenue source, the study underscores the strategic importance of transforming academic outputs into financial assets.

These findings align with the concept of Income Generating Projects (IGPs) as alternative revenue mechanisms in universities. The activities identified demonstrate how academic staff can play an integral role in diversifying income streams, ultimately enhancing institutional financial sustainability. Additionally, the study positions IGPs not only as financial solutions but also as drivers of broader institutional development, benefiting areas such as research, innovation, and operational capacity. While the study establishes the importance of income-generation activities, it does not assess their effectiveness in addressing specific financial challenges like budget deficits. The sustainability of these initiatives in the face of fluctuating market demands or operational constraints is also left unexplored. The current study built on these insights

by examining the relevance, effectiveness and sustainability of IGPs in financing budget deficits in public universities, aiming to provide a more comprehensive evaluation of their impact.

Ofoegbu & Alonge (2016) conducted a study to identify the major sources and utilization of internally generated financial revenue by Nigerian University administrators. The population of the study consisted of all the 102 university administrators from the seventeen Federal Universities in Southern Nigeria. Descriptive statistics and Pearson Product Moment Correlation were used to analyse the research questions and hypotheses formulated for the study. The findings revealed that commercial ventures were among the main sources of IGR while the proceeds were used for services including staff welfare, maintenance of facilities and beautification of the university premises. Further analysis of data showed that there was a significant relationship between internally generated resources and the management and development of universities in Southern Nigeria. The study recommended that university administrators should be more transformative in their leadership style to strengthen their revenue base for effectiveness in University management. Ofoegbu & Alonge (2016) provide a noteworthy discussion on internally generated revenues (IGRs) as a financial resource for Nigerian universities. Their study emphasizes commercial ventures as a major source of IGR, highlighting activities that contribute to revenue generation, such as staff welfare, facility maintenance, and beautification of university premises. These findings aligned with the concept of Income Generating Projects (IGPs) in universities, showing their potential to supplement traditional funding sources and enhance institutional management and development.

The study establishes a significant relationship between IGRs and university management, demonstrating that effective utilization of internally generated resources

can strengthen operational efficiency. This insight insists the importance of diversifying revenue streams, particularly through initiatives like IGPs, which play a vital role in addressing financial constraints and fostering institutional growth. However, while the study identifies the sources and utilization of IGRs, it does not explicitly assess the relevance, effectiveness or sustainability of these initiatives in mitigating budget deficits, a key dimension of IGPs in public universities. The study also focused on the Nigerian context, limiting the generalizability of its findings to other regions like Tanzania. The current study expanded on these ideas by examining how IGPs can be relevant, sustainable, and effective in financing budget deficits, providing deeper insights into their role in public university financial strategies.

Mamo (2015) offers a comprehensive exploration of revenue generation strategies in Sub-Saharan African universities, highlighting the need for diversification to address funding gaps. The case studies showed the significant role of tuition fees and course diversification, particularly in high-demand disciplines like social sciences, business, and management, which require minimal investment and yield substantial returns. This reflects how universities can capitalize on academic offerings as part of their Income Generating Projects (IGPs) to create sustainable revenue streams. Furthermore, the study emphasized the importance of external and internal enablers for successful revenue generation. Externally, stakeholder engagement, regulatory frameworks, and funding incentives play pivotal roles in shaping universities' capacity to generate income. Internally, leadership commitment, robust governance, and professional management practices emerge as critical factors. These insights are directly relevant to understanding how IGPs can be effectively managed and aligned with institutional objectives. However, Mamo also identified significant barriers to revenue generation, such as limited financial and staffing autonomy, inadequate research capacity, and

insufficient infrastructure, particularly in Ethiopian and Kenyan universities. These obstacles highlighted the challenges universities face in achieving financial sustainability. Although the South African case study university demonstrates targeted support for research and graduate programs, the absence of similar frameworks in other contexts hinders broader success. While the study provided a valuable contribution to revenue diversification, it focused primarily on revenue generation rather than explicitly addressing its impact on financial sustainability or budget deficits. The findings insisted on the need for a comprehensive evaluation of IGPs' relevance, effectiveness and sustainability, which the current study sought to address by examining their role in financing budget deficits in Tanzanian public universities. This builds on Mamo's work by offering targeted strategies for overcoming barriers and enhancing the relevance and sustainability of IGPs.

Wainaina, and Mwangi (2006) presented a compelling case study on income generation at the University of Nairobi, showing how public universities can innovate to address financial challenges. The establishment of the University of Nairobi Enterprises and Services Ltd. (UNES) as a wholly-owned subsidiary exemplifies a strategic approach to diversifying income sources. By facilitating parallel programs for full-fee-paying students and managing various non-academic income-generating activities, such as consultancy services and mortuary operations, UNES has played a pivotal role in revenue collection and financial recovery. This diversification of income-generation activities highlighted the adaptability of public universities in the face of diminishing government funding. The classification of income-generating activities into teaching, consultancy, short courses, and special production units demonstrates a systematic approach to revenue generation. It also underscored the importance of clear disbursement schedules and improved internal processes in sustaining such initiatives.

Furthermore, the study emphasized the importance of balancing autonomy and cooperation between the university and its subsidiary company. This judicious management is crucial for ensuring the sustainable development of both entities and maintaining a harmonious relationship. By integrating innovative strategies and improving client services, the University of Nairobi was able to move towards partial solvency a testament to the effectiveness of income generation as an alternative financial solution for public universities. However, while the study provided a good analysis into income diversification and operational management, it does not explain deeply into the broader impact of these initiatives on addressing budget deficits. The focus remained on the practical implementation and operational efficiency of income-generation activities rather than their effectiveness in solving financial challenges comprehensively. This gap motivated the need for further exploration into how income-generating projects can be optimized to bridge budget deficits in public universities.

#### **2.4.2 Relevance and Sustainability of Income-generation Projects**

Teixeira, Rocha, Biscaia, and Cardoso (2014) argue that financial stringency has been an increasing concern in the higher education sector, especially in the aftermath of the financial crisis. As a result, public higher education institutions have been under increasing pressure to diversify their funding sources through tuition fees and other non-public revenues. Teixeira et al. (2014) discussed the institutional impact of those changes by analysing a panel of 30 higher education institutions from the Portuguese public university and polytechnic sectors between 2003 and 2009. They explored the relevance of institutional characteristics such as enrolments in undergraduate and postgraduate programs, the qualifications of academic staff, and the regional environment where institutions are located. Results suggest that specific institutional characteristics related to mission differentiation and the path of development of binary

systems are important determinants of higher education institutions' ability to earn income from tuition fees and other non-public sources. Teixeira et al. (2014) offer an analysis of the financial pressures faced by public higher education institutions, especially after the financial crisis. Their focus on diversifying funding sources through tuition fees and other non-public revenues showed the relevance of institutional characteristics such as enrollment levels, academic staff qualifications, and regional environments in determining income generation potential. This aligns with the current study's investigation of relevance, as their findings suggested that institutional positioning and mission differentiation significantly affect the ability to generate income. However, the Teixeira et al. (2014) study does not show how these diversified income sources contribute to mitigating financial deficits or ensuring sustainability over time. While relevance is a key focus, sustainability is not explicitly analyzed, creating a gap in understanding whether the explored strategies provide long-term stability for institutions. The current study addressed this gap by not only examining relevance but also exploring the sustainability of Income Generating Projects (IGPs) in financing budget deficits in public universities in Tanzania.

Okwach (2015) argues that sustainability has become a significant challenge facing many projects in developing countries despite the implementing partners' efforts. The nature of project management has taken a direction that focuses on proper design, planning, effective implementation, monitoring, and evaluation, and it aims to make projects sustainable even after the financiers have left. This is to ensure that the project remains relevant to society long after the end of donor funding. Okwach (2015) conducted on management practices and their role in the sustainability of income-generating projects to establish whether the management of projects in Kilifi County enhanced the sustainability of income-generating projects with objectives coiled around

determining the influence of leadership, financial management, training practices; and monitoring and evaluation on the sustainability of income-generating projects in Kilifi County, Kenya. The research adopted a descriptive design with questionnaires as data collection tools. The research targeted a population of 1700 beneficiaries and 17 officials of Bamba projects in Kilifi County. A stratified sample of 60 respondents comprised of 10 officials and 50 non-officials was used. The study found that leadership, financial management, training practices; and monitoring and evaluation influenced the sustainability of Bamba project in Kilifi. To improve the sustainability of projects it was recommended that: financial systems should be digitized; training programs should be tailored to fit the kind of projects; frequency of monitoring should be improved; data obtained from the monitoring and evaluation should be used to make financial and non-financial decisions for the projects.

Okwach's study provided a thorough examination of the sustainability of income-generating projects in Kilifi County, Kenya. The analysis of essential factors such as leadership, financial management, training, and monitoring practices emphasized the significance of sustainability in ensuring the longevity of projects. These findings were consistent with the current study's emphasis on sustainability, as they illustrated how effective management practices enhance the continuity of income-generating initiatives.

However, Okwach's research was conducted within a community-based project context, which contrasts with the higher education setting. While sustainability is thoroughly addressed, the relevance of these projects to specific institutional goals, such as addressing budget deficits, is not explored. The current study bridged this gap by integrating both relevance and sustainability into the assessment of IGPs in public

universities, providing a tailored approach to understanding their impact on financial challenges.

Delmonte (2021) conducted an empirical investigation into the management practices associated with the implementation and long-term viability of Income-Generating Projects (IGPs) within the University of Eastern Philippine System, located in Northern Samar, Philippines. The study employed a correlational research design that integrated both quantitative and qualitative methodologies. Participants included key institutional stakeholders such as project managers, operational staff, auditors, accountants, campus directors, and students engaged in IGP operations. Data collection was primarily executed through structured questionnaires, which were subsequently analyzed using appropriate statistical techniques to yield empirical insights. The research established that the level of implementation across the university's eleven IGPs was statistically uniform concerning three core operational dimensions: the number of personnel involved, years in active operation, and the average volume of clients served. Although certain projects demonstrated greater sustainability, overall management practices across all eleven initiatives were rated highly. These findings underscored the pivotal role that management competencies specifically in the areas of strategic planning, organizational coordination, leadership, and performance control play in promoting the longevity and effectiveness of university-based IGPs.

Conversely, the projects identified as less sustainable were often characterized by deficiencies in the execution of these management functions. More specifically, the study highlighted that variations in the application of planning, organizing, leading, and controlling practices directly contributed to the differences in sustainability levels across projects. Delmonte (2021) identified facilities such as the university-run hostel, the ladies' dormitory, the campus café (UEP Kapihan), University Prints, the arts and

signage department, and the gymnasium as examples of initiatives where weaker management performance corresponded with lower sustainability outcomes.

In response to these findings, the study recommended targeted interventions aimed at reinforcing management practices, particularly for underperforming projects. Delmonte proposed that the institution's Technical Working Group should actively implement an intervention framework derived from the study's conclusions. This framework was designed to enhance the operational viability of less sustainable IGPs and align them more closely with those demonstrating stronger performance.

Delmonte's study investigated the management practices influencing the sustainability of Income Generating Projects (IGPs) at the University of Eastern Philippine System. The study effectively showed how planning, organizing, leading, and controlling contribute significantly to project sustainability, aligning with the current study's focus on sustainability. By identifying gaps in management practices as causes for low sustainability levels in certain projects, the findings showed the importance of robust managerial interventions. However, the study did not address the relevance of these projects to institutional financial goals, such as financing budget deficits. While sustainability is well-explored, the relationship between effective management practices and IGPs' alignment with financial challenges remains unexplored. The current study bridged this gap by examining how relevance and sustainability intersect in addressing budget deficits in public universities.

Wangari and Minja (2021) examined the implications of Kenya's devolved governance system, noting that it has empowered County Governments to initiate a variety of development-oriented projects across different counties. However, a significant limitation observed in these initiatives is that most of the funds allocated by the county administrations are short-term and do not incorporate mechanisms for sustaining the

projects once the initial funding ceases. As a consequence, many of these development efforts have either stalled or been abandoned entirely often referred to as “white elephant” projects despite substantial financial investments already being made.

To investigate this issue, the researchers conducted a study aimed at identifying the factors that influence the sustainability of Community-Funded Projects (CFPs) within Gatundu North Sub County, located in Kiambu County. Their study population comprised 100 respondents, including 30 members of Project Management Committees (PMCs), 50 direct beneficiaries of the projects, 10 departmental heads, and 10 chief officers. These groups were selected based on their active roles in project execution and their presumed familiarity with the sustainability dynamics of CFPs. Adopting a descriptive research design, the study utilized semi-structured questionnaires and an interview guide as its main tools for data collection. These instruments were selected to capture both quantitative metrics and qualitative insights from stakeholders directly involved in the planning and implementation phases of the projects.

The study findings show that the four independent variables determine the sustainability of county-funded projects in Gatundu North Sub-County. Project monitoring is the key determinant of the sustainability of county-funded projects. Their study recommended that relevant stakeholders should ensure that all the county-funded projects are properly monitored to ensure that they are sustainable and beneficial to the locals and the County Government of Kiambu should focus on hiring competent and experienced professionals to implement the projects. Wangari & Minja examined the determinants of sustainability in county-funded projects within Kiambu County, Kenya. Their focus on project monitoring as a key determinant of sustainability was relevant to the current study, as regular monitoring practices can ensure the longevity and viability of income-generating initiatives. Their recommendation for hiring

competent professionals further reinforces the significance of management capacity in sustaining projects. However, the context of county-funded projects differs from public universities, which face distinct challenges such as operational inefficiencies and stakeholder alignment. Additionally, the study lacked an exploration of how project relevance contributes to sustainability, a dimension central to the current study's focus on Income Generating Projects in Tanzanian public universities.

Kaimenyi (2019) conducted a comprehensive study to identify the determinants that affect the long-term sustainability of community-based county projects. The research adopted a descriptive analytical approach and integrated both qualitative and quantitative methodologies to generate a well-rounded understanding of project dynamics. The study's target population consisted of 2,420 individuals, from which a stratified sampling technique was employed to select a representative sample of 343 respondents. These participants included various stakeholders actively engaged in project implementation and oversight, thereby ensuring a broad spectrum of perspectives was captured.

Primary data collection was executed using self-administered questionnaires, while data analysis was performed using the Statistical Package for the Social Sciences (SPSS), allowing for rigorous statistical interpretation. One of the key findings of the study emphasized the pivotal role of community involvement in the success of developmental projects. It was observed that continuous community participation significantly enhances a project's viability and endurance.

In addition to participation, the availability of resources for capacity building and the presence of skilled project implementers emerged as critical components influencing sustainability outcomes. The research also advocated for the integration of systematic monitoring and evaluation practices, not only to align project outputs with community

needs but also to facilitate adaptive management processes. Kaimenyi (2019) further highlighted the importance of equipping project managers with technical competencies that would enable effective resource mobilization and ensure the continuity of initiatives even in the absence of donor support.

Kaimenyi's study emphasized community participation as a crucial factor influencing the sustainability of community-based projects. Kaimenyi's study findings suggested that involving stakeholders strengthens the sustainability of initiatives, which aligns with the current study's emphasis on engaging stakeholders in IGP implementation and management. Regular monitoring and evaluation were identified as critical practices, providing actionable recommendations for sustaining income-generating projects. Nevertheless, the study focuses solely on community-based projects and does not address the strategic role of income-generating initiatives in resolving institutional financial challenges. The current study advanced this discussion by incorporating relevance into the evaluation of IGPs, ensuring that sustainability is linked to financial goals such as mitigating budget deficits.

Some (2015) undertook an extensive study aimed at investigating the role of management practices in shaping the long-term sustainability of youth-led income-generating projects (IGPs) within Soy Sub-County, situated in Uasin Gishu County, Kenya. The research focused on four critical dimensions of project sustainability: leadership effectiveness, training provisions, financial management protocols, and the application of monitoring and evaluation systems. The study employed a descriptive survey research design to gather and interpret data. A sample of 55 youth groups was selected through stratified random sampling, with each group contributing five participants one being the chairperson and the remaining four being active members. In addition, the Sub-County youth officer was interviewed to offer professional insights

into the design and execution of these initiatives. Data was analyzed quantitatively using descriptive statistics and results were presented through structured tables and percentage breakdowns to visualize trends and relationships.

Findings from the research revealed that equipping both project leaders and team members with training on operational procedures is vital. When well-trained, project teams are better positioned to remain aligned with their core objectives, strategic direction, and sustainability targets particularly within the confines of limited time, financial constraints, and available resources. The study emphasized that the sustainability of youth IGPs was significantly strengthened when accurate and consistent financial records were maintained. Furthermore, it was found that a project leader's competency in financial administration particularly the experience they possess plays a decisive role in guiding projects toward longevity and institutional impact.

Regular financial reporting emerged as another critical component influencing the continuity of youth projects. Transparent documentation of financial progress allows for better decision-making, accountability, and adaptability. Moreover, the study concluded that consistent monitoring and evaluation (M&E) activities are fundamental to fostering project sustainability. It proposed that external oversight such as periodic evaluations led by experts from the Ministry of Youth or other competent bodies be incorporated to assess project performance and improve quality outcomes.

Finally, the research recommended capacity building in M&E for youth groups within Soy Sub-County. Strengthening their technical skills in this area would not only enhance the functionality of their projects but also ensure long-term effectiveness. Empowering youth with M&E knowledge would equip them to navigate project

challenges more independently and systematically sustain their initiatives beyond initial funding cycles.

Some's study explored the influence of management practices, leadership, training, financial management, and monitoring on the sustainability of youth income-generating projects. The findings insisted on the importance of maintaining proper financial records, frequent reporting, and periodic evaluations, all of which are essential for sustainability. These insights aligned with the current study's exploration of operational factors affecting IGP sustainability, especially in the qualitative phase of the current study, where respondents provided their views about the relevance and sustainability of IGPs in financing budget deficits.

However, the study focuses on youth projects in Soy Sub-County, Kenya, rather than institutions of higher education. The relevance of these projects to organizational financial objectives is not assessed, leaving a gap in understanding their strategic role. The current study addresses this gap by evaluating how the relevance and sustainability of IGPs impact financial stability in public universities.

Ouma and Kiarie (2017) conducted a research study to evaluate the extent to which stakeholder involvement influences the sustainability of Constituency Development Fund (CDF) projects, specifically focusing on Nakuru Town East constituency in Kenya. The study targeted a population of 254 individuals, from which a sample of 105 respondents was drawn. Of those sampled, 75 participants returned fully completed questionnaires that were used in the final analysis. The researchers adopted a descriptive research design and employed structured questionnaires as the primary data collection tool. Statistical analysis was carried out using multiple regression techniques to assess the relationship between various forms of stakeholder engagement and the sustainability of CDF initiatives.

The findings revealed a nuanced dynamic: while direct stakeholder involvement in the implementation phase of projects did not show a statistically significant impact on their long-term sustainability, other elements of participation were found to be highly influential. Specifically, project identification demonstrated a 75% significance level in enhancing sustainability outcomes. Project planning showed an even higher influence, with a significance level of 79%, and monitoring and control mechanisms emerged as the most critical determinant, registering an 88% significant impact on sustaining the projects. Based on these findings, the study recommended that future research should focus deeply into the underlying reasons why implementation-related participation failed to produce a significant effect on sustainability. Additionally, the authors suggested broadening the scope of investigation to include other potential variables not covered in the initial study and encouraged replicating the research across all 290 constituencies in Kenya to obtain more generalizable and comprehensive results.

Ouma and Kiarie's study provided a good analysis of the role of stakeholder involvement in the sustainability of CDF projects in Nakuru Town East Constituency. The finding that project planning, monitoring, and control significantly influenced sustainability showed the importance of structured and well-managed processes. However, the lack of significant influence of stakeholder participation in project implementation raises important questions about how stakeholders are engaged. The study's emphasis on project identification and planning aligned with the current study's focus on relevance, as these elements ensure projects address institutional needs effectively. While sustainability is well-analyzed, there was a lack of integration of financial considerations in Ouma's study, leaving a gap in understanding how stakeholder involvement aligns with long-term funding and resource stability, a gap

that the current study seeks to address in the context of IGPs in public universities using a mixed method approach.

Mokgotho (2010) investigated the problems affecting the sustainability of the income-generating projects at the Hlatlolang ABET centre in South Africa. Data were collected by using interviews; data analysis was done by using content analysis. The study found that the sustainability of the income-generating project at Hlatlolang ABET centre is affected by ignorance, shortage of training/skills to run the project, illiteracy, lack of sense of ownership and insufficient needs analysis. Mokgotho's investigation into sustainability challenges at the Hlatlolang ABET Centre offers critical insights into operational shortcomings like a lack of skills, illiteracy, and insufficient needs analysis. These issues underlined the importance of capacity building and needs-based project design, which are relevant to the current study's emphasis on sustainability. However, the study is limited to a single community-based center and does not explore the relevance of these projects to broader institutional objectives. Additionally, the absence of a financial lens left open questions about the ability of such projects to address budgetary concerns, making the study less applicable to addressing the financial sustainability of IGPs in higher education institutions.

Green & Motiki (2011) investigated the underlying reasons for the sustainability or failure of the Botswana National Literacy Programme (BNLP) income-generating projects about personal development, literacy levels, availability of financial resources and the management and marketing of the project. Qualitative research methodology using focus group discussion was used to collect data. Ten operating and ten no-longer operating projects formed the sample of their study. The samples were from the southern, southeast and northern regions of Botswana. The study's results generally supported the premise that the BNLP-supported income-generating projects failed

because of low economic returns, low literacy levels, poor management, lack of marketing processes, inadequate feasibility studies, lack of ongoing finance and general mismanagement. The study, however, rejected the expectation that income-generating projects failed due to lack of start-up finance. Generally, sustainable projects have an individual in charge rather than a committee-driven one. Green and Motiki provided a good exploration of factors leading to the success or failure of income-generating projects under Botswana's National Literacy Programme. Their identification of issues like low economic returns, poor management, and inadequate feasibility studies offered lessons on operational challenges to sustainability. The finding that sustainable projects tend to have individual leadership rather than committee-driven management is particularly insightful. However, the study's context of literacy programs differs significantly from public universities, which operate under more complex financial and organizational structures. The current study advanced this discussion by integrating sustainability with the relevance of IGPs in addressing institutional budget deficits.

Wathome (2013) conducted a study to explore the key determinants influencing the long-term sustainability of Community Service Order (CSO) projects within Kiambu County, Kenya. The research aimed to assess how three major factors project identification, training in project management for community service officers, and stakeholder management affect the viability and endurance of CSO initiatives over time.

To accomplish these objectives, the study selected a sample of 40 community service officers drawn from six different field stations in the county. A descriptive survey research design was utilized to guide data collection and analysis. Primary data was gathered through self-administered structured questionnaires, allowing respondents to provide firsthand insights into their experiences and perceptions. The resulting data was

processed using descriptive statistical methods with support from the Statistical Package for the Social Sciences (SPSS), ensuring a methodologically sound and interpretive evaluation of the variables in question.

Findings from the investigation revealed that all four factors project identification, targeted training in project management, effective stakeholder engagement, and sufficient funding mechanisms substantially contributed to the sustainability of CSO projects. The study emphasized that participatory project identification is critical, as involving beneficiaries and stakeholders from the inception stage fosters ownership, commitment, and relevance to local needs. Equally, training community service officers in the principles and techniques of project management was found to be essential for improving project execution and enhancing institutional capacity. Furthermore, stakeholder management emerged as a significant component in sustaining CSO initiatives, with the study advocating for comprehensive stakeholder analysis and strategic engagement practices. Funding challenges were also highlighted, leading to the recommendation that CSO projects establish robust cost recovery frameworks and actively pursue diversified sources of financial support to reduce dependence on singular funding streams and enhance resilience. This will forestall over-reliance on government funds for project sustainability.

Wathome's analysis of community service order projects in Kiambu County provided a good understanding of factors influencing sustainability, such as participatory project identification, training, stakeholder management, and funding diversification. The emphasis on participatory approaches and skill-building aligned with the current study's focus on ensuring relevance and sustainability. However, the study's scope was limited to community service projects, which lack the complexity and scale of income-generating projects in universities. Additionally, while sustainability was well-

addressed, the study did not explicitly link these factors to financial outcomes, a critical aspect of the current study's investigation of IGPs and budget deficits.

### **2.4.3 Effectiveness of Income-generation Projects**

Jaafar, Latiff, Daud, and Osman (2023) examined the effect of revenue diversification on the financial sustainability of 20 Malaysian public universities using a panel data approach. Revenue diversification was measured using the Hirschman Herfindahl Index, while financial sustainability was proxied by the Return on Assets (ROA) and Net Profit Margin. The result discovered that revenue diversification had a significant positive relationship with financial sustainability when ROA is used as a proxy. This study contributed to resource dependency theory, whereby the revenue diversification effect was tested and found to be significant in the context of public universities. It also highlighted the importance of revenue diversification to overcome the financial sustainability issue, which has become a primary concern of Malaysian public universities in recent years.

The study by Jaafar, Latiff, Daud, and Osman (2023) offers valuable contribution into the role of revenue diversification in achieving financial sustainability in Malaysian public universities. By employing the Hirschman Herfindahl Index to measure diversification and using Return on Assets (ROA) and Net Profit Margin as proxies for financial sustainability, the study effectively highlights the positive relationship between diversification and organizational financial health. This empirical approach contributes to Resource-Dependency Theory, reinforcing the idea that diversified revenue streams can mitigate dependency on unstable funding sources. The findings emphasized the importance of diversification strategies, particularly in contexts where financial sustainability is a growing concern.

However, the Jaafar et al. study does not specifically address the effectiveness of IGPs and budget deficit financing in public universities, which is a central focus of the current research. While Jaafar et al. explored diversification broadly, the current study provides a more comprehensive examination by investigating whether Income-Generating Projects (IGPs) in Tanzanian universities are effective in mitigating budget deficits. This focus on effectiveness added a critical dimension to understanding how specific revenue-generation strategies impact financial outcomes.

Another limitation of Jaafar et al.'s study is the absence of context-specific challenges, such as operational inefficiencies and stakeholder alignment, which were integral to the current research. The Malaysian context may also differ significantly from the Tanzanian setting, where factors such as governance issues and resource constraints play a more prominent role. By addressing these unique challenges, the current study not only filled a gap in understanding but also provided actionable recommendations to improve IGP performance and financial stability in Tanzanian public universities. Jaafar et al.'s study complemented the current research by reaffirming the significance of revenue diversification in achieving financial stability. However, the current work advanced the discussion by examining the effectiveness of IGPs, offering a deeper understanding of how universities can tackle budget deficits while addressing internal and external challenges.

Le, Nguyen, Trinh, and Pham (2021) used the Hirschman–Herfindahl Index to estimate the degree of financial diversity in 51 public universities in Vietnam between 2015 and 2017. Their findings revealed that all institutions in the study were unsustainable due to their weak financial diversity. They suggested to policymakers and university leaders that financial sustainability may be enhanced through the adoption of performance-based financial allocations and the implementation of capacity-building programs for

universities regarding fundraising and entrepreneurship skills. This study provided significant understanding into financial diversity and its impact on the sustainability of Vietnamese public universities. By using the Hirschman–Herfindahl Index, it captured the concentration of revenue sources, which is conceptually aligned with the current study on IGPs and budget deficit financing in public universities. However, this study was limited in its exploration of how individual financial strategies, such as IGPs, contribute to addressing specific financial challenges. While it highlighted the need for capacity-building programs in fundraising and entrepreneurship, it does not assess the actual effectiveness of IGPs as a revenue diversification tool, leaving gaps in understanding the operational and strategic factors that affect their success. The current study bridged this gap by analyzing whether IGPs are effective in addressing budget deficits.

Waweru, Koome, and Omondi (2020) investigated the influence of income-generating activities on the effective management of charitable children institutions (CCIs) with a particular focus on CCIs in Nakuru Town East Sub County, Kenya. The study was guided by the resource-based theory. The study adopted a mixed-method approach and deployed the descriptive research design to capture data from a target population of 45 respondents comprising 39 CCI staff (both management and subordinate) and 6 key informants. A complete census was conducted on all the respondents and purposive sampling was utilized to identify key informants. Data from the CCI staff was collected using questionnaires while data from key informants was collected using discussion guides. Data were analysed using descriptive statistics with the help of the Statistical Package for Social Sciences software (SPSS) and the thematic content analysis technique. The findings from the study showed that income-generating activities influenced the effective management of CCIs. The study concluded that effective

management of CCIs is shaped by the presence of income-generating activities in CCI, the type of income-generating activities, and the amount of income generated by the activity in which the CCI is engaged. The study recommended that CCIs should develop income-generating activities in their institutional plans to mitigate shocks that occur when there is little funding from external partners. Waweru et al.'s (2020) study focused on income-generating activities in charitable institutions, which aligns with the current interest in exploring the role of such projects in financial management. The mixed-method approach and detailed analysis of how income-generating activities influence effective management offer practical insights. However, the study's context of charitable children's institutions differs from public universities, which face unique challenges like complex stakeholder dynamics and bureaucratic inefficiencies. Additionally, while the study emphasized the types of activities and the amount of income generated, it does not investigate their effectiveness and broader institutional goals, such as financing budget deficits. The current study extended this discussion by specifically examining how the effectiveness of IGPs influences their overall impact on budget deficit financing in public universities.

Nkosi (2010) examined the impact of income-generating projects by women in the Utrecht area in South Africa. The study was conducted on poverty alleviation projects funded by the Department of Social Development. An evaluative research method was followed in which data was gathered through semi-structured interviews. A sample of twenty projects was drawn, and respondents were interviewed, where two were from each project. The findings of the study indicated the need for training project members in capacity building. Project members also need to be motivated in one way or another so that they can develop a sense of ownership and work hard for the success of their projects. Community projects have failed poverty-stricken communities to improve

their socio-economic standards. The research findings indicated clearly that the strategies and policies were not effective enough in achieving the desired goals of poverty alleviation. It has been noted that what made programmes for poverty alleviation to be disabled is its implementation in the community. This study has tried to unearth things that determine the effectiveness of the projects; these are strategies, policies, and the need for training for those who are in charge of the projects in capacity building. Those who are operating any project must be motivated to develop a sense of ownership and work hard towards achieving the target goals.

Nkosi's (2010) study provided an evaluative perspective on income-generating projects aimed at poverty alleviation. It offered valuable lessons on the importance of capacity building, motivation, and ownership, which are critical for the success of such projects. However, the context of community-based poverty alleviation projects differs from public universities, where financial sustainability is linked to strategic alignment with institutional goals and long-term planning. Nkosi's findings on the role of strategies and capacity building complemented the current study, which sought to identify operational challenges and propose actionable recommendations for improving the effectiveness of IGPs in financing budget deficits.

Kipkoech (2018) carried out a comprehensive investigation to identify the key factors influencing the successful implementation of income-generating projects (IGPs) within public secondary schools located in Konoin District, Bomet County. The study was guided by four primary objectives: to evaluate whether the availability of financial and physical resources influences project execution; to assess how frequent head teacher transfers impact project continuity; to explore the role of political involvement particularly concerning profit-sharing and tendering processes in the implementation of

school-based IGPs; and to examine the extent to which management skills contribute to project effectiveness.

The research adopted a survey methodology, targeting the principals of all 30 public secondary schools in the district. A census approach was utilized to ensure that each school leader participated. Data collection was executed using semi-structured questionnaires, which allowed for both structured responses and nuanced insights. Analysis was performed using descriptive and inferential statistical techniques through SPSS version 20, providing a robust framework for interpreting the data.

Findings from the study revealed that the implementation of school-based IGPs is significantly influenced by several interrelated factors. These include the sufficiency of financial and infrastructural resources, disruptions caused by the recurrent transfer of school heads, and the intensity of political interference especially in relation to financial decision-making and procurement practices. Each of these variables was shown to directly affect the success and sustainability of income-generating initiatives. To address these challenges, Kipkoech (2018) recommended focused stakeholder education initiatives to raise awareness of the strategic importance of IGPs in public schools. The study emphasized that equitable distribution of income derived from such projects could contribute meaningfully to school development activities, support fee payments for students from economically disadvantaged backgrounds, and offer partial subsidies to reduce overall tuition burdens. These steps would help mitigate prevailing negative perceptions among parents regarding the role and impact of IGPs. Moreover, enhancing stakeholder engagement and communication was identified as crucial for dispelling concerns about potential compromises to educational quality.

Kipkoech's study provided a clear examination of factors influencing the implementation of income-generating projects in public secondary schools. The

analysis of determinants such as financial and physical resources, head teacher transfers, political interference, and management skills offered valuable contributions to the challenges faced by institutions implementing income-generation strategies. However, the scope is limited to secondary schools, which operate within different financial and administrative frameworks compared to public universities. The current study on IGPs in universities adds another layer by focusing on their direct effectiveness in mitigating budget deficits and examining their relevance to strategic financial goals. Furthermore, while Kipkoech showed the importance of stakeholder communication and equitable resource distribution, these aspects were addressed indirectly in the current research by analyzing the alignment between IGPs and stakeholder needs as per Resource-Dependency Theory.

Tadei (2014) examined the effectiveness of the financial control mechanism on effective management of incomes from income-generating activities performance to public universities in Tanzania particularly at the Open University of Tanzania. The data were collected from individual interviews using a questionnaire. Descriptive statistics analysis was used to analyse the financial control mechanisms and types of income-generation activities on the effectiveness management of public universities. According to this study, income generated was classified by the nature of the activities: fee collection, Consultancy, short and long courses Training, rental collections, rental fees charged and hiring of University premises, for example, hall and canteen, which are effective income. The results further showed that the majority agree that corporate governance or good governance is a structure, systems and process providing direction, control and accountability for public universities. The study concluded by making suggestions to improve income-generation activities in the study area and Tanzania. Therefore, a policy aimed at accelerating national income development in financial

management could be successful if the aforementioned control mechanisms for public universities are considered.

Tadei's research focused on financial control mechanisms and their impact on managing incomes from income-generating activities in Tanzanian public universities, specifically the Open University of Tanzania. This study is particularly relevant to the current research as it examines the types of income-generation activities commonly practiced in universities, such as fee collection, consultancy services, and property rentals. Additionally, the emphasis on corporate governance resonates with the current interest in operational challenges that influence the effectiveness of IGPs. However, the study did not explicitly measure the effectiveness of these activities in addressing budget deficits, leaving a gap in understanding their overall impact. The current research filled this void by assessing the effectiveness of IGPs and providing actionable recommendations to improve their role in financing budget deficits.

Towett, Naibei, and Rop (2019) carried out a detailed study to examine the financial control mechanisms that influence the operational performance of Income-Generating Units (IGUs) within selected public universities in Kenya. The researchers explored the impact of several financial governance components including internal control systems, credit policy frameworks, financial risk mitigation practices, and internal audit procedures on the effectiveness and output of IGUs. The study targeted a total population of 290 staff members drawn from the IGU departments of various public universities. A sample was selected through simple random sampling, and primary data collection was conducted using structured questionnaires administered to the participants.

Qualitative responses were subjected to content analysis, where they were broken down into coherent, precise, and meaningful thematic statements, often illustrated through

quotations. Quantitative data was analyzed using SPSS version 21, and the findings were presented in tabular and graphical formats for clarity and interpretability. The results revealed that the most robust and widely established IGUs across the surveyed institutions were the rental of university facilities, delivery of evening and executive education programs, and facilitation of short- and long-term training courses. On the other hand, the sale of branded items such as memorabilia and books was identified as the least developed income stream. Importantly, the study found that all four financial control mechanisms internal audit, internal controls, credit policy, and financial risk management had been adopted to a significant extent across the sampled universities.

Regression analysis confirmed a statistically significant positive correlation between these control mechanisms and the overall performance of IGUs, suggesting that the strength of financial oversight is directly linked to income-generation outcomes. Based on this evidence, the authors concluded that effective implementation of financial control strategies substantially improves the efficiency and return on investment of IGUs in public universities. Conversely, the absence or weakness of such controls tends to result in underperformance and financial shortfalls.

The researchers recommended that university management, particularly those overseeing IGUs, give high priority to the development, enforcement, and routine assessment of financial control frameworks. Moreover, the study emphasized the need for audit departments to conduct regular evaluations and inspections to uphold accountability and transparency. Lastly, it was proposed that institutional reforms be periodically introduced to address deficiencies in existing financial control structures and ensure continued improvement in IGU sustainability and profitability.

Towett et al. investigated financial control mechanisms affecting income-generating units (IGUs) in Kenyan public universities. Their findings, which demonstrated the

significant positive relationship between financial controls (e.g., internal audits and risk management) and IGU performance, align with the current study in operational challenges of IGPs. However, the study emphasized control mechanisms without assessing the strategic alignment of IGUs with universities' financial goals, such as addressing budget deficits. The current research advanced this discussion by exploring the direct effectiveness of IGPs in mitigating deficits, a dimension only touched upon indirectly in their work.

Yakubu (2020) conducted a study to evaluate the effects of the internal control system on revenue generation of institutions of higher learning in Nigeria. Six (6) institutions of higher learning in Nasarawa State, Nigeria, were used for the study. Using a simple random sampling technique, a sample of 20 respondents each from the Bursary Departments of the targeted institutions. The statistical results from the regression analysis show a positive relationship between internal control and revenue generation of institutions of higher learning in Nigeria. The Control Environment, Risk Assessment, Control Activities, Information and Communication and monitoring contributed to 75.7% of the variation in revenue generation, as explained by adjusted R<sup>2</sup> of 0.757%, which shows that the model is a good prediction. The findings revealed that most institutions of higher learning had a controlled environment as one of the functionalities of internal controls of the organization that greatly influences revenue generation. It was concluded that institutions of higher learning that had invested in effective internal control systems had improved revenue generation compared to institutions of higher learning with a weak internal control system. The study recommended that the governing body, possibly supported by the audit committee, should ensure that the internal control system is periodically monitored and evaluated. Yakubu's study linked internal control systems to revenue generation in Nigerian

institutions, showing the effectiveness of control environments, risk assessment, and monitoring in boosting revenue. While this is relevant to the current focus, the study's narrow emphasis on internal controls overlooks external factors such as stakeholder dynamics or market opportunities, which influence IGP success. The current research filled this gap by after some of the respondents mentioned market demand as one of the factors that can shape the effectiveness of IGPs.

Masaiti (2015) examined the effectiveness and viability of the current revenue diversification policy in making Zambia's public universities sustainable. Questionnaires were used to collection on convenient sampling was used to collect data from 200 faculty respondents in three public universities in Zambia. Data was subjected to descriptive statistics and Exploratory Factor Analyses. The findings revealed that the current policy of revenue diversification was less effective and viable, and universities were still experiencing many challenges because of the lack of adequate funds. Revenue diversification only had a modest impact, as its percentage proportion contribution to recurrent expenditure budgets was still low. The study highly recommends that decision-making be decentralised and that universities be allowed to charge economic fees and exploit other revenue-generating activities. The study recommended the adjustment of the current university act, which is a hindrance to practical entrepreneurship. Masaiti examined the viability of revenue diversification in Zambian public universities, concluding that existing policies had limited impact. While this aligns with the current interest in the effectiveness of IGPs, the current study focused on policy-level constraints rather than operational or project-level effectiveness. Therefore, the current research complemented this work by offering actionable insights into improving the performance and sustainability of individual IGPs, making it more practical and targeted.

Ofoegbu & Alonge (2016) conducted a study to identify the primary sources and utilization of internally generated financial revenue by Nigerian University administrators. The population of the study consisted of all the 102 university administrators from the seventeen Federal Universities in Southern Nigeria. Descriptive statistics and Pearson Product Moment Correlation were used to analyse the research questions and hypotheses formulated for the study. The analysis revealed that commercial ventures were among the primary sources of IGR. At the same time, the proceeds were used for services including staff welfare, maintenance of facilities and beautification of the university premises. Further data analysis showed a significant relationship between internally generated resources and the management and development of universities in Southern Nigeria. It was recommended that university administrators be more transformative in their leadership style to strengthen their revenue base and increase effectiveness in university management. Ofoegbu and Alonge explored internally generated revenues in Nigerian universities, finding a significant relationship between these revenues and institutional management and development. Although their study confirmed the importance of income generation, it did not evaluate the effectiveness of specific initiatives like IGP. The current study extended their findings by focusing on this aspect to provide understanding of how universities can optimize IGP performance.

Tsuma and Mugambi (2014) discussed the performance of income-generating units in public universities in Kenya. A descriptive approach was sought to explain the relationship between the variables of the study. The research discloses that economic factors such as inflation affect the allocation of resources in the units, and funds allocated to the various units do not sufficiently meet the units' needs. It was further noted that employees' accountability determines the performance of the units, and

internal controls ensure the reliability of financial reporting, which is accurate and complete. The study concludes by recommending a cost-benefit analysis for any ventures in the future to ensure the viability of projects to abate costs in setting up projects with minimal returns. Tsuma and Mugambi's study identified economic factors and accountability as determinants of IGU performance in Kenyan universities. While their recommendations for cost-benefit analyses are relevant, the study lacked a specific focus on the role of IGUs in addressing budget deficits. The current research built on their work by explicitly linking the effectiveness of IGPs to deficit financing, filling an important gap.

Odundo & Rambo (2013) conducted a study to determine the value added by Income-Generating Activities (IGAs) on the financial performance of public secondary schools in terms of assets, liability portfolio, and net worth. The study found that IGA and non-IGA schools were significantly different in category, student population, age, annual income, and number of paid workers. Schools having IGAs were 1.9 times more likely to own as many assets as schools not having IGAs. Besides, IGA schools were about 2.2 times less likely to have their liability over the median threshold. Regarding net worth, the study found that schools with IGAs were about 2.1 times more likely to be operating above the median threshold, suggesting that schools with IGAs were wealthier than non-IGA schools. Based on the findings, this study concludes that IGA projects were beneficial to schools by improving the ability of schools to accumulate assets and manage their liabilities. The study recommended the need to formulate an appropriate policy framework to guide and standardize IGA activities, initiate suitable training programs for school IGA managers and engage business development managers to advise schools on IGA matters. Odundo and Rambo highlighted the added value of Income-Generating Activities (IGAs) in improving financial performance in

Kenyan secondary schools. Their findings on the positive impact of IGAs on assets and net worth were useful, but the context of secondary schools differed significantly from public universities. Additionally, the study does not examine the effectiveness of IGAs in addressing financial challenges, which is the focus of the current research.

Nyangaresi, Onderi, and Mwebi (2016) conducted a study to find out the influence of school-based income-generating projects on the retention rate in secondary education in Kisii County. Specifically, the study was conducted to find out various income-generating projects; find out how income-generating projects were utilized to address students' retention rate and establish the challenges facing sustenance of income-generating projects (IGPs) on retention of students in secondary schools. The target populations of the study were 60 principals, 95 class teachers, 4267 form four students, 60 bursars and 1 Sub-county quality assurance and standards officer (SQASO). The study used a simple random sampling technique to select 24 principals, 24 bursars, 38 class teachers and 214 form 4 students. Purposive sampling, in addition, was used to select the SQASO. The study employed a descriptive survey design. Instruments for data collection involved a semi-structured questionnaire and interview schedule. Findings of the study were: secondary schools had various IGPs, with the majority of the schools engaging in agricultural-based projects; IGPs were used to supplement students' tea break, lunch, supper and buying uniforms for bright but needy students, and this has led to average retention of students. The main challenge facing the Income-generating projects was the lack of proper records. The study concluded that the majority of the schools were engaged in IGPs as a way of supplementing the school budget with improved accessibility. The study recommended that there should be proper and up-to-date records on IGPs, which should be audited twice a year as a way of accountability, and that a study should be carried out with a focus on the influence

of school-based income-generating projects on students' retention rates in primary schools. Nyangaresi et al. explored how school-based IGPs influence student retention in Kisii County, Kenya, focusing on secondary schools. Although the study provided a good understanding of IGP utilization and challenges, its emphasis on student retention was not directly relevant to the current study's focus, budget deficits. The current study broadened the scope by addressing how IGPs can serve as strategic tools for financial stability in public universities.

Nyamwega (2016) examined how secondary schools in Nairobi County utilized existing school resources and income-generating opportunities to raise extra funds for financing their programs. The study was conducted in 11 secondary schools in Nairobi county 11 schools in the county were selected, representing 13% of the 60 public secondary schools in the county. All the head teachers from the schools participated in the study. The research instruments employed were questionnaires and observation schedules. The study shows that the schools earned between KShs 680,000 and KShs 6,000,000 annually from income-generating activities, indicating that school-based income-generating activities can be profitable ventures that schools could tap into to raise extra funds for financing educational programmes. Instead of over-relying on the government and parents to raise funds for schools, head teachers should become more innovative and lead their schools to initiate activities that would be profitable for the schools. The study further shows that some initiatives are important learning opportunities for students. By incorporating participatory planning and innovative technologies, school head teachers will be able to overcome most of the challenges faced in the implementation and management of school-based income-generating initiatives. Nyamwega's study showed the profitability of income-generating activities in secondary schools, demonstrating their potential to supplement educational funding.

By earning up to KShs 6,000,000 annually, these initiatives showcased how schools can reduce dependence on government and parental contributions. However, the study was limited to secondary schools and does not address the broader, more complex financial challenges faced by public universities. Additionally, it does not explore the effectiveness or sustainability of specific initiatives, which are central to the current study. While valuable, Nyamwega's findings do not fully address the strategic role of IGPs in alleviating budget deficits, as the current research aimed to do.

Mhagama & Obadia (2022) assessed the contribution of School Income-generating Projects on the teaching and learning process in Secondary Schools in Ngara District in the Kagera region, Tanzania. The study examined how the available income-generating projects contribute to the teaching and learning process and explored the challenges heads of schools face in managing income-generating projects in secondary. The study employed mixed research, and 179 respondents were selected purposively and randomly, respectively. Interviews and questionnaires were used to obtain the data from teachers and students, while the researcher observed the available income-generating project using observation. The findings showed that the income-generating activities available do not contribute to the teaching and learning process, as there were unsatisfactory results in 2019; division four was 51%, while division zero was 23.7%; in 2020, division four was 56% while division zero was 7% in 2021 division four was 65% while division zero was 5% . The study recommended that the policymaker integrate the implementation of IGP in schools into free education policy to emphasize its implementation and management with an effective learning process. In addition, the local government should provide knowledge and skills to school heads on how to initiate and manage IGP. Furthermore, school heads should involve all staff members in the initiation and management. Mhagama and Obadia examined how income-

generating projects contribute to teaching and learning, focusing on secondary schools in Tanzania. While their findings revealed that these initiatives had little direct impact on the teaching and learning process, their study highlighted key challenges in IGP management, such as insufficient skills and weak integration with educational policies. This contextual understanding of Tanzanian schools provided useful parallels for the current research. However, their focus on the education process and retention rates differs from the current emphasis on addressing budget deficits. The current study extended the discussion by investigating IGP effectiveness from a financial sustainability perspective, which was not explored by Mhagama and Obadia.

Miranda, Tenedero, Fiel-Miranda, and Celestino (2016) conducted a descriptive-correlational study at the University of Eastern Philippines (UEP) to assess the level of implementation of Income-Generating Projects (IGPs) and explore related operational indicators. The study involved a sample of 126 respondents, including five members of the university's IGP Board of Management, 11 project managers, and 110 clients served by the various initiatives. Data was analyzed using frequency counts, percentages, ratios, weighted means, and multiple regression techniques to uncover statistical relationships between key variables.

The findings demonstrated that the implementation of IGPs at UEP had reached a high level, reflecting their significant contribution to expanding the university's financial capacity. Interestingly, analysis revealed that neither the length of time an IGP had been operating nor the size of its staff was statistically associated with its level of implementation. However, the average number of clients served showed a significant positive relationship with implementation levels, suggesting that client demand and engagement are essential drivers of IGP activity and effectiveness.

While the study provided understanding into the operational dynamics of IGPs, particularly their role in enhancing institutional revenue, it did not explicitly address how such projects mitigate financial deficits or contribute to long-term fiscal sustainability. Building on Miranda et al.'s (2016) work, the present research extends the inquiry by examining the relevance, effectiveness, and sustainability of IGPs as strategic instruments for addressing budgetary shortfalls in public universities, especially within resource-constrained environments.

## **2.5 Research Gap**

A review of the consulted literature affirms that financing higher education remains a complex and pressing challenge for many nations across the globe (Teixeira, 2014). An analysis of the available empirical studies revealed that much of the existing research has concentrated on peripheral aspects of income-generating projects (IGPs), without systematically evaluating them using critical dimensions such as sustainability, relevance, and effectiveness. For instance, Delmonte (2021) examined managerial practices related to the implementation and continuity of IGPs within the University of Eastern Philippine System, whereas Miranda (2016) focused specifically on the level of implementation of IGPs at the University of Eastern Philippines.

Other contributions include Mhagama and Obadia's (2022) investigation into how school-level IGPs impact teaching and learning outcomes in Ngara District of Tanzania's Kagera Region. Similarly, Nyamwega (2016) explored how secondary schools in Nairobi County leveraged existing resources and income-generating strategies to supplement their financial needs. Odundo and Rambo (2013) assessed the extent to which Income-Generating Activities (IGAs) influenced the financial well-being of public secondary schools, with emphasis on assets, liabilities, and net worth. In the Nigerian context, Ofoegbu and Alonge (2016) studied the key sources and

application of internally generated financial resources as managed by university administrators.

It is noteworthy that several of the studies cited above were conducted in contexts outside Tanzania, and those situated within the country have primarily concentrated on secondary school settings. Consequently, there exists a research gap regarding how income-generation projects are perceived and applied in public universities, particularly concerning their relevance, effectiveness, and sustainability. The present study aimed to address this gap by examining the extent to which adopted IGPs contribute to financing budget shortfalls in Tanzanian public universities and evaluating them against these critical performance criteria.

## **2.6 Chapter Summary**

This chapter has presented a review of studies related to the current study. The review shows that financing higher education is very challenging. Financial stringency has been an increasing concern in higher education, especially after the financial crisis. As a result, public higher education institutions have been under increasing pressure to diversify their funding sources through tuition fees and other non-public revenues. Studies have shown success stories on the issue of income-generation projects. In some academic institutions, most adopted income-generation projects have shown a positive impact on reducing university budget deficits, but the problem still exists. On the other hand, some academic institutions have witnessed difficulties in income-generation projects in solving the budget deficit problem. All in all, the IGPs have positively impacted the university budgets, but this is not the main target of the income-generation projects. The universities initiated these projects in order to help them solve the issue of deficits in their budgets.

## **CHAPTER THREE**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1 Introduction**

This chapter described the methods the researcher used to conduct the study. It was organized as follows: location of the study area, research design, theoretical underpinning, location of the study area, target population, sample size, sampling procedure, research instruments, validity and reliability of research instruments, data collection procedures, data analysis, and ethics in research.

#### **3.2 Research Design**

This study utilized an explanatory sequential research design, a mixed-methods design where quantitative data collection and analysis were followed by qualitative research. This design was chosen to first identify statistical relationships and then explore deeper into the contextual factors underlying these relationships (Creswell, 2018). By blending these two phases, the study aimed to provide both breadth and depth in understanding the performance of income-generation projects (IGPs) in financing budget deficits in Tanzanian public universities. Importantly, the Resource-Dependency Theory (RDT) guided the research, serving as a theoretical lens to frame and interpret findings from both phases.

#### **Phase One: Quantitative Research**

The quantitative phase of the study focused on exploring the relationships between key variables; relevance, effectiveness and sustainability of IGPs and their impact on budget deficit financing in public universities in Tanzania. Drawing on RDT, these variables were conceptualized to reflect the ways universities strategically manage their external dependencies. For example, relevance represented how well IGPs aligned with institutional priorities and external resource demands, while sustainability reflected

practices that ensured long-term adaptability and stable income streams. Effectiveness was examined as the operational success of IGPs in utilizing resources efficiently.

Data were collected from a sample of 303 participants across selected Tanzanian public universities using a structured questionnaire. Statistical analyses, including hierarchical multiple linear regression, were conducted to assess the relationships among these variables (independent and dependent variables). The findings revealed significant positive relationships between relevance and sustainability with budget deficit financing, while effectiveness showed no statistical significance. These results were interpreted through RDT, which showed the importance of strategic alignment and adaptability in securing and maintaining resources while acknowledging operational challenges that may constrain effectiveness. These insights laid the groundwork for the qualitative phase (phase two).

### **Phase Two: Qualitative Research**

Building on the quantitative findings, the qualitative phase aimed to explain and expand upon the observed relationships. Semi-structured interviews were conducted with university administrators, project managers, and financial officers to uncover the contextual and practical factors influencing the performance of IGPs. This phase was heavily informed by Resource-Dependency Theory, which emphasizes how organizations interact with their environments to acquire, manage, and sustain essential resources.

The interview questions were designed to explore themes directly derived from RDT, such as resource acquisition, stakeholder relationships, adaptability to external changes, and operational constraints. Participants provided rich narratives detailing how Tanzanian universities navigate resource dependencies, illustrating how relevance and sustainability translate into financial stability. For example, interviewees emphasized

the importance of aligning IGPs with stakeholder priorities and diversifying income sources to reduce reliance on government funding, a concept central to RDT. The qualitative data also illuminated challenges hindering effectiveness, such as ineffective IGPs management, offering explanations for the lack of significance in the quantitative findings.

### **Theoretical Integration Across Both Phases**

The integration of Resource-Dependency Theory was evident in both the quantitative and qualitative phases of this study. In the quantitative phase, RDT informed the selection of variables, framing relevance, sustainability, and effectiveness as mechanisms through which universities manage their dependencies (Pfeffer and Salancik, 1978). The statistical relationships observed were interpreted within the theoretical context, showing the role of strategic alignment and resource adaptability.

In the qualitative phase, RDT guided the exploration of contextual factors influencing these relationships, allowing for a deeper understanding of how universities navigate external resource dependencies. By focusing on stakeholder collaboration, resource diversification, and operational challenges, the qualitative findings complemented the quantitative results, providing a cohesive narrative that bridged statistical data with real-world practices.

### **Justification for Explanatory Sequential Design**

The explanatory sequential design was ideally suited for this study, as it facilitated a comprehensive exploration of the research problem (Creswell, 2018). The quantitative phase offered a broad understanding of statistical trends, while the qualitative phase provided the contextual depth needed to explain these trends. Together, these phases created a holistic picture of how IGPs contributed to addressing budget deficits in Tanzanian public universities.

The incorporation of Resource-Dependency Theory strengthened this design by providing a unifying framework for interpreting findings across both phases. By grounding the study in a well-established theoretical lens, the research not only identified patterns but also contextualized them within the practical realities of resource management. This approach ensured that the study was methodologically robust and theoretically informed, yielding valuable insights for both academic and practical applications.

### **3.3 Philosophical Underpinning**

The philosophical underpinning of a study provides the worldview and assumptions that guide methodological choices, interpretation of findings, and the overall construction of knowledge. As Creswell (2018), Tashakkori and Teddlie (1998), and Biesta (2010) emphasize, a clearly articulated philosophical stance strengthens the coherence of a research design by explaining the framework, concepts, and theories that shape the inquiry. This study was guided by the philosophy of pragmatism, which prioritizes the research problem and encourages the use of multiple methods that best address the central questions under investigation. Pragmatism supports the integration of both quantitative and qualitative approaches, recognizing that complex social and institutional issues cannot be understood using a single methodological orientation (Morgan, 2014). In this study, pragmatism offered an appropriate philosophical foundation for examining the performance of Income-Generation Projects (IGPs) in financing budget deficits in Tanzanian public universities. Because this topic involves both measurable financial indicators and experiential perspectives from university staff, the explanatory sequential mixed-methods design aligned well with pragmatist principles, allowing quantitative findings to be deepened and clarified through qualitative inquiry.

Ontologically, pragmatism assumes that reality is pluralistic, dynamic, and shaped by practical consequences rather than by fixed or absolute structures. According to Morgan (2014), pragmatists consider reality as multiple and contingent on human experiences and actions. This study therefore assumed that both objective financial data and subjective accounts from individuals managing IGPs constitute valid realities. The ontological stance allowed the researcher to view the financial performance of IGPs as one layer of reality, while institutional practices, managerial experiences, and contextual challenges formed additional layers that are equally important in understanding how IGPs contribute to budget deficit financing.

Epistemologically, pragmatism views knowledge as arising from action, inquiry, and the need to respond to real-world problems. Knowledge is considered useful and valid when it helps explain, predict, or improve practical situations (Biesta, 2010). Based on this epistemological position, the study assumed that meaningful understanding of IGP performance requires combining statistical evidence with interpretive insights. Quantitative data offered empirical patterns on how relevance, performance, or management of IGPs relate to budget deficit financing, while qualitative narratives helped explain underlying mechanisms, institutional constraints, and contextual interpretations that could not be captured through numerical data alone. This epistemological assumption justified the mixed-methods integration, which aligns directly with pragmatist knowledge construction (Creswell & Plano Clark, 2018).

Axiologically, pragmatism acknowledges that researchers' values influence the research process, but argues that these values should be oriented toward problem-solving, practicality, and usefulness (Tashakkori & Teddlie, 2003). In this study, the researcher valued producing knowledge that could meaningfully contribute to financial

sustainability in public universities. This included valuing participants' perspectives, ethical transparency, and the need to generate findings with direct implications for policy, management, and institutional improvement. The axiological stance therefore ensured that the study prioritized relevance, applicability, and benefit to stakeholders involved in IGP management.

Generally, the pragmatist worldview adopted in this study provided a flexible and problem-centered foundation that supported the integration of diverse forms of evidence. Its pluralistic ontology recognized both objective and subjective realities; its action-oriented epistemology emphasized practical, mixed-methods knowledge; and its value-conscious axiology ensured that the research remained grounded in usefulness and institutional relevance. Together, these assumptions strengthened the methodological rigor of the study and supported a comprehensive understanding of how IGPs contribute to financing budget deficits in Tanzanian public universities.

### **Quantitative Phase and Positivist Orientation**

The quantitative phase of this study was rooted in positivism, a perspective that prioritized objective measurement and statistical analysis. Positivism posited that phenomena could be understood through empirical observations and measurement, which made it ideal for identifying relationships between variables in this phase (Creswell, 2011, 2018). Structured questionnaires were administered to participants, and hierarchical multiple linear regression was used to analyze the relationships among the relevance, effectiveness, and sustainability of IGPs and their impact on budget deficit financing.

During the quantitative phase, relevance was conceptualized as the alignment of IGPs with the institutional goal of financing the budget deficit and external demands.

Sustainability was defined through measures of adaptability and the diversification of income streams, while effectiveness represented the operational success of IGPs. These variables were derived from Resource-Dependency Theory (RDT), which provided a framework for understanding how organizations manage their external dependencies (Pfeffer and Salancik, 1978). The findings revealed significant relationships between relevance and sustainability with budget deficit financing, while effectiveness showed no statistical significance. This phase focused on generating measurable evidence regarding the role of IGPs in mitigating financial challenges.

### **Qualitative Phase and Interpretivist Perspective**

The qualitative phase of the study incorporated an interpretivist perspective, focusing on the subjective experiences and contextual realities of individuals involved in IGPs. Semi-structured interviews were conducted with university administrators, project managers, and financial officers to explore the underlying reasons behind the quantitative findings. This phase aimed to provide a deeper understanding of the challenges, strategies, and contextual factors influencing the performance of IGPs.

The interpretivist perspective aligned with pragmatism's emphasis on exploring multiple dimensions of a research problem (Creswell & Plano Clark, 2011). Interviewees shared insights into how universities managed resource dependencies, emphasizing stakeholder engagement, alignment, adaptability, and operational constraints. These narratives provided rich explanations for why relevance and sustainability significantly influenced budget deficit financing, while effectiveness was limited by institutional challenges such as ineffective management of IGPs. By engaging with participants' experiences, the qualitative phase enriched the study's findings with contextual depth.

### **Integration of Positivism and Interpretivism in Pragmatism**

The study achieved theoretical and methodological integration by combining positivism and interpretivism within a pragmatic framework. The quantitative phase provided objective, measurable evidence of relationships between variables, while the qualitative phase explored the subjective and contextual aspects of these relationships. This integration ensured a balanced approach, addressing both statistical trends and the real-world practices behind them.

Pragmatism allowed the study to prioritize practical solutions and relevance over strict adherence to a single philosophical stance. The inclusion of both positivist and interpretivist elements enabled the study to bridge the gap between empirical data and the lived realities of individuals managing IGPs in resource-constrained environments in public universities in Tanzania. This dual approach was vital in developing a comprehensive understanding of the research problem, aligning with the pragmatic emphasis on flexibility and utility.

By adopting pragmatism as its philosophical underpinning, this study effectively integrated quantitative and qualitative methods to investigate the performance of IGPs in financing budget deficits. The quantitative phase, guided by positivism, provided empirical evidence, while the qualitative phase, shaped by interpretivism, offered contextual insights. This combination ensured a holistic approach that balanced objective measurement with subjective understanding, allowing the study to address its research questions comprehensively.

### **3.4 The Location of the Study**

This study was conducted in public universities located in Dar es Salaam, Morogoro, and Zanzibar in the United Republic of Tanzania. These regions were purposively

selected because they host some of the oldest and largest public universities in the country, including the University of Dar es Salaam (UDSM), Sokoine University of Agriculture (SUA), and the State University of Zanzibar (SUZA). These institutions have historically experienced significant growth in student enrolment, academic programmes, and operational responsibilities, all of which have increased their financial requirements (UDSM Facts and Figures, 2022). Importantly, public universities in these regions have consistently faced persistent budget deficits, largely due to limited government subventions, rising operational and administrative costs, and declining external donor support. Reports by the Ministry of Education, Science and Technology (MoEST, 2021) and the Higher Education Students' Loans Board (HESLB, 2020) indicate that many Tanzanian public universities operate under recurrent budget pressures that outstrip available financial resources.

The selection of these regions was therefore crucial because the budget deficit financing is most visible and well-documented in these universities. Their chronic funding gaps and financial instability have compelled them to expand and diversify Income-Generation Projects (IGPs) to supplement government funds (UNESCO, 2020; MoEST, 2021). Universities in Dar es Salaam, Morogoro, and Zanzibar have some of the most established IGP units in the country, which ensured the availability of rich data needed to examine how IGP performance contributes to financing budget deficits. Thus, the chosen study areas offered an appropriate context for understanding the effectiveness of IGPs in mitigating financial shortfalls in Tanzanian public universities.

### **3.5 Target Population**

The target population is that group of people that is of interest to researchers in a statistical study or that is (or will be) affected by a particular project (Kothari, 2004).

In other words, the target population comprises the set of individuals on whom research or statistical analysis is carried out. The target population of this study were public universities with income-generating activities totalizing 4523 workers, including teaching staff and accountants from the University of Dar es Salaam (main campus), Open University of Tanzania (Main Campus), Mzumbe University (Main Campus- Morogoro), Sokoine University of Agriculture (Main Campus), and State University of Zanzibar (Main Campus in Unguja).

### 3.6 Sample Size of the Study

Before going to the field, the anticipated sample of this study was 367 respondents, including academic staff and accountants from the public universities under study. The sample size was calculated based on the Yamane Formula for sample size. According to Yamane (1967), the sample size is calculated as follows;

$$n = \frac{N}{1 + Ne^2}$$

Whereby, n= sample size, N = Target population size = 4,523 e = margin of error = 0.05 or 5%.

$$n = \frac{4523}{1+4523 \times 0.05 \times 0.05} = 367$$

**Table 1: Description of the Sample Size**

TYPE OF SAMPLE	Population Size	Sampling Fraction	Sample Size	SAMPLING TECHNIQUES
Accountants	353	8.11%	28	Purposive sampling
Academic Staff	4,102	8.11%	333	Random sampling
Project Coordinators	68	8.11%	6	Purposive sampling
<b>TOTAL</b>	<b>4,523</b>		<b>367</b>	

**Source: Research Data (2024)**

Academic staff were selected as key respondents for this study because they are not only directly involved in university operations but also primary beneficiaries of income-generating projects (IGPs). As beneficiaries, academic staff often receive support from IGPs in various forms, such as improved teaching resources, research support, enhanced infrastructure, or incentives linked to project income. Their beneficiary status means they experience the outcomes of IGP performance first-hand, making them well-positioned to provide accurate and practical insights into how these projects function within their universities.

In addition, academic staff typically interact more regularly with IGP-related activities than senior executives such as Vice Chancellors (VCs) or Deputy Vice Chancellors (DVCs). While VCs and DVCs focus on strategic oversight and high-level policy decisions, academic staff engage with operational processes, service delivery, and academic units supported by IGP revenue. This proximity to day-to-day project activities means they are more likely to possess comprehensive and experience-based information about the relevance, effectiveness, and sustainability of IGPs.

Moreover, because academic staff represent a larger and diverse population within universities, their inclusion ensures broader perspectives and stronger statistical representation. In contrast, the small number of VCs and DVCs would not provide adequate data for generalization or robust quantitative analysis. Academic staff therefore offered richer, more reliable, and more accessible information regarding the performance of IGPs and their contribution to financing budget deficits.

In general, academic staff were selected because, as direct beneficiaries and regular users of IGP outcomes, they are more likely to have detailed and practical knowledge about how these projects operate and how effectively they support their universities' financial needs.

After going to the field, because of the questionnaire return rate and the data screening, the sample size was found to be 303 respondents. Therefore, the current study findings were from 303 respondents. This sample was enough to conduct the current study as suggested by Yamane, T. (1967) and also being supported by Morgan's table for sample size in appendix X.

### **3.7 Sampling Procedures of the Study**

Random sampling was used to select 333 respondents; this type of sampling was chosen because of the large sample size for the quantitative phase. On the other hand, purposive sampling was used for the qualitative phase to select twenty-eight (28) accountants and six project coordinators from public universities under study because they had sensitive information concerning budget matters in their institutions.

### **3.8 Research Instruments**

According to Kumar (2011), research instruments are fact-finding strategies and tools for data collection, including questionnaires, interviews, observation, focus group discussions, and reading. Researchers need to ensure that the chosen instruments are valid and reliable (Kumar, 2011). The following are the instruments that were used to collect data from the study area.

#### **3.8.1 Questionnaire**

In this study, 5-point Likert scale questionnaires were employed to gather data from university administrators, faculty members, and accountants. Each variable in the questionnaire was assessed using six items, aiming to evaluate the relevance, effectiveness, and sustainability of projects in relation to financing budget deficits in public universities. Even the dependent variable (budget deficit financing) was measured on a 5-point Likert scale.

#### **3.8.2 Unstructured Interview Guide**

Additionally, interview guides were utilized to collect qualitative data from the field. These interviews focused on exploring the findings derived from the quantitative phase, providing a comprehensive understanding of the issues at hand by generating qualitative findings that explained in depth the quantitative findings that were generated

during the quantitative phase. The questions used were open-ended and allowed flexibility for follow-up discussions, depending on the participant's responses.

By using both questionnaires and unstructured interviews, the study ensured a robust data collection process, combining quantitative and qualitative methods to assess the impact of relevance, effectiveness and sustainability on budget deficit financing in public universities.

### **3.9 Pilot Study**

A pilot study, also known as a feasibility study, is a small-scale preliminary study conducted before the main research to assess the feasibility or improve the research design. Pilot studies are crucial as they help identify potential issues and refine the research methods and protocols before the full-scale project is undertaken (Thabane et al., 2010; van Teijlingen & Hundley, 2001). A pilot study was conducted to evaluate the questionnaire designed for this research, which included four variables: three independent variables (relevance of income-generation projects in public universities, effectiveness of income-generation projects in public universities in Tanzania, and sustainability of income-generation projects in public universities in Tanzania) and one dependent variable (financing budget deficit). This pilot study was carried out at the Open University of Tanzania, involving 15 respondents who were not included in the main data collection phase. The purpose of the pilot study was to ensure the reliability and validity of the questionnaire items before proceeding with the full-scale research.

The pilot study served several critical functions. Firstly, it allowed for the assessment of the clarity and comprehensibility of the questionnaire items. Feedback from the respondents helped identify any ambiguous or confusing questions, which were then revised to improve clarity. Secondly, the pilot study provided an opportunity to test the internal consistency of the questionnaire, ensuring that the items within each variable

were measuring the same underlying construct. This was achieved through statistical analysis, such as calculating Cronbach's alpha for each set of items.

Furthermore, the pilot study helped in estimating the time required to complete the questionnaire, which is essential for planning the main data collection phase. It also provided preliminary data that could be used to refine the data analysis plan, ensuring that the statistical methods chosen were appropriate for the research questions and the nature of the data. During the pilot study, the researcher encountered several errors and issues with the questionnaire. These included unclear wording, redundant questions, and items that did not effectively capture the intended data. By addressing these errors, the researcher was able to make necessary adjustments, thereby enhancing the relevance and accuracy of the instrument for the main study.

Conducting the pilot study at the Open University of Tanzania, with respondents who were excluded from the main study, ensured that the findings from the pilot did not bias the main study results. This approach aligns with best practices in research methodology, as emphasized by Kumar (2011), who insists the importance of validating research instruments to ensure their effectiveness in capturing the intended data. By addressing these aspects through the pilot study, the research was able to enhance the overall quality and accuracy of the data collection process, thereby strengthening the validity of the study's findings.

### **3.10 Validity and Reliability of Research Instruments**

#### **3.10.1 Validity of the Questionnaire**

To ensure the validity of the instruments utilized in assessing the relevance, effectiveness, and sustainability of Income Generating Projects (IGPs), a thorough evaluation was conducted through the Content Validity Index (CVI). The CVI measures the degree to which the items of an instrument are relevant and representative of the

constructs being examined, based on expert evaluations. For this study, the CVI was calculated for all items across the three dimensions of IGPs: relevance, effectiveness, and sustainability. Following rigorous evaluation, the aggregate CVI value was determined to be 0.82, indicating a high level of content validity. This value surpasses the commonly accepted threshold of 0.78 for CVI of 9 experts (refer to Appendix IX), confirming the adequacy of the instrument for capturing the intended constructs.

The content Validity Ratio (CVR) considers the number of experts who deem an item essential (Lawshe, 1975).

$$CVR = \frac{Ne - \frac{N}{2}}{\frac{N}{2}}$$

where Ne is the number of experts who consider the item essential, and N is the total number of experts. The acceptable threshold for CVI varies, but a common benchmark is 0.78 (Lawshe, 1975). Table 3.2 shows the economics of education experts' ratings of items for relevance, effectiveness, and sustainability of IGPs to the budget deficits financing in public universities in Tanzania.

Then Content Validity Index was calculated by taking the sum of the content validity ratio and being divided by the number of items. The total number of items were 18.

$$\begin{aligned} \text{Content Validity Index} &= \frac{\text{Sum of Content Validity Ratio}}{\text{Number of Items}} \\ &= \frac{0.77 + 0.55 + 0.55 + 0.55 + 1 + 1 + 1 + 0.77 + 1 + 1 + 0.77 + 0.77 + 1 + 0.55 + 1 + 0.55 + 1 + 1}{18} \end{aligned}$$

CVI=0.82

**Table 2: Experts' Item Ratings as essential and not essential and their Content Validity Ratios (Key: 1=essential, 0=not essential)**

Items	Number of Experts and their rating (essential or not essential)									CVR
	1	2	3	4	5	6	7	8	9	
-The adopted IGPs supports the budget deficit financing because there are designed to solve budget deficits	1	1	1	1	1	1	0	1	1	0.77
-The design of the adopted IGPs supports the aim of solving budget deficits in public universities	0	1	1	1	1	1	1	1	0	0.55
-The context in which the adopted IGPs are operating is relevant to the aim of IGPs of financing budget deficits in public universities, it makes IGPs to generate more revenue	1	1	1	0	1	1	1	0	1	0.55
-The human resources operating the adopted IGPs is relevant and it has helped to achieve the goal of IGPs in financing budget deficits in public universities	1	1	1	1	0	1	1	0	1	0.55
-The current adopted IGPs are relevant to the goal of financing budget deficits because it generates income that is enough to meet the main goal	1	1	1	1	1	1	1	1	1	1
-The current adopted IGPs is relevant because its operating cost is low, this has brought the room for more revenue generation that has helped to reduce the budget deficits in public universities	1	1	1	1	1	1	1	1	1	1
-The current adopted IGPs are objective focused and they facilitate the achievement of the goal of financing budget deficits because they produce revenue as they were designed for	1	1	1	1	1	1	1	1	1	1
-The cost for operating the current adopted IGPs is minimal, this has helped to serve more revenue that have been used to solve budget deficit	1	1	1	1	1	1	1	1	0	0.77
-The current adopted IGPs are effective because they strongly finance the budget deficit, this in long run supports implementation of academic activities	1	1	1	1	1	1	1	1	1	1
-There is engagement of stakeholders in the current adopted IGPs, this engagement makes IGPs effective that is why they are currently solving the budget deficits in public universities in Tanzania	1	1	1	1	1	1	1	1	1	1
-The current adopted IGPs are progressing smoothly according to the plan as they were established basing on financing budget deficit plan, this is a reason why they highly solving budget deficits in public universities	1	1	1	0	1	1	1	1	1	0.77
-The current adopted IGPs are effective in financing budget deficit in public universities because they were formulated basing on the factors causing budget deficits in public universities	1	1	1	1	1	1	0	1	1	0.77

-The current contribution done by adopted IGPs on financing budget deficit in my university lasts for long as their contribution is sustainable	1	1	1	1	1	1	1	1	1	1
-The adopted IGPs in public universities to finance budget deficits have great economic impact because they have managed to reduce budget deficit in my university	0	1	0	1	1	1	1	1	1	0.55
-The current adopted IGPs in my university have impacted the lives of the university community because of its great contribution on reducing budget deficits in academic year	1	1	1	1	1	1	1	1	1	1
-Since the adopted IGPs at my university are sustainable, they have greatly improved the provision of quality education. This is a result of its high contribution in solving budget deficits	1	0	1	1	1	0	1	1	1	0.55
-The current adopted IGPs have facilitated the improvement of welfare of the university community particularly the academic staff because the problem of budget deficit that tend to challenge their internal payments has been solved	1	1	1	1	1	1	1		1	1
-The current adopted IGPs are designed to finance budget deficit in my university over a long term that is why for-now they are doing better in solving budget deficits	1	1	1	1	1	1	1	1	1	1

**Source: Pilot Study (2024)**

On the side of an interview guide, the researcher used expert judgment to determine the validity of the interview guide. The expert judgment involved experienced people reading the interview guide and rating how exact the questions were to measure the variables under study.

### **3.10.2 Reliability of Questionnaire**

According to Drost (2011), reliability is “the extent to which measurements are repeatable when different people measure on different occasions, under different conditions, supposedly with alternative instruments which measure the construct or skill”. Before conducting the main study, a pilot study was undertaken to test the reliability of the questionnaire items designed to measure the relevance, sustainability, and effectiveness of income-generation projects (IGPs) in public universities in Tanzania. Reliability was evaluated using Cronbach’s Alpha, which is widely acknowledged as a standard measure of internal consistency for multi-item scales (Cronbach, 1951). A value of 0.7 or higher is generally accepted as demonstrating adequate reliability (Nunnally, 1978).

The six items assessing the relevance of IGPs produced a Cronbach’s Alpha of 0.779, indicating a good level of internal consistency. This result suggested that the items cohesively measured the construct of relevance as operationalized in the study. Similarly, the six items measuring the sustainability of IGPs yielded a Cronbach’s Alpha of 0.758, reflecting a reliable scale. This finding affirmed that the items consistently captured the sustainability construct. The six items for the effectiveness of IGPs recorded a Cronbach’s Alpha of 0.732. While this value was slightly lower than those for relevance and sustainability, it still fell within the acceptable range, indicating sufficient reliability for this construct.

These results confirmed that the questionnaire items for the constructs of relevance, sustainability, and effectiveness were internally consistent and suitable for use in the main study. The scores 0.779 for relevance, 0.758 for sustainability, and 0.732 for effectiveness indicated a well-constructed instrument capable of reliably assessing the performance of IGPs in Tanzanian public universities.

### **3.10.3 Trustworthiness of the Interview Guide**

Creswell (2012) argues that qualitative researchers are required to articulate evidence of four primary criteria to ensure the trustworthiness of the study's findings: credibility, transferability, dependability, and confirmability. In this study, the researcher ensured that the trustworthiness of the research instrument and data is met by doing the following:

#### **3.10.3.1 Credibility**

According to Kumar (2011) and Creswell (2012), credibility means data collected is accurate/representative of the phenomenon under study. Credibility corresponds to the notion of validity in quantitative work but is more about internal validity. In this study, the credibility of qualitative data was assured through multiple perspectives throughout data collection to ensure data are appropriate. This was done through participant validation or member checks, or the rigorous techniques used to gather the data.

#### **3.10.3.2 Transferability**

This is the extent to which the findings are transferable to other situations. Transferability is like generalizability in quantitative; however, it is not generalizability (Kothari, 2004). Transferability addresses the applicability of the findings to similar contexts or individuals, not to broader contexts. In this study, transferability was achieved by a thick description of the findings from the data collection method, which was an interview guide that was built based on quantitative findings.

### **3.10.3.3 Dependability**

This means an in-depth description of the study procedures and analysis to allow the study to be replicated (Kumar, 2011). In this study, an inquiry audit using an outside reviewer, particularly an expert in qualitative research, assured dependability.

### **3.10.3.4 Confirmability**

This step ensures that the data and findings are not affected by participant and/or researcher bias (Creswell, 2012). In this study, the confirmability of qualitative data was assured when data were checked and rechecked throughout data collection and analysis to ensure findings would likely be repeatable by others. Confirmability was documented by a clear coding schema that identified the codes and patterns identified in analyses. This technique is famously called an audit trail. Confirmability was also ensured through triangulation and member checking of the data as well as conducting a bracketing interview or practicing reflexivity to confront potential personal bias.

## **3.11 Data Collection Procedures**

The researcher followed all the steps of data collection. The following are the procedures that the researcher followed to conduct data collection in this study: First, since the study targeted to collect primary data from the study area, the researcher was given a research permit from the school of Education at Moi University soon after the proposal defence (see appendix). Secondly, the researcher submitted an introduction letter to the Tanzania Commission for Science and Technology (COSTECH) to get research clearance. This is a condition for all researchers who want to conduct their studies in Tanzania, so the researcher maintained this, and the research permit was granted (See Appendix). Thirdly, the researcher used research clearance for COSTECH to seek research permits in public universities in Tanzania. Five letters were distributed

to five public universities in Tanzania, and they replied positively by providing research permits to allow the researcher to proceed with data collection (see appendix III).

Since this study used a sequential explanatory mixed design, the researcher collected data in two phases. The first phase was to collect quantitative data and analyse them, then use the findings to structure a qualitative instrument for the second phase. The qualitative data from the second phase was collected and analysed to provide explanations for the quantitative data. So, integration in this design involved using the quantitative findings (or results) to inform the design of a qualitative phase of the research, such as the development of a qualitative instrument. This means that the researcher needed to pay careful attention to both quantitative and qualitative data analysis steps and determine what findings to build on.

### **3.12 Data Analysis**

The data analysis was done in two stages; the first stage involved analysis of quantitative data while the second stage was qualitative data analysis. In this study, the researcher interpreted the mixed methods results in the data presentation section of the study. The order of interpretation was to first report the quantitative findings, the development or design of the feature to be tested (e.g., the development of an instrument, the development of new qualitative measures), and then the qualitative test in the final phase of the study. There was no comparison of the two databases because they were typically drawn from different samples (as noted above in the data collection discussion), and the strategy intended to determine if the qualitative themes in the second phase could explain the quantitative findings. The two analyses are discussed below.

### 3.12.1 Quantitative Data Analysis

In analyzing quantitative data, the study used a hierarchical multiple linear regression (HMLR) analysis to study the effect of relevance, effectiveness and sustainability of the adopted income-generation projects on financing budget deficit. All these were conducted under the SPSS software (25). The Hierarchical Multiple Regression Model allows a researcher to enter predictors in blocks (Ross & Willson, 2017). In a hierarchical multiple regression model, each block represents one step or model. The reason for using hierarchical multiple regression is to control the effect of intervening variables (Size of the university, age of the university and gender of the respondents). Descriptive Statistics were also used during quantitative data analysis. Mathematically, the model was expressed as follows:

$$Y = F\{IGPS\}$$

$$Y = F\{Relevance, Effectiveness, Sustainability\}$$

$$Y = Budget Deficit Financing (BDF)$$

$$Y = \beta_0 + \beta_1x_1 + \beta_2x_2 + \beta_3x_3 + \dots \dots \dots + \epsilon$$

$$\beta_0 = Constant Term$$

$$x_1 \dots \dots \dots n = independent variables$$

$$\beta_1 \dots \dots \dots n = Slope Coefficients fore the respective variable$$

$$\epsilon = Error Term$$

#### Assumptions

- The researcher ensured that the assumptions of hierarchical multiple regression were met, including linearity, independence, homoscedasticity, and normality of residuals.

### Hypotheses Testing

- Test whether each coefficient is significantly different from zero (using p-values).
- Hypotheses:
  - $H_0: \beta_1 = \beta_2 = \beta_3 = 0$  (None of the IVs affect budget deficit financing).
  - $H_1$ : At least one coefficient is not zero.

### Interpretation of Coefficients

- $\beta_1$ : Represents the change in budget deficit financing for a one-unit increase in relevance of adopted IGPs.
- $\beta_2$ : Represents the change in budget deficit financing for a one-unit increase in the effectiveness of adopted IGPs.
- $\beta_3$ : Represents the change in budget deficit financing for a one-unit increase in the sustainability of adopted IGPs.

### Model Fit and Goodness of Fit

- The researcher assessed the overall fit of the model using metrics like **R-squared**.
- The researcher interpreted the R-squared value to understand how well the IVs explained the variation in budget deficit financing.

### Predictions

- The aim is to use the model to predict budget deficit financing based on specific values of the IVs.

The following table presents variables, measurements, sources of data, data collection methods, and data analysis methods.

### **3.12.1.1 Variables, Measurements, Source of Data, Data Collection Methods, and Data Analysis Methods.**

#### **Independence Variables**

##### **Relevance of the IGPs**

To get the data for this variable, the statements were formulated in the 5-point Likert scale to get stakeholder perceptions of the alignment between IGPs and addressing budget deficits. Furthermore, other statements focused on the extent to which IGPs contribute to revenue generation. Lastly, the other statements in the Likert scale focused on the proportion of budget deficit covered by IGPs.

##### **Effectiveness of The IGPs**

To get data for this variable, the researcher used a 5-point Likert scale, and the statements focused on revenue generated and cost saved. Also, other statements focused on the budget deficit reduction rate (percentage reduction due to IGPs).

##### **Sustainability of the IGPs**

To get data for this variable, the Likert scale statements focused on the longevity of IGPs (years in operation), adaptability to changing circumstances (e.g., economic shifts, policy changes), and stakeholder commitment to maintaining IGPs

#### **Dependent Variable**

##### **Budget Deficit Financing**

The data for budget deficit financing were collected by using a 5-point Likert scale and being transformed through SPSS into continuous data.

### **3.12.2 Qualitative Data Analysis**

For qualitative data, thematic analysis was done to explore the respondents' perceptions about the quantitative findings on relevance, effectiveness and sustainability of the IGPs adopted to finance budget deficits in public universities. The analysis was done by identifying the main themes and discussing them accordingly based on the quantitative results. After the researcher decided thematic analysis to be the right method for analysing qualitative data, the analysis followed six steps developed by Braun and Clarke (Clarke, Braun & Hayfield, 2015).

#### **Step 1: Familiarization**

The first step was to get to know the data. It was important to get a thorough overview of all the data collected before analysing individual items. This involved transcribing audio, reading through the text and taking initial notes, and generally looking through the data to get familiar with it.

#### **Step 2: Coding**

Next up, the data was coded. Coding means highlighting sections of the text – usually phrases or sentences – and coming up with shorthand labels or “codes” to describe their content.

#### **Step 3: Generating themes**

Next, the researcher looked over the created codes, identified patterns among them, and started coming up with themes. Themes are generally broader than codes. Most of the time, the researcher will combine several codes into a single theme.

**Step 4: Reviewing themes**

Now, the researcher made sure that the themes were useful and accurate representations of the data. Here, we return to the data set and compare our themes against it. Are we missing anything? Are these themes present in the data? What can we change to make our themes work better? If we encounter problems with our themes, we might split them up, combine them, discard them or create new ones: whatever makes them more useful and accurate.

**Step 5: Defining and naming themes**

Now that the researcher has a final list of themes, it's time to name and define each of them. Defining themes involves formulating exactly what we mean by each theme and figuring out how it helps us understand the data. Naming themes involves coming up with a succinct and easily understandable name for each theme.

**Step 6: Writing up**

Finally, the researcher wrote up the analysis of the data. Like all academic texts, writing up a thematic analysis requires an introduction to establish our research question, aims and approach. The researcher also included a methodology section, describing how he collected the data through interviews and explaining how he conducted the thematic analysis itself. The results or findings section addressed each theme in turn. The researcher described how often the themes come up and what they mean, including examples from the data as evidence. Finally, the conclusion explained the main takeaways and showed how the analysis answered the current research question.

**Table 3: Data Analysis Matrix**

S/N	Objective	Sample	Instruments	Analysis Techniques
1	To determine the relevance of the IGPs on financing budget deficits in public universities	n=303	5-Point Likert Scale	Descriptive Statistics, Hierarchical multiple regression analysis
2.	To determine the effectiveness of the IGPs on financing budget deficits in public universities	n=303	5-Point Likert Scale	Descriptive Statistics, Hierarchical multiple regression analysis
3.	To determine the sustainability of the IGPs on financing budget deficits in public universities.	n=303	5-Point Likert Scale	Descriptive Statistics, Hierarchical multiple regression analysis
4.	To explore the perceptions and experiences of university stakeholders regarding the relevance, effectiveness, and sustainability of income-generation projects in financing budget deficits in public universities.	n=10	Interview Guide	Thematic Analysis

**Source: Researcher's Idea (2024)**

The explanatory sequential design played a significant role in structuring the data analysis process by ensuring that the study followed a systematic and purposeful approach. Initially, the quantitative data was collected and analyzed to identify trends, patterns, and relationships within the dataset. This phase provided a broad understanding of the research problem and helped establish statistical correlations that required further exploration.

Once the quantitative results were analyzed, they guided the qualitative phase of the study. Instead of collecting qualitative data independently or simultaneously, the study focused on targeted areas where deeper explanations were needed. For example, certain unexpected trends or statistically significant correlations required further investigation to understand the underlying reasons behind them. This approach ensured that the

qualitative inquiry was not random but instead strategically designed to address specific aspects of the quantitative findings.

During the qualitative data analysis, responses were carefully examined to provide contextual and detailed explanations for the numerical trends observed earlier. Participants' experiences, opinions, and narratives helped clarify why certain patterns emerged, offering insights that statistical analysis alone could not provide. This phase ensured that qualitative findings were not separate from but rather directly linked to the quantitative results, reinforcing the depth and reliability of the study.

In the final stage, the findings from both phases were integrated, ensuring that the qualitative insights provided meaning and interpretation to the statistical results. This integration strengthened the overall conclusions of the research by combining numerical evidence with detailed explanations, making the study more comprehensive and insightful. The explanatory sequential design ensured that the data analysis was structured, logical, and interconnected, allowing for a richer understanding of the research problem.

### **3.13 Ethics in Research**

According to Kumar (2011), ethical considerations in research are a set of principles that guide the research designs and practices. These principles include voluntary participation, informed consent, anonymity, confidentiality, potential for harm, and results communication (Kumar, 2011). Furthermore, the researcher applied for research clearance in Tanzania by submitting the research permit from Moi University to the Tanzania Commission for Science and Technology (COSTECH). Then, the researcher used the research permit from COSTECH to apply for a university internal research permit for data collection. After being granted the data collection in universities, the researcher recruited the assistant researcher in collecting all the questionnaires that were

distributed by the researcher to make collection of the questionnaires easy. In connection to this, the researcher-maintained anonymity and confidentiality. The anonymity and confidentiality were implemented through the use of pseudonyms in reporting qualitative findings and for the quantitative findings, the names were not displayed in the data analysis. Decent language was used to ensure that respondents were encouraged to respond to questions without any hesitation. The respondents for both filling questionnaires and participating in interviews were fluent in English as all of them were drawn from the universities under study, and there was no need to use Swahili language. Furthermore, an informed consent form was prepared and distributed to the respondents for signing before they filled out the questionnaires. The informed consent form introduced the researcher as a PhD student at Moi University and the purpose of the current study. The respondents signed and returned the informed consent form, this proved that they understood the purpose of the study and were ready to participate in it freely as respondents. All literature sources used have been properly cited and plagiarism avoided. The final check for plagiarism will be done once the report is finalized.

## CHAPTER FOUR

### DATA PRESENTATION, ANALYSIS, INTERPRETATION AND DISCUSSION

#### 4.1 Introduction

The purpose of this chapter is to present the study findings on the performance of income-generation projects on financing budget deficits in public universities in Tanzania and discuss their implications for public universities in Tanzania. Specifically, the chapter focuses on the presentation, analysis, interpretation, and discussion of the findings and finally makes conclusions on the hypothesis of the study and provides answers to a single research question that focuses on exploring the perceptions of the respondents regarding income-generation projects in public universities in Tanzania. The presentation of the findings was done based on the following research hypotheses and research question:

- i. There is no significant relationship between the relevance of the adopted IGPs and financing budget deficit among public universities
- ii. There is no significant relationship between the effectiveness of the adopted IGPs and the financing budget deficit among public universities.
- iii. There is no significant relationship between the sustainability of the adopted IGPs and the financing budget deficit among public universities.
- iv. What are the perceptions and experiences of respondents regarding the relevance, effectiveness, and sustainability of income-generation projects in financing budget deficits in public universities?

By presenting, analyzing, interpreting, and discussing these findings, the researcher aimed at gaining understanding into the unique perspectives and contributions of

respondents about the relevance, effectiveness, and sustainability of income-generation projects on financing budget deficits in public universities' university context. The data for objective one to objective three were collected using a 5-point Likert scale for the quantitative phase while for the qualitative phase which was guided by objective four, an interview guide was used to collect the perceptions of the respondents.

#### **4.2 Questionnaire Return Rate**

The questionnaire return rate, also known as the completion rate or return rate, refers to the percentage of people who have completed the study's survey compared to the total number of people in the survey sample (Al Khalaf, Keane, da Mata, McGillicuddy, Chadwick, & Lynch, 2022). In this study, the researcher distributed 367 questionnaires to the respondents in the study area, and about 307 (83.7%) were filled and returned successfully. While there isn't a universally agreed-upon threshold, a rate of 80% or higher is considered excellent for generating valid, reliable, and generalizable results in survey studies (Booker, Austin, Balasubramanian, 2021). For this case, the current 83.7% questionnaire return rate was enough for the researcher to proceed with data analysis.

#### **4.3 Presentation of Respondents' Demographic Profile**

Before going directly to analyze the data based on objectives, respondents' demographic information was examined to understand the characteristics of those involved in this study. The respondents' demographic profiles that were examined in this study include gender, education level, age of the university in terms of years of operation since its establishment, and the size of the university in terms of the number of students. Knowing the basic population characteristics of participants allowed the researcher to interpret findings more accurately. For instance, knowing all these

characteristics helped the researcher to contextualize the experiences and behaviors of respondents within specific demographic groups including academic staff, accountants, and heads of departments. The following are the findings on the demographic information of the respondents and the institutions under study:

**Table 4: Gender of Respondents**

Gender	Frequency	Percent
Female	157	51.8
Male	146	48.2
<b>Total</b>	<b>303</b>	<b>100.0</b>

**Source: Survey Data (2025)**

Table 4 shows the findings on the gender of respondents who participated in this study. The findings have shown that 157 (51.8%) respondents were females while 146(48.2%) respondents were male. This distribution suggests a slight gender imbalance among the participants.

**Table 5: Age of Respondents**

Age Interval	Frequency	Percent
18-35 years old	61	20.2
36-53 years old	184	60.7
54 years and above	58	19.1
<b>Total</b>	<b>303</b>	<b>100.0</b>

**Source: Survey Data (2024)**

*Table 5* presents the findings on the age of respondents who participated in the study about the performance of income-generation projects on financing budget deficits in public universities in Tanzania. The findings in Table 5 show that 61(20.2%) respondents were in the age interval 18-35, about 184(60.7%) respondents were in the 36-53 age interval, while respondents with 54 years and above were 58(19.1%)

respondents. The higher proportion of respondents in the 36-53 age interval suggests that this age group was more actively engaged in this study. Maybe it is because the workers in public universities in Tanzania are ages ranging from 36-53. The smaller percentage of younger respondents (18-35) and older respondents (54 and above) indicates that these age groups may have different levels of participation or interest in income-generation projects.

**Table 6: Education Level of Respondents**

Level of Education	Frequency	Percent
Diploma	11	3.6
Bachelor's Degree	58	19.1
Master's Degree	173	57.1
PhD	61	20.2
<b>Total</b>	<b>303</b>	<b>100.0</b>

**Source: Survey Data (2024)**

*Table 6* presents the findings on the education level of respondents who participated in the current study on income-generation projects in financing budget deficits in Tanzanian Public Universities. The findings have shown that 11 (3.6%) respondents had a diploma, and about 58 (19.1%) respondents had a bachelor's degree. Furthermore, respondents had a master's degree were 173 (57.1%). Lastly, there were 61 (20.2%) respondents with a PhD. This diversity in education suggests that public universities in Tanzania have more master's degrees than other levels of education. Furthermore, these findings could also mean that most of those who are engaged in income-generation projects directly or those being affected by these projects have a master's degree.

**Table 7: University's Age of Operation**

<b>Years of Operation</b>	<b>Frequency</b>	<b>Percent</b>
Between 16 and 25 years	82	27.1
26 years and above	221	72.9
Total	303	100.0

**Source: Survey Data (2024)**

*Table 7* shows the findings on the university's age of operation since its establishment. The respondents were required to choose years of operation since the establishment of the universities under study. The findings show that 82 (27.1%) respondents said their universities' age of operation is found within the interval 16-25 years. Furthermore, 221 (72.9%) respondents said that their universities' age of operation is 26 years and above. The fact that more than 72.6% of respondents' universities have been operating for 26 years or more suggests a long history. Established universities often have well-established financial systems, infrastructure, and institutional frameworks. Longevity can positively impact financial stability, as older universities may have accumulated resources and diversified revenue streams. Furthermore, universities with decades of operation likely have experience managing financial challenges. Income-generation projects become crucial for sustaining operations over time. These universities may have experimented with various revenue sources and learned from successes and failures. This was vital to the current study as this helped the researcher to collect the needed data without any problems from the targeted population.

**Table 8: Size of the University in terms of the number of students**

<b>Number of Students</b>	<b>Frequency</b>	<b>Percent</b>
1,000-5,000 students	3	0.99
6,000-10,000 students	77	25.41
11,000 students and above	223	73.6
<b>Total</b>	<b>303</b>	<b>100.0</b>

**Source: Survey Data (2024)**

*Table 8* presents the findings on the size of the universities that were involved in the study on the performance of income-generation projects on financing budget deficits in public universities in Tanzania. The size of the universities was examined in terms of the number of students admitted to these universities. The findings show that 3(0.99%) said that their universities have between 1000 and 5,000 students. About 77(25.41%) respondents said that their universities have between 6,000 and 10,000 students. Lastly, 223 (73.6%) respondents said that their universities have 11,000 students and above. Based on these findings, most public universities in Tanzania are large as they have many students. Having many students in any academic institution means the expenditure of these universities is also high to manage the provision of quality education. The findings showed the diversity in university size, which impacts factors like campus culture, available programs, and institutional capacity.

#### **4.4 Exploratory Factor Analysis for Predictors**

The current study used a 5-point Likert scale to collect data for all three independent variables: relevance of IGPs, effectiveness of IGPs, and sustainability of IGPs. To know that the items used to measure the variables were effective and accurate, Exploratory Factor Analysis (EFA) was used. EFA was used to select items that were highly loaded and abandon the items with little impact or that were loaded below the recommended value. Furthermore, EFA was used to reduce data, particularly on items that were not adequately measuring the variables under this study.

#### 4.4.1 Assumptions of Exploratory Factor Analysis

To conduct EFA, some assumptions needed to be tested. EFA was conducted after the following assumptions were met: looking for multivariate outliers, linearity, normality, sample-to-variable ratio, Bartlett's test of sphericity, and the Kaiser-Meyer-Olkin measure of sampling adequacy in the data (Cohen et al., 2003; Hair et al., 2019). In this section, only the sample-to-variable ratio, Bartlett's test of sphericity, and the Kaiser-Meyer-Olkin measure of sampling adequacy were performed for both predictors (i.e., student engagement and learning approaches data). The data screening in terms of missing and unengaged responses and the assessment of multivariate outliers were already performed in Section 4.5 above. Furthermore, the assessments of normality, multicollinearity, and linearity were made in sections 4.9.1, 4.10.1 and 4.10.2, respectively.

*Sample-to-variable ratio (STV) analysis test:* This test is used to show whether the sample of the study is adequate to support the EFA test. This ratio is calculated by dividing the sample size (S) by the number of observable variables or items (V) used to assess a particular construct (i.e.,  $STV = S/V$ ) (Garson, 2009). According to Hair et al. (2019), a minimum of 10 cases per item is sufficient to allow EFA to be performed.

*Bartlett's test of sphericity:* This checks the overall significance of the correlation matrix by looking at the presence of non-zero correlations between the indicators and the factor itself (Hair et al., 2019). If Bartlett's test of sphericity is significant ( $p < .001$ ), it shows that the correlation matrix produced is not an identity matrix, and hence, indicators are expected to form a clear and significant factor structure (Hair et al, 2019). Hence, such data are appropriate for EFA and vice versa.

*Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)*: This checks not only the adequacy of the sample size to EFA but also whether the items are likely to be related and form clear patterns or factors (Hair et al., 2019). If the KMO value is greater than .50, it shows that the sample size is enough to support the EFA test, and the resultant patterns of items support the formation of definite factors (Hair et al., 2019; Kaiser, 1960).

#### 4.4.1.1 Sample to Variable Ratio analysis for items of the variables

Each variable (Relevance of IGPs, Effectiveness of IGPs, and Sustainability of IGPs) in the Likert Scale had six (6) items that were rated by the respondents on the five-point Likert scale. The total sample after data screening was 303 respondents. Table 4.

**Table 9: Sample-to-variable ratio results for independent variables under study**

Variables	Relevance of IGPs	Effectiveness of IGPs	Sustainability of IGPs	Budget Deficit Financing
No. of items	6	06	06	06
Sample size	303	303	303	303
Ratio (S/V)	51	51	51	51

**Source:** Field survey data (2025)

The results in Table 9 revealed a ratio of 51 cases for all three variables of the study. All the STV ratios for relevance, effectiveness, and sustainability were above the threshold value of 10:1, which indicated that the data were appropriate for EFA (Hair et al., 2019).

#### 4.4.1.2 Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity for Sustainability of IGPs Items

The results for Bartlett's test of sphericity for sustainability of IGPs data presented in Table 10 were significant (approximated Chi-Square = 362.462, df = 15, p = .000). This shows that items for Sustainability of IGPs were able to produce a significant

correlation matrix, which supports the formation of a clear and significant factor structure (Hair et al, 2019), Furthermore, the findings showed that the KMO value for the sustainability of IGP items was .805 which was greater than the threshold value of .50. Therefore, this shows that the sample size was enough to support the conduction of EFA to the sustainability of IGP items, and the resultant patterns of items support the formation of definite factors Thus, they were appropriate for EFA.

**Table 10: Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test Results for Sustainability of IGPs**

Variable	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	Bartlett's Test of Sphericity		
		Approx. Chi-Square	df	Sig.
Sustainability of IGPs	.805	362.462	15	.000

*Source:* Survey Data (2024)

#### 4.4.1.3 Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test Results for Relevance of IGPs

The results presented in Table 11 below showed that the KMO value for the Relevance of IGPs was .692, which was greater than the threshold value of .50. Furthermore, the results of Bartlett's test of sphericity for relevance of IGPs presented in Table 4.9 were significant (approximated Chi-Square = 904.234, df = 15, p =.000). This shows that items for relevance of IGPs were able to produce a significant correlation matrix, which supports the formation of a clear and significant factor structure (Hair et al., 2019). Thus, they are appropriate for EFA. Therefore, this shows that the sample size was enough to support the conduction of EFA in relevance to IGPs, and the resultant patterns of the items support the formation of definite factors (Hair et al., 2019; Kaiser, 1960).

**Table 11: Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test Results for Relevance of IGPs**

Variable	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	Bartlett's Test of Sphericity		
		Approx. Chi-Square	df	Sig.
Relevance of IGPs	.692	904.234	15	.000

*Source: Survey Data (2025)*

#### 4.4.1.4 Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's test of sphericity for Effectiveness of IGPs

The results of Bartlett's test of sphericity for effectiveness of IGPs items presented in Table 12 were significant (approximated Chi-Square = 337.365, df = 15, p = .000). This shows that items for effectiveness of IGPs were able to produce a significant correlation matrix, which supports the formation of a clear and significant factor structure (Hair et al., 2019). Thus, they are appropriate for EFA. Furthermore, the findings showed that the KMO value for the effectiveness of IGPs was .755, which was greater than the threshold value of .50. This shows that the sample size was enough to support the conduction of EFA to the sustainability of IGPs items, and the resultant patterns of items support the formation of definite factors Thus, they were appropriate for EFA.

**Table 12: Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test Results for Budget Deficit Financing**

Variable	Kaiser-Meyer-Olkin Measure of Sampling Adequacy	Bartlett's Test of Sphericity		
		Approx. Chi-Square	df	Sig.
Budget Deficit Financing	.755	337.365	15	.000

*Source: Survey Data (2025)*

#### 4.4.1.5 Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's test of sphericity for Budget Deficit Financing

The results of Bartlett's test of sphericity for Budget Deficit Financing items presented in Table 13 were significant (approximated Chi-Square = 290.809, df = 15, p = .000).

This shows that items for budget Deficit Financing were able to produce a significant correlation matrix, which supports the formation of a clear and significant factor structure (Hair et al., 2019). Therefore, they were appropriate for EFA. Furthermore, the findings showed that the KMO value for budget deficit financing was .743, which was greater than the threshold value of .50. This showed that the sample size was enough to support the conduction of EFA to budget deficit financing items, and the resultant patterns of items support the formation of definite factors Thus, they were appropriate for EFA.

#### **4.4.2 Exploratory Factor Analysis for the Predictors**

The exploratory factor analysis was done for the independent variables first, the independent variables included three predictors including relevance of IGPs, effectiveness of IGPs, and sustainability of IGPs. Each item had six (6) items. All three variables had 18 items in total. All these items were examined using exploratory factor analysis with a sample of 303 respondents. Since not all the items were not adopted, it was necessary to conduct an exploratory factor analysis to identify which items are relevant to the variables being measured.

##### **4.4.2.1 Extraction Method Employed**

The principle component analysis method was used to extract the common factor model because statistical simulation studies provided evidence that such a method is useful in a study with a sample size of  $\geq 300$  if the data meet multivariate normality and the researcher has prior information about the number of factors to be extracted (Watkins, 2018). In this study, the data met multivariate normality (the probabilities calculated using cumulative distribution for Chi-square and Mahalanobis distance with a degree of freedom (3) were greater than 0.001), the sample size was 303, which is greater than

300, and the researcher had prior information about the number of factors to be extracted. Hence, all the conditions supported the use of the maximum likelihood extraction method.

#### **4.4.2.2 Interpretation of Factors**

In this study, a sample size exceeding 250 respondents, a 95% significance level and an 80% statistical power level were utilized. Indicators were selected based on a factor loading of  $\geq 0.35$ , as recommended by Hair et al. (2019). Factor loadings represented the correlation between each variable and the factor, with higher loadings indicating a stronger correspondence between the variable and the factor.

#### **4.4.2.3 Rotation Method Used**

To identify the underlying structure of the data, an Exploratory Factor Analysis (EFA) was conducted using the Varimax rotation method with Kaiser Normalization. This method was chosen to maximize the variance of squared loadings of a factor across variables, which simplifies the interpretation of the factors. The sample size for this study was greater than 250 respondents, ensuring adequate power for the analysis. A 95% significance level and a statistical power level of 80% were used. Indicators were selected based on a factor loading of  $\geq 0.35$ , as recommended by Hair et al. (2019).

The results of the EFA are presented in Table 11. The factor loadings indicate the correlation between each variable and the factor, with higher loadings suggesting a stronger correspondence.

#### **4.4.2.4 Number of Factors Retained**

To come up with a more plausible number of factors to be retained after EFA, several researchers suggested that such judgments can be made based on multiple methods (Ledesma & Valero-Mora, 2019; Yong & Pearce, 2013), as well as relevant theory and

prior research (Hair et al., 2019). Therefore, in this study, three methods, a priori criterion, percentage of variance, and latent roots or eigenvalues were used to judge the number of factors to be extracted. The first criterion to consider was the latent roots or eigenvalues. Based on this method, a factor to be retained must have latent roots or eigenvalues greater than 1 (Ledesma & Valero-Mora, 2019; Yong & Pearce, 2013). The second method was the percentage of variance criterion, in which the number of factors to be extracted needed to achieve 50% and above of the cumulative percentage of total variance extracted by successive factors to ensure practical significance.

Based on all the above-discussed criteria, three factors were extracted, each with latent roots or eigenvalues greater than 1. Additionally, the cumulative percentage of total variance extracted by all three factors was approximated at 53.846%, which is a high degree of total explained variance and implied that 53.846% of the eighteen (18) indicators are explained by the thirteen 13 items identified to measure three independent variables (sustainability of IGPs, relevance of IGPs and effectiveness of IGPs).

The three factors extracted were sustainability of IGPs, Relevance of IGPs and Effectiveness of IGPs that accounted for 31.520%, 11.404% and 10.922%, respectively of the total variance. In each of the extracted factors, all indicators had factor loading  $>.35$ , with the lowest being .571 Sustainability of IGP item two and the highest being .784 in Sustainability of IGPs item three, which proved the convergent and divergent validity of the indicators. Refer to appendix XII showing Table 4.11 that has the items retained for each independent variable, code and its factor loading values.

#### **4.5 Reliability for the Items During Pilot Study and Those Retained Factors After EFA**

Before Data Collection began, the questionnaire was piloted at the Open University of Tanzania to determine the reliability of the instrument. The findings on reliability was found to be 0.897. Furthermore, after identifying the number of factors extracted and the corresponding items in the main study, it was crucial to assess the reliability of each factor. Ensuring the reliability of the extracted factors is essential to guarantee consistent results in future applications (Cronbach et al., 1963; Watson, 2013). The reliability analysis results for each construct are presented in Table 12

##### **4.5.1 Reliability for the Sustainability of IGPs Items During Pilot Study Stage and After Factor Analysis in the Main Study**

The internal reliability coefficients for items during pilot study was found to be 0.779 for all six items of relevance, 0.758 for all six items for sustainability and 0.732 for all six items under effectiveness of IGPs. Therefore, all these were greater or equal to 0.7 which is the rule of thumb in most social science studies. Table 4.13 in Appendix XIII shows the Cronbach alpha for all items under relevance of IGPs when items are deleted

Table 14 shows the reliability of the factors during the main study. The findings show that the relevance and sustainability of IGPs had a Cronbach's Alpha greater or equal to 0.7 while effectiveness had 0.692, which is approximately 0.7 (Achour, 2017; Hussein, 2020). All these coefficients justified that the items for the factors were reliable and valid.

**Table 14: Reliability for the factors Retained During the Main Study After EFA in the Main Study**

<b>Factor</b>	<b>No. of items per factor</b>	<b>No. of Items Retained</b>	<b>Cronbach's Alpha</b>
Relevance of IGPs	06	05	.749
Sustainability of IGPs	06	04	.733
Effectiveness of IGPs	06	04	.692
<b>Total/Overall</b>	<b>18</b>	<b>13</b>	

**Source: Survey data (2024)**

#### **4.6 Assumptions of Hierarchical Multiple Regression**

Inferential statistics involves using sample data to draw conclusions or make predictions about a larger population. Since this study was guided by three hypotheses, inferential statistics helped the researcher to test hypotheses and draw conclusions about populations.

when the researcher collects data from a sample inferential statistic it allows him to estimate population parameters. The researcher was able to estimate the characteristics of the entire population based on sample statistics. To produce inferential statistics, hierarchical multiple linear regression was used as the study had more than one independent variable (relevance of the adopted IGPs, Effectiveness of the adopted IGPs, and sustainability of the adopted IGPs) and one dependent variable (Budget deficits financing). Furthermore, the justification for using hierarchical multiple regression in this study is that the researcher wanted to control the covariates in this study. Therefore, several key assumptions needed to be satisfied. The assumptions include the following:

##### **4.6.1 Linear Relationship**

The hierarchical multiple linear regression model assumes a linear relationship between each predictor variable (independent variable) and the response variable (dependent variable). This assumption was assessed by creating scatter plots for each predictor

variable against the response variable, the points roughly fell along a straight diagonal line, proving that a linear relationship likely exists. Fig. 4.1, 4.2, and 4.3 shows the linearity between independent variables and dependent variables.

#### 4.6.2 Multicollinearity

The second assumption is the absence of multicollinearity. Multicollinearity occurs when predictor variables are highly correlated with each other. To avoid this, the researcher ensured that none of the predictor variables exhibited strong correlations because high multicollinearity can lead to unreliable coefficient estimates in the model. Variance Inflation Factor and Tolerance were used to test for Multicollinearity. Table 15 presents the findings on the Variance Inflation Factor and Tolerance values.

**Table 15: Test for Multicollinearity (Tolerance and VIF)**

<b>Factors</b>	<b>Tolerance</b>	<b>VIF</b>
Relevance of IGPs	.515	1.941
Effectiveness of IGPs	.453	2.209
Sustainability of IGPs	.672	1.488

**Source: Survey Data (2025)**

#### 4.6.3 Independence of Errors

This assumption states that the residuals (differences between observed and predicted values) should be independent. Autocorrelation (dependence between residuals) is undesirable. Independence ensures reliable statistical inferences. This study used the Durbin-Watson test to test for independence of errors. The Durbin-Watson test was used to assess autocorrelation (also known as serial correlation) in the residuals of a regression model. It detects whether there is a systematic pattern of correlation between consecutive residuals (errors) in time-ordered data (Tillman, 1975). The Durbin-Watson statistic (DW) ranges from 0 to 4. Values close to 2 indicate no significant autocorrelation (residuals are independent). Furthermore, values significantly below 2

suggest positive autocorrelation (residuals tend to be similar to their neighbors). Values significantly above 2 suggest negative autocorrelation (residuals tend to alternate in sign). According to Chen (2016), if DW is close to 2 (around 1.5 to 2.5), it supports the assumption of independent errors. Lastly, if  $DW < 2$  indicates positive autocorrelation (common in time series data) while  $DW > 2$  indicates negative autocorrelation (less common).

**Table 16: Autocorrelation Test**

Model	R	Durbin-Watson
1	.811 <sup>a</sup>	1.672

**Source: Survey Data (2025)**

From Table 16, the Durbin–Watson statistic was found to be 1.672, a value that lies close to the benchmark of 2, which represents no autocorrelation between residuals. According to Chen (2016), Durbin–Watson values between 1.5 and 2.5 generally indicate that the assumption of independent errors has not been violated in regression analysis. Therefore, the obtained value of 1.672 suggests that there is no strong evidence of either positive or negative autocorrelation, confirming that the residuals are independent. This supports the validity of the regression model and indicates that the error terms do not follow any systematic pattern.

#### 4.6.4 Homoscedasticity

The residuals should have constant variance across all levels of the predictor variables (Ilori & Tanimowo, 2022). In other words, the spread of residuals should remain consistent throughout the model.

Null Hypothesis (H<sub>0</sub>): The variance of residuals is constant.

**Table 17 Breusch-Pagan Test for Homoscedasticity**

<b>Breusch-Pagan Test for Heteroskedasticity<sup>a,b,c</sup></b>		
Chi-Square	Df	Sig.
.296	1	.586

a. Dependent variable: Budget deficit Financing in Public Universities in Tanzania

b. Tests the null hypothesis that the variance of the errors does not depend on the values of the independent variables.

c. Predicted values from design: Intercept + Relevance of IGPs + Effectiveness of IGPs + Sustainability of IGPs + Relevance of IGPs \* Effectiveness of IGPs + Relevance of IGPs \* Sustainability of IGPs + Effectiveness of IGPs \* Sustainability of IGPs + Relevance of IGPs \* Effectiveness of IGPs \* Sustainability of IGPs

The results presented in Table 17 indicate that  $p > 0.05$ , meaning there was insufficient statistical evidence to conclude that the variance of residuals differed significantly across the levels of the independent variables. In regression diagnostics, a non-significant p-value (greater than 0.05) in tests for variance equality such as Levene's test, the Breusch–Pagan test, or the White test typically implies that the assumption of homoscedasticity has been met (Yang, Tu, & Chen, 2019). Scholars such as Nimon (2012) and Bobbitt (2021) similarly emphasize that when  $p > 0.05$ , researchers reasonably assume constant error variance, as there is no statistical basis to infer the presence of heteroscedasticity.

Therefore, based on the non-significant results in Table 17, the study assumed homoscedasticity in the hierarchical multiple linear regression model. This confirms that the residuals exhibited constant variance, supporting the reliability and validity of the regression estimates.

#### **4.6.5 Multivariate Normality**

The residuals of the model should follow a normal distribution. Normality ensures accurate confidence intervals and hypothesis tests. To test for normality, Kurtosis and skewness were essential statistical measures used to assess the distribution of data and determine its departure from normality. Skewness measures the asymmetry of a distribution. A perfectly symmetric (normal) distribution has a skewness of 0. Positive

skewness (skewed to the right) indicates a longer tail on the right side, with more data points in the left (lower) values. Furthermore, negative skewness (skewed to the left) indicates a longer tail on the left side, with more data points in the right (higher) values. Deviations from zero skewness suggest non-normality, which can impact statistical tests (e.g., regression analysis, t-tests, ANOVA) that assume normality.

For a perfectly symmetric normal distribution, skewness should be close to 0. A common rule of thumb is that skewness within the range of -1 to +1 is acceptable for normality. More extreme values (farther from 0) suggest a departure from normality. Furthermore, for a normal distribution, kurtosis is 0 (mesokurtic). Acceptable kurtosis values vary, but typically: between -2 and +2 indicates near-normality (mesokurtic). Values outside this range (high positive or negative kurtosis) may indicate a departure from normality.

Table 18 presents the findings on Kurtosis and Skewness tests for normal distribution.

**Table 18: Skewness and Kurtosis for Normality Test**

	N Statistic	Mean Statistic	Skewness		Kurtosis	
			Statistic	Std. Error	Statistic	Std. Error
Budget Deficit financing	303	3.4246	-.187	.140	-.250	.279
Valid N (listwise)	303					

**Source: Survey data (2025)**

Table 18 presents the results of the normality assessment conducted using skewness and kurtosis values. The analysis revealed a skewness value of  $-0.187$ , which falls within the commonly accepted range of  $-1$  to  $+1$ , indicating that the distribution does not deviate substantially from normality (George & Mallery, 2010). A skewness of  $-0.187$  suggests a slightly left-skewed distribution, meaning that the data have a longer tail on the negative side, with more observations concentrated on the higher (right-side) values. In the context of budget deficit financing, this implies that smaller deficits occur

more frequently, while larger deficits are relatively fewer an expected pattern in many public finance datasets where extreme fiscal imbalances are less common.

Similarly, the kurtosis value of  $-0.250$  lies within the recommended range of  $-2$  to  $+2$  for assuming normality (Kim, 2013). A kurtosis value near zero indicates a mesokurtic distribution, reflecting a moderate peak and tails comparable to a standard normal curve. This suggests that the distribution of budget deficit financing values does not exhibit abnormal peakedness or excessively heavy tails. In practical terms, this means that the data points are reasonably dispersed around the mean without excessive clustering or extreme values.

Taken together, the skewness and kurtosis results indicate that the dataset for budget deficit financing is approximately normally distributed, with only a mild left skew that is well within acceptable limits for parametric analysis. Therefore, the normality assumption was not violated, supporting the suitability of further inferential analyses such as regression.

#### **4.7 Descriptive Statistics on the Variables Under Study**

Since the current study on the performance of income-generation projects on financing budget deficits in public universities in Tanzania was conducted using inferential statistics, descriptive statistics were supposed to be presented before presenting the inferential statistics because descriptive statistics serve as the foundation for all data analysis. Before diving into inferential statistics, it was essential to understand the nature of the collected data. Furthermore, descriptive statistics summarize and describe the basic features of a dataset. They provide insights into central tendencies (mean, median, mode) and dispersion (range, variance, standard deviation). By grasping these fundamental characteristics, they guided the researcher to gain a clearer understanding of what the data represented. The exploration of descriptive statistics informed

subsequent analyses and hypothesis testing. Descriptive statistics create the context for inferential analyses. They allowed the study to compare sample statistics (from the dataset) to population parameters (the larger group the researcher was interested in). Without this context, interpreting inferential results becomes challenging.

Table 19 and 20 present the descriptive statistics on the variables and the correlation coefficients between the independent variables and dependent variables, respectively.

#### 4.7.1 Standard Deviation and Mean Response

**Table 4.19 Descriptive Statistics**

Study Variables	Mean	Std. Deviation	N
Budget Deficits Financing	3.3616	.80196	303
Relevance of the income-generation projects	3.4578	.76210	303
Effectiveness of the income-generation projects	3.3675	.77680	303
Sustainability of the income-generation projects	3.4246	.70250	303

**Source: Survey Data (2025)**

Table 19 presented the descriptive statistics for the variables under study. The findings show that the average relevance of income-generation projects was found to be approximately 3.46, and the standard deviation for the relevance of the adopted income-generation projects scores varied around the mean by approximately 0.76. On average, respondents perceive the relevance of income-generation projects on financing budget deficits positively, but there is some variability in their opinions.

Furthermore, the average effectiveness of the adopted income-generation projects score is around 3.37. The Standard Deviation for the effectiveness of the adopted income-generation project scores has a wider spread, with a standard deviation of approximately 0.78. Respondents' opinions on project effectiveness show more variability compared to relevance. The average sustainability of the adopted income-generation projects score is approximately 3.42. The standard deviation for the sustainability of the adopted income-generation projects scores towards financing budget deficits in public

universities has the highest variability, with a standard deviation of about 0.70. Sustainability perceptions vary significantly among respondents.

When considering the dependent variable (Budget deficit financing), the average budget deficit financing score was approximately 3.36. The standard deviation for the dependent variable (Budget deficit financing in public universities) was found to be 0.8, budget deficit financing perceptions vary significantly among respondents. The total sample consisted of 303 respondents. This larger sample size generally provided more reliable estimates of population characteristics. Generally, while income-generation projects are perceived positively in terms of relevance, effectiveness, and sustainability towards financing budget deficits in public universities in Tanzania, there is notable variation in respondents' opinions.

**Table 20: Relationship Between Variables of the Study**

S/N	Variable	N	1	2	3	4
1	Budget Deficits Financing	303	1.000			
2	Relevance of IGPs	303	.440**	1.000		
3	Effectiveness of IGPs	303	.360**	.400**	1.000	
4	Sustainability of IGPs	303	.769**	.404**	.390**	1.000

Notes \*  $p \leq .1$ , \*\*  $p \leq .05$ , \*\*\*  $p \leq .001$ ,

**Source: Survey Data (2024)**

Table 20 presents the findings on correlations between the variables under study. Pearson correlation assesses the linear relationship between two continuous variables. In the current study; relevance, effectiveness, sustainability, and budget deficit financing were all continuous variables. Pearson correlation provided information about the strength (magnitude) and direction (positive or negative) of the relationship. Pearson correlation assumes that the relationship is linear and that the variables follow a bivariate normal distribution. As long as these assumptions hold reasonably well, the Pearson correlation was suitable.

Based on the findings in Table 20, there was a significant positive relationship between budget deficit financing and the relevance of IGPs ( $r = 0.440$ ,  $p = .000$ ). This implies that as the relevance of IGPs increases, budget deficit financing tends to increase (but not necessarily causally). However, the strength of this relationship is moderate, not very strong. Furthermore, there was a significant positive relationship between the effectiveness of IGPs and budget deficit financing ( $r=0.360$ ,  $p=.000$ ). This implies that when effectiveness improves, budget deficit financing is more likely to increase. This correlation was weaker than the one for relevance. Lastly, there was a high positive correlation coefficient between the sustainability of IGPs and budget deficit financing in public universities ( $r=0.769$ ,  $p=.000$ ). This implied that as sustainability increases, budget deficit financing tends to increase significantly. Sustainability appeared to be a critical factor influencing budget deficits because the strongest correlation was with sustainability. Universities should prioritize sustainable income-generation projects to address budget deficits effectively. While relevance and effectiveness matter, their impact is less pronounced compared to sustainability.

#### **4.7.2 The Pearson correlation coefficients between the variables**

##### **4.7.2.1 Relevance and Effectiveness**

The correlation between relevance and effectiveness was found to be positive. The significant positive correlation coefficient ( $r=0.400$ ,  $p<0.05$ ) indicated a moderate positive linear relationship between relevance and effectiveness. This implied that when relevance increases, effectiveness tends to increase moderately as well. This suggests that income-generation projects perceived as relevant in public universities in Tanzania are more likely to be moderately effective.

#### **4.7.2.2 Relevance and Sustainability**

The correlation between Relevance and Sustainability was found to be positive. The significant positive correlation coefficient ( $r=0.404$ ,  $p<0.05$ ) suggests a moderate positive linear relationship between relevance and sustainability. This relationship implied that as relevance increases, sustainability also tends to increase moderately.

#### **4.7.2.3 Sustainability and Effectiveness**

The significant positive correlation coefficient ( $r=0.390$ ,  $p<0.05$ ) indicated a moderate positive linear relationship between the sustainability of IGPs and the effectiveness of IGPs. This implied that when income-generation projects are sustainable, they are more likely to be effective. Sustainability contributes to income-generation projects' success in financing budget deficits in public universities.

These correlations suggested that relevance of IGPs, sustainability of IGPs, and effectiveness of IGPs are interconnected. These correlations also may mean that universities should focus on projects that are both relevant and sustainable to achieve better performance in financing budget deficits. Balancing these factors is crucial for successful income-generation projects in public universities.

### **4.8 Presentation of Quantitative Findings**

#### **4.8.1 Results of Hierarchical Multiple Linear Regression Analysis**

To examine the impact of the relevance, effectiveness, and sustainability of income-generation projects on financing budget deficits in public universities in Tanzania, while controlling for the universities' age of operation and size (in terms of the number of students), a hierarchical multiple linear regression analysis was conducted. The study was performed in two steps:

Step 1: The covariates (universities' age of operation and size) were entered into the regression model.

Step 2: The main independent variables (relevance, effectiveness, and sustainability of income-generation projects) were added to the model.

### **Step 1: Control Variables**

In the first step, the control variables (universities' age of operation and size) were entered into the regression model. The results indicated that the age of operation was not a significant predictor of financing budget deficits ( $\beta = 0.098$ ,  $p = 0.206$ ). However, the size of the university was found to be a significant predictor ( $\beta = 0.245$ ,  $p = 0.002$ ), suggesting that larger universities are more likely to have better financing for budget deficits. The model explained 10.4% of the variance in financing budget deficits ( $R^2 = 0.104$ , adjusted  $R^2 = 0.098$ ), with an R-value of 0.322. The change in  $R^2$  was significant ( $R^2$  change = 0.104, F-change = 17.354,  $p < 0.001$ ). The findings suggested that larger universities are better at financing budget deficits could imply that these institutions benefit from economies of scale, more diverse revenue streams, or better access to financial resources. Smaller universities might need to explore alternative funding strategies or partnerships to improve their financial stability. Therefore, the size of the university was controlled in the model and the real impact of the sustainable IGP was examined.

### **ANOVA Results for Model One**

The findings showed that the regression had a Sum of Squares = 15.455, Mean Square = 7.727, F-value = 17.354,  $p < 0.001$ . Furthermore, the Residual had a Sum of Squares = 133.583, Mean Square = 0.445. Sum of Squares (Regression) value (15.455) represents the total variation in financing budget deficits explained by the control

variables (universities' age of operation and size). The Mean Square (Regression) shows the average variation explained by the regression model (7.727). The F-value (17.354) tests the overall significance of the regression model. A high F-value indicated that the model explains a significant portion of the variance in the dependent variable. The p-value ( $< 0.001$ ) indicated that the model was statistically significant, meaning the control variables collectively have a significant impact on financing budget deficits. These findings are summarized in Table 4.22.

### **Step 2: Main Independent Variables**

The second step added the relevance, effectiveness, and sustainability of income-generation projects to the model. The results showed that the relevance of income-generation projects significantly predicted financing budget deficits ( $\beta = 0.123$ ,  $p = 0.003$ ), indicating that more relevant projects contribute positively to financing budget deficits.

The effectiveness of income-generation projects was not a significant predictor ( $\beta = 0.002$ ,  $p = 0.956$ ), suggesting that the perceived effectiveness of these projects does not significantly impact the financing of budget deficits. Furthermore, the sustainability of income-generation projects was a highly significant predictor ( $\beta = 0.694$ ,  $p < .001$ ), highlighting that sustainable projects substantially positively impact financing budget deficits.

Adding these variables significantly improved the model, explaining 63.4% of the variance in financing budget deficits ( $R^2 = 0.634$ , adjusted  $R^2 = 0.628$ ), with an R-value of 0.796. The change in  $R^2$  was substantial ( $R^2$  change = 0.530, F-change = 143.348,  $p < .001$ ).

### **ANOVA Results for Model Two**

The study found that Regression was significant (Sum of Squares) = 94.469, Mean Square = 18.894, F-value = 102.83,  $p < .001$ . Furthermore, the Residual (Sum of Squares) = 54.569, Mean Square = 0.184. This value (94.469) represented the total variation in financing budget deficits explained by both the control variables and the main independent variables (relevance, effectiveness, and sustainability of income-generation projects). The Mean Square (Regression) is the average variation explained by the regression model (18.894). Lastly, the F-value (102.83) tested the overall significance of the regression model. A very high F-value indicates that the model explains a substantial portion of the variance in the dependent variable. The p-value ( $< 0.001$ ) indicates that the model was statistically significant, meaning the main independent variables, along with the control variables, collectively have a significant impact on financing budget deficits.

The significant impact of the relevance and sustainability of income-generation projects suggests that universities should prioritize projects that are closely aligned with their core mission and long-term viability. This could involve focusing on projects that not only generate income but also enhance the university's educational and research capabilities. The lack of significance for the effectiveness of these projects might indicate that simply having effective projects is not enough; their relevance and sustainability are crucial for financial stability. These findings are summarized in tables 4.21, 4.22, 4.23. The significant impact of the relevance and sustainability of income-generation projects suggests that universities should prioritize projects that are closely aligned with their core mission and long-term viability. This could involve focusing on projects that not only generate income but also enhance the university's educational and research capabilities. The lack of significance for the effectiveness of these projects

might indicate that simply having effective projects is not enough; their relevance and sustainability are crucial for financial stability.

The hierarchical multiple linear regression analysis revealed that the size of the university and the sustainability of income-generation projects were significant predictors of financing budget deficits in public universities in Tanzania. Specifically, the sustainability of income-generation projects remained a strong predictor even after accounting for the effects of the universities' age of operation and size, underscoring its critical role in addressing budget deficits.

These findings show the importance of strategic planning in income-generation activities. Public universities in Tanzania should consider the long-term sustainability and relevance of their projects to ensure they contribute effectively to financial stability. Additionally, smaller universities may need to adopt innovative approaches or seek collaborations to enhance their financial resilience.

**Table 21: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Change Statistics			Sig. F Change
						F Change	df1	df2	
1	.322 <sup>a</sup>	.104	.098	.66729	.104	17.354	2	300	.000
2	.796 <sup>b</sup>	.634	.628	.42864	.530	143.348	3	297	.000

a. Predictors: (Constant), Size of the University in terms of the number of students, University's Age of Operation

b. Predictors: (Constant), Size of the University in terms of the number of students, University's Age of Operation, Sustainability, Effectiveness, Relevance

**Source: Survey Data (2025)**

**Table 22 ANOVA Results**

		ANOVA <sup>a</sup>				
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	15.455	2	7.727	17.354	.000 <sup>b</sup>
	Residual	133.583	300	.445		
	Total	149.038	302			
2	Regression	94.469	5	18.894	102.832	.000 <sup>c</sup>
	Residual	54.569	297	.184		
	Total	149.038	302			

a. Dependent Variable: Budget Deficit Financing

b. Predictors: (Constant), Size of the University in terms of the number of students, University's Age of Operation

c. Predictors: (Constant), Size of the University in terms of the number of students, University's Age of Operation, Sustainability, Effectiveness, Relevance

**Table 23: Coefficients for the Variables under Study**

		Coefficients <sup>a</sup>			T	Sig.
Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta		
1	(Constant)	1.854	.324		5.719	.000
	University's Age of Operation	.155	.123	.098	1.268	.206
	Size of the University in terms of the number of students	.364	.116	.245	3.151	.002
2	(Constant)	.053	.229		.233	.816
	University's Age of Operation	.205	.079	.130	2.581	.010
	Size of the University in terms of the number of students	.046	.076	.031	.604	.546
	Relevance of IGPs	.108	.036	.123	3.022	.003
	Effectiveness of IGPs	.002	.037	.002	.055	.956
	Sustainability of IGPs	.628	.036	.694	17.278	.000

a. Dependent Variable: Budget Deficit Financing in Public Universities

The study was about the performance of income-generation projects on financing budget deficits in public universities in Tanzania by assessing the relationship between relevance, effectiveness, sustainability of income-generation projects and financing budget deficits in public universities.

The null hypotheses of the current study were;

**H<sub>0</sub>1:** There is no significant relationship between relevance of IGPs and financing budget deficits controlling for covariates

**H<sub>0</sub>2:** There is no significant relationship between effectiveness of IGPs and financing budget deficits controlling for covariates

**H<sub>0</sub>3:** There is no significant relationship between sustainability of IGPs and financing budget deficits controlling for covariates

The findings are presented based on objectives then the conclusions about the hypothesis were made.

#### **4.8.1.1 Relevance of Income-generation Projects on Financing Budget Deficits in Public Universities in Tanzania**

The first objective of the current study was to examine the relationship between the relevance of the income-generation projects and budget deficit financing in public universities in Tanzania by examining to what extent does relevance of these projects contributes to addressing financial shortfalls within public universities in Tanzania. This objective was guided by the null hypothesis “*There is no significant relationship between the relevance of the adopted IGPs and financing budget deficit among public universities in Tanzania controlling for the covariates.*” This hypothesis was tested at a 95% confidence level yielding a p-value=0.05 that was used as a significance level.

Table 23 shows that the relevance of the adopted IGPs has a standardized coefficient ( $B=0.108$ ,  $p < .05$ ). This coefficient represents the change in the dependent variable (budget deficit financing) associated with a one-unit change in the relevance of adopted IGPs, holding other predictors constant. This means that a one-unit change in the

relevance of the adopted income-generation projects is associated with a 0.108 significant increase in budget deficit financing in public universities in Tanzania.

Based on the current study findings, the study concluded that relevance of the adopted income-generation projects has a statistically significant impact on budget deficits ( $p=0.003$ ). The positive unstandardized coefficient (0.108) suggested that as the relevance of IGPs increases, budget deficit financing tends to increase. The null hypothesis was rejected. There is evidence of a relationship between relevance and budget deficits, but it is not very strong.

#### **4.8.1.2 Effectiveness of Income-generation Projects on Financing Budget Deficits in Public Universities in Tanzania Controlling for Covariates**

The second objective of the current study was to examine the relationship between the effectiveness of the income-generation projects and budget deficit financing in public universities in Tanzania by examining to what extent does effectiveness of these projects contributes to addressing financial shortfalls within public universities in Tanzania. This objective was guided by the null hypothesis “*There is no significant relationship between the effectiveness of the adopted IGPs and financing budget deficit among public universities in Tanzania.*” This hypothesis was also tested at a 95% confidence level yielding a  $p\text{-value}=0.05$  that was used as a significance level.

Table 23 shows that the effectiveness of the adopted IGPs had insignificant unstandardized coefficient ( $B=0.002; p>.05$ ). This means that a one-unit change in the effectiveness of the adopted income-generation projects is associated with a 0.002 insignificant increase in budget deficit financing in public universities in Tanzania.

Since the study found that effectiveness of IGPs does not significantly impact budget deficit financing statistically, the study concluded that there was insufficient evidence

to suggest a relationship between the effectiveness of the adopted IGPs and budget deficit financing. Therefore, the null hypothesis was not rejected.

#### **4.8.1.3 Sustainability of Income-Generation Projects on Financing Budget Deficits in Public Universities in Tanzania**

The third objective of the current study was to examine the relationship between the sustainability of the adopted income-generation projects and budget deficit financing in public universities in Tanzania by examining to what extent does sustainability of these projects contributes to addressing financial shortfalls within public universities in Tanzania. This objective was guided by the null hypothesis *“There is no significant relationship between the sustainability of the adopted IGPs and financing budget deficit among public universities in Tanzania.”* This hypothesis was also tested at a 95% confidence level yielding a p-value=0.05 that was used as a significance level.

Table 23 shows that the sustainable IGPs had an unstandardized coefficient of .628. This means that a one-unit change in the sustainability of the adopted income-generation projects is associated with significant increase (B=.628, p<. 05) on budget deficit financing in public universities in Tanzania.

The overall findings suggest that relevance and sustainability are statistically significant (p < 0.05), while effectiveness is not significant as its p-value is greater than 0.05.

Furthermore, the relevance of the adopted income-generation projects has a T-statistic= 2.378, effectiveness of the adopted income-generation projects has a T-statistic = 0.365. The sustainability of the income-generation project had a T-statistic= 18.105. The t-statistics measure how many standard errors the coefficients are away from zero. Larger absolute t-values indicate stronger evidence against the null hypothesis. The T-Statistic for relevance and sustainability was large indicating that there was strong evidence

against the null hypothesis. In contrast, a small T-Statistic for effectiveness stated that there was weak evidence against the null hypothesis.

All three variables (relevance, effectiveness, and sustainability) had the following standard Errors: relevance = 0.057, effectiveness = 0.053, and sustainability = 0.039. Standard errors estimate the variability of the coefficients. Based on these small values, it indicated that relevance, effectiveness, and sustainability were more precise estimates of the dependent variable (budget deficit financing).

All three variables had the following standardized coefficients ( $\beta$ ); relevance of IGPs on financing budget deficits in public universities had a standardized coefficient of 0.123, effectiveness was 0.002, and sustainability was found to be 0.694. Standardized coefficients allow comparison of the relative importance of predictors. Sustainability had the largest impact (highest beta) on budget deficits. To conclude; sustainability appeared to be the most influential factor in explaining budget deficits. Relevance also plays a role, but effectiveness does not significantly impact budget deficits.

Since the statistical analysis indicated that sustainability significantly impacts budget deficit financing ( $B=0.628$ ,  $p=.000$ ;  $\beta=0.694$ ), the null hypothesis was rejected. The unstandardized coefficient of 0.628 showed a notable effect, and the high standardized coefficient (beta) of 0.694 confirmed that sustainability strongly influences the financing of budget deficits in public universities in Tanzania. These results imply that improving sustainability practices could be crucial in managing and mitigating budget deficits in public universities.

Sustainability was found to be a critical factor affecting budget deficit financing in public universities in Tanzania. Generally, sustainability is the most influential predictor, while relevance has a moderate impact. Effectiveness, however, does not

significantly contribute to budget deficits. These quantitative findings mean that relevance and sustainability factors must be considered when designing strategies for managing budget deficits in Tanzanian public universities.

#### 4.8.2 Summary of the Tested Hypothesis

The three-hypothesis testing guided the quantitative findings. Hierarchical multiple linear regression was used in the analysis, and decisions about the hypotheses were based on a 95% significance level, yielding  $\alpha = 0.05$ . The following is the summary of the decision about the hypothesis.

**Table 24: Summary of the Decision of the Hypothesis**

Code	Hypothesis	Decision
H <sub>01</sub>	There is no significant relationship between the relevance of IGPs and financing budget deficits, controlling for covariates	Rejected
H <sub>02</sub>	There is no significant relationship between the effectiveness of IGPs and financing budget deficits, controlling for covariates	Failed to Reject Null Hypothesis
H <sub>03</sub>	There is no significant relationship between the sustainability of IGPs and financing budget deficits, controlling for covariates	Rejected

**Source: Survey Data (2025)**

#### 4.9 Transition to Qualitative Data Collection and Analysis

The first phase of this study examined quantitative data, revealing that relevance and sustainability of income-generation projects (IGPs) significantly influenced their success in financing budget deficits in Tanzanian public universities. However, the findings also showed that effectiveness of IGPs had no meaningful impact. While these results provided valuable statistical insights, they did not explain why relevance and sustainability played such a crucial role, or why effectiveness did not contribute significantly to financial outcomes.

To gain a deeper understanding, the study followed an explanatory sequential design, moving into the qualitative phase. This phase aimed to explore the experiences,

perspectives, and decision-making processes of university administrators, project managers, and financial officers, offering insight into the realities behind the numbers. Through semi-structured interviews, participants shared their views on why relevance enhances stakeholder engagement and financial support, how sustainability ensures long-term viability, and what institutional barriers limit the effectiveness of IGPs despite their operational functionality.

By incorporating these perspectives, the qualitative phase provides a more detailed explanation of the relationships identified in the quantitative findings. The next section presents the qualitative results, organized into major themes that emerged during analysis. These themes offer a deeper look at how universities manage external dependencies, navigate financial challenges, and refine their income-generation strategies to prioritize relevance and sustainability over operational effectiveness.

#### **4.10 Presentation of the Qualitative Findings**

The fourth objective of the current study was to explore the perceptions and experiences of some university stakeholders regarding the relevance, effectiveness, and sustainability of income-generation projects in financing budget deficits in public universities in Tanzania. This objective aimed at explaining the quantitative findings. Since the findings for objectives one, two and three in the quantitative phase showed that relevance and sustainability of IGPs were significant factors determining the success of IGPs in financing budget deficit in public universities in Tanzania, while the effectiveness of IGPs was found insignificant factor, the fourth objective focused on exploring why relevance and sustainability were found significant factors while effectiveness of IGPs being insignificant.

#### 4.10.1 A Significant Relevance of IGPs

In the quantitative phase, relevance was found to be a significant factor that makes IGPs successful in financing budget deficits in public universities ( $\beta=0.108$ ,  $p < 0.05$ ). . In the qualitative phase, the study explored more through interviews about the perceptions of the respondents on the relevance of income generation projects (IGPs) in financing budget deficits in public universities. The insights provided were organized into three key themes: alignment with budget deficit financing, extent of contribution, and proportion financed. The findings provided a comprehensive understanding of why IGPs were perceived as significant in addressing budgetary challenges during the quantitative phase.

##### **Theme 1: Alignment with Budget Deficit Financing**

Respondents consistently emphasized that IGPs are well-aligned with efforts to reduce budget deficits. Their insights showed that IGPs in their universities were designed to address existing financial gaps while simultaneously supporting the objectives of the universities. As one academic staff member articulated, *“The relevance of these projects is clear, they directly address our pressing funding needs”* (Mkato, AS1). Another respondent noted, *“Income generation projects are a lifeline for the university; without them, our operations would be severely impacted”* (Jum, AS2). Additionally, one administrator remarked, *“These projects resonate strongly with our financial objectives, bridging the gap between the ideal budget and actual funds available”* (Mwansa, UA2).

This alignment is crucial for reinforcing the significance and viability of these institutions. As one University administrator remarked, *“Our initiatives are closely aligned with the university’s mission to improve educational standards and foster*

*research, which is why they maintain their relevance and sustainability.*” – [Mkwaju, UA1]

This quote from the respondent showed the important link between IGPs and universities' fundamental goals, demonstrating how these initiatives not only enhance budget deficit financing but also promote research advancement in public universities.

In higher education, income-generation projects (IGPs) are essential for supporting the strategic goals of universities and ensuring their sustainability and relevance.

Another respondent said, *“Income-generation projects extend beyond just financial profits; they are essential for connecting our educational initiatives with the needs of the community, which validates their importance.”* – [Nwosu, UA2]

This statement emphasized that the value of IGPs goes far beyond generating revenue. It indicates that these projects play a vital role in aligning the goals of universities with community expectations, thus ensuring their relevance and supporting the overall mission of the institution. In justifying this theme, another university administrator said, *“Although some initiatives may not demonstrate immediate results, their contribution to the university's financial well-being over time is unmistakable. They are vital for addressing budgetary challenges.”* – [Kabanga, UA3]

The respondent acknowledged that certain IGPs may lack immediate effectiveness but pointed out their long-term financial benefits. This perspective highlights the necessity of maintaining these projects, suggesting they are crucial assets in managing the financial landscape of public universities, regardless of short-term performance.

Another respondent had this to say, *“In essence, IGPs not only fill financial voids but also advance our commitment to academic excellence and research initiatives.”* – [Menza, UA4]

This observation summarized the dual role of IGPs as both financial solutions and drivers of academic progress. It illustrates how these projects not only help alleviate budget deficits but also contribute to fostering an environment that promotes educational quality and research advancements, reinforcing their importance in the public university context.

The qualitative insights insisted that such alignment is vital, as it emphasizes how IGPs contribute directly to enhancing both educational standards and research capabilities by reducing the budget deficit in public universities. This connection is crucial because it illustrates that without aligning these projects with the university’s core mission, their impact may be limited or short-lived on budget deficit financing.

In the quantitative analysis, the significance of sustainability and relevance emerged as key factors determining the performance of these initiatives. Data revealed that IGPs that align with institutional goals demonstrate higher levels of support and funding, indicating that stakeholders are more willing to invest in projects that are perceived as beneficial to the university’s mission. According to Mkwaju (UA1), the alignment between the IGPs and financing budget deficits in public universities secures necessary resources and fosters a sense of community and purpose among faculty, staff, and students involved in these initiatives.

Furthermore, the respondents' insights continued to insist on the significance of stakeholder involvement in the success and sustainability of income-generating projects (IGPs) at the university. Respondents emphasised that active participation from both

faculty and community members is crucial for aligning projects with local needs and securing ongoing support.

One respondent, an accountant at the university, noted, *“When the community collaborates with us in the planning stages, it creates a sense of ownership and trust, which is essential for long-term financial sustainability.”* - [Alex: UA<sub>c1</sub>]

Additionally, an academic staff member emphasized the impact of this involvement, stating, *“Engaging faculty and community members ensures our projects are relevant and supported, leading to a greater likelihood of continued financial backing.”* - [Jamie, FM5]

## **Theme 2: Extent of Contribution**

Some respondents highlighted the noticeable contribution that IGPs make toward financial stability in public universities. They perceived IGPs as critical tools to alleviate financial strain, even though they acknowledged that such projects do not completely resolve all budgetary challenges. One respondent commented, *“Without IGPs, the financial strain would be unbearable, though they don’t cover everything”* (Suju, Acc3). Another participant observed, *“Their contribution is significant; they allow the university to maintain essential services even during tough times”* (Nasri, AS3). Similarly, a financial officer stated, *“The projects have become indispensable. They may not cover everything, but they offer relief where government funding falls short”* (Kida, Acc2). These findings indicated that IGPs serve as an essential financial mechanism to mitigate financial instability in public universities in Tanzania, despite their limitations.

### **Theme 3: Proportion Financed**

Interviews revealed that a significant proportion of budget deficits is financed through IGPs, particularly those that are integrated into academic or community-focused initiatives. This reinforced the IGP's perceived relevance as a means to bridge the gap between limited government funding and the actual financial needs of public universities in Tanzania. One university administrator explained, "*Relevance lies in their ability to bridge gaps between limited government funding and actual needs*" (**Katu, UA1**). Another respondent said, "*These projects contribute a substantial portion of our funding, especially in departments that generate income through partnerships and outreach programs*" (**ZayB, Acc4**). Additionally, one faculty member shared, "*The integration of income generation into academic programs has strengthened their impact, providing both financial and institutional benefits*" (**Makiri, AS4**). The integration of these projects into broader institutional initiatives further enhanced their contribution to addressing budgetary deficits in public universities.

The integration of the quantitative and qualitative findings provided a complete understanding of the role of income-generation projects (IGPs) in addressing budget deficits in public universities in Tanzania. The quantitative analysis showed a significant relationship between the relevance of IGPs and budget deficit financing. The results indicated that a one-unit change in the relevance of IGPs led to a 0.108 increase in budget deficit financing, which was statistically significant ( $\beta=0.108$ ,  $p < 0.05$ ). This explained that the more relevant the IGPs were, the more they contributed to reducing financial shortfalls in these universities.

The qualitative findings gave a deeper understanding of why IGPs were seen as important. Respondents explained that these projects were closely aligned with the

financial needs and goals of the universities. Many participants emphasized that IGPs not only filled funding gaps but also supported broader institutional missions, such as improving education and fostering research. For example, one university administrator mentioned that these projects bridged the gap between ideal budgets and actual resources, helping the universities remain sustainable.

By combining the two approaches, the study offered a clearer picture. The quantitative data showed the extent of the financial contribution, while the qualitative data explained how and why these projects worked. Themes like alignment with financial goals and stakeholder involvement played a key role in making IGPs successful. Respondents shared that having faculty and community involvement ensured the projects stayed relevant and gained support, which further strengthened their financial impact.

Participants also discussed the extent of the contribution of IGPs. They acknowledged that while these projects didn't solve all financial issues, they provided crucial relief in reducing the deficits. The proportion of funding provided by IGPs was another key point. Respondents noted that these projects often covered a significant part of operational needs, especially in areas like partnerships and outreach programs. This integration of IGPs into broader academic and community programs increased their financial and institutional value.

In general, the combination of quantitative and qualitative findings showed that IGPs played a dual role. They were important financial tools that helped reduce budget deficits and strategic initiatives that supported the universities' missions. This integration of evidence and perspectives demonstrated why IGPs were essential for the financial health and sustainability of public universities in Tanzania.

#### 4.10.2 An Insignificant Effectiveness of IGPs

In the quantitative phase, the effectiveness of income generation projects (IGPs) in financing budget deficits in public universities was found to be insignificant ( $B=0.002$ ;  $p>.05$ ). Interviews with respondents provided several justifications for this insignificance. These insights were organized into four key themes: budget deficit reduction rate, financial performance metrics, performance benchmarks, and ineffective management. These themes were presented below;

##### **Theme 1: Budget Deficit Reduction Rate**

Respondents reported that while IGPs helped reduce deficits to some degree, the reduction rate was insufficient to address the full scale of financial needs of public universities in Tanzania. This limitation contributed to the low perceived significance of IGPs in financing budget deficits. As one respondent noted, *“While these projects generate funds, the revenue is too inconsistent to make a real dent in deficits”* (Masa, AS2). This suggested that the irregularity in revenue generation from IGPs limits their ability to have a meaningful impact on budget deficits in public universities in Tanzania. Another respondent highlighted, *“The income generated is marginal compared to the overall budget deficit, making it difficult to rely on these projects as a primary solution”* (Hassan, UA2). The disparity between the funds generated by IGPs and the scale of financial needs underlined their limited significance. Additionally, a participant explained, *“Despite their potential, these projects fall short in terms of addressing the magnitude of financial gaps we face”* (Amani, Acc4). This reflected a mismatch between the expected and actual contributions of IGPs to deficit reduction in public universities.

## **Theme 2: Financial Performance Metrics**

Some respondents pointed to inconsistencies in income generation projects' outcomes, such as limited revenue generation and low profitability, which undermined their effectiveness. One participant stated, *“While these projects generate funds, the revenue is too inconsistent to make a real dent in deficits”* (Valu, ACC3). This remark illustrated that the fluctuating nature of revenue from IGPs hinders their reliability as a financial solution to public universities in Tanzania. Similarly, another respondent observed, *“The returns from some of these projects are so minimal that they hardly make a difference in balancing the books”* (Kato, AS1). This demonstrated that low profitability reduced the income generation projects' overall financial impact. A financial officer further noted, *“Profitability remains elusive, as many projects struggle to cover even their operating costs”* (Kidumu, Acc5). This explanation emphasized that the lack of consistent and substantial profits limited the effectiveness of IGPs in addressing budgetary concerns.

## **Theme 3: Performance Benchmarks**

Poor revenue consistency and failure to meet benchmarks like profitability were recurring themes in the respondents' feedback. One participant remarked, *“The financial outcomes fall short of expectations, mainly because of weak execution and oversight”* (Fatu, AS2). These perceptions showed how inadequate management practices hindered the income generation projects' ability to meet their financial targets in public universities. Another respondent emphasized, *“Effectiveness requires better strategy and monitoring, which is currently lacking”* (Ziko, Acc3). This reflected the need for improved planning and oversight to enhance the effectiveness of IGPs. Additionally, a university administrator stated, *“Our income generation efforts often fail to hit profitability benchmarks, which affects their overall impact on the budget”*

(Nasua, UA4). This quote highlighted that failing to meet expected performance standards diminishes the perceived effectiveness of IGPs in public universities.

#### **Theme 4: Ineffective Management**

Ineffective management was also identified as a significant factor in the limited effectiveness of IGPs in financing budget deficit in public universities. As one respondent noted, *“Our management of these projects often lacks the cohesion and focus needed to achieve meaningful results”* (Akini, UA3). This perception emphasized the need for improved coordination and leadership in overseeing IGPs in public universities in Tanzania. Another participant stated, *“There’s a disconnect between what is planned and what is executed, which reduces the impact of the projects”* (Mwema, AS1). These perceptions insisted that misalignment between planning and implementation hampers the effectiveness of Income generation projects in financing budget deficits in public universities. Additionally, one respondent shared, *“The leadership structure does not prioritize these projects adequately as some stakeholders are not involved, leaving them to fall short of their potential”* (Musa, Acc4). This observation pointed to leadership gaps as a major barrier to realizing the full potential of IGPs in financing financial gaps in public universities. Another respondent said, *“When faculty and community members invest their time and ideas into these projects, it ensures they are relevant and supported over time, unlike projects without such involvement.”* [Kumtima, FM1]

The qualitative findings emphasized the importance of active involvement of stakeholders, such as faculty and community members, in the planning and implementation of IGPs. This is supported by the respondent who said that,

*“This involvement ensures that projects are closely aligned with community needs, which directly impacts perceptions of relevance. When stakeholders see their voices reflected in the projects, they are more likely to advocate for continued financial support, thereby reducing the risk of budget deficits in public universities.”- [Omwojo, FM3].*

Furthermore, some respondents insisted that effectiveness should be tied to stakeholder engagement. Projects that have strong community backing often enjoy better funding prospects because they are seen as vital to the community’s well-being and economic health, particularly in public universities. This connection can lead to sustained financial commitments from both the community and external funding sources. When stakeholders perceive the project as sustainable, they are more willing to invest, reinforcing the financial framework needed to avoid deficits.

Other respondents said that institutional support is very important in order to strengthen the effectiveness of income generation projects in financing budget deficits in public universities in Tanzania. The qualitative findings revealed that the university administration's support fosters an environment where IGPs can thrive, impacting their relevance and sustainability and finally making the IGPs more effective. These qualitative findings provided insightful perspectives on the dynamics between institutional support and the effectiveness of income-generation projects (IGPs) within public universities. These insights helped to clarify the quantitative results, which indicated a significant relationship between the relevance and sustainability of IGPs and their impact on financing budget deficits. At the same time, the effectiveness of these projects showed an insignificant effect.

Respondents universally acknowledged that robust support from the university administration is essential for the success and sustainability towards financing budget deficits in public universities in Tanzania. One interviewee emphasized, “Our

*administration's support has been instrumental in allowing us to develop and maintain our income-generation projects. This backing is vital for their longevity, even if it doesn't directly lead to immediate effectiveness.*” [Jau, PM4]

This statement from the interviewee revealed the importance of institutional support in fostering an environment where IGPs can thrive over time, suggesting that while such backing strengthens their foundation, it may not directly enhance their operational efficiency or output (Effectiveness). Moreover, many respondents pointed out that IGPs prioritize sustainability and alignment with institutional goals over short-term financial returns. One participant noted, *“We focus on ensuring our projects have a long-term vision. While we may not see immediate income, we are building something that can last and adapt.”* [Mkwaju, PM1]

This perspective reinforced the quantitative findings about relevance and sustainability being significant for addressing budgetary challenges, indicating that the sustained existence of these projects contributes to the overall financial health of the university, albeit indirectly. Additionally, the qualitative findings revealed the challenges that IGPs often face, including resource limitations and operational inefficiencies, which can affect their effectiveness. Therefore, according to the insights from the respondents, the insignificance of the effectiveness of income-generation projects may be caused by challenges that IGPs tend to face in their operations. A respondent remarked, *“Even with administrative support, it can be tough to get everything running smoothly. Sometimes, projects struggle to generate the funds they were designed to.”* [Rata, PM3]

This observation reflected the qualitative dimension of the research, suggesting that institutional support, while crucial for sustainability, does not always translate directly

into effective financial outcomes. Furthermore, the qualitative findings clarified that institutional support is central to the relevance and sustainability of IGPs and helped to explain the quantitative results. While these projects can thrive with strong administrative backing, enhancing their structure and processes may be necessary to improve their overall effectiveness in generating income. This understanding indicated that for public universities to better finance budget deficits, a dual approach focusing on both support and project effectiveness is essential.

In addition, qualitative insights suggested that while universities' income-generation projects may demonstrate operational efficiency, this does not necessarily translate to community support or funding. If stakeholders fail to see the connection between project outcomes and their needs, they may perceive the project as ineffective, leading to the potential withdrawal of financial support. One faculty member said:

*"Even if the university's initiative appears to be functioning well in theory, if it fails to truly align with the genuine needs of our community, it doesn't quite hit the target. We need to witness tangible results; if we don't, what reason do we have to keep backing it?"*  
**[Omwojo, FM3]**

This perception insisted the idea that a project's financial backing is less about meeting specific goals and more about fostering ongoing engagement and community relevance. The qualitative findings enrich the quantitative analysis by demonstrating how the intertwined nature of relevance and sustainability through stakeholder engagement plays a crucial role in mitigating budget deficit financing challenges for IGPs.

Based on these findings, the integration of quantitative and qualitative findings helped to provide a clearer understanding of the relationship between the effectiveness of income-generation projects (IGPs) and budget deficit financing in public universities in Tanzania. The quantitative results indicated that the effectiveness of IGPs had an

insignificant impact on budget deficit financing, with an unstandardized coefficient ( $\beta=0.002$ ,  $p>0.05$ ). This suggested that changes in the effectiveness of IGPs did not significantly contribute to addressing financial shortfalls in public universities in Tanzania.

The qualitative findings offered explanations for this insignificance, showing themes such as budget deficit reduction rate, financial performance metrics, performance benchmarks, and ineffective management. Respondents consistently reported that while IGPs contributed to reducing budget deficits, the impact was minimal. Many noted that the funds generated were irregular and insufficient to meet the university's financial needs. For example, one respondent explained that although these projects generated some revenue, the amounts were too small and inconsistent to have a meaningful impact on budget deficits. This feedback illustrated the mismatch between the revenue potential of IGPs and the scale of financial challenges in public universities.

Another recurring theme was the poor financial performance of many IGPs. Respondents highlighted inconsistencies in revenue generation and low profitability as major issues. Several noted that some projects struggled even to cover their operating costs, let alone contribute to reducing budget deficits. This lack of financial viability limited the overall effectiveness of IGPs and reduced their perceived impact on university budgets.

Performance benchmarks also emerged as an important consideration. Respondents observed that many IGPs failed to meet expected financial targets due to weak management practices. For instance, inadequate planning and poor oversight were frequently cited as reasons for underperformance. One participant mentioned that strategic monitoring and better execution could enhance the effectiveness of these

projects, but such practices were often lacking. This underlined the importance of robust management and accountability mechanisms in improving the outcomes of IGPs.

Management inefficiencies were further shown as a key barrier to the effectiveness of IGPs. Respondents pointed out gaps in leadership, coordination, and stakeholder involvement that undermined the potential of these projects. For instance, several participants emphasized the need for greater engagement with faculty, staff, and the community to ensure that projects were relevant and well-supported. They argued that stakeholder involvement could strengthen project outcomes by aligning them with institutional and community needs. However, the absence of such collaboration often resulted in missed opportunities to maximize the impact of IGPs.

Institutional support was another factor emphasized by respondents. While many acknowledged the importance of university administration in fostering an environment where IGPs could thrive, they also noted that such support did not always translate into immediate effectiveness. Several respondents highlighted the importance of sustainability and alignment with institutional goals, suggesting that long-term vision was prioritized over short-term financial returns. This perspective provided additional context for the quantitative findings, indicating that the lack of immediate financial impact might be linked to the broader challenges faced by IGPs, such as resource limitations and operational inefficiencies.

Generally, the integration of quantitative and qualitative findings revealed that the insignificance of the effectiveness of IGPs in financing budget deficits could be attributed to several factors, including inconsistent revenue generation, poor management practices, and insufficient stakeholder involvement. While the

quantitative results highlighted the lack of statistical significance, the qualitative insights provided a deeper understanding of the challenges and opportunities associated with improving the effectiveness of IGPs in public universities in Tanzania. This comprehensive approach underscored the importance of addressing these underlying issues to enhance the financial contribution of IGPs in the future.

#### **4.10.3 A Significant Sustainability of IGPs**

During the quantitative phase, the sustainability of income generation projects (IGPs) was found to be a significant factor in financing budget deficits in public universities in Tanzania. Respondents justified these results during phase two, where they participated in an interview, and they realized that sustainability was not the problem in their universities. Respondents provided valuable insights, which were organized into three key themes: longevity, adaptability, and strategic role, as presented below:

##### **Theme 1: Longevity**

During interview, it was found that income generation projects in public universities in Tanzania with renewable revenue streams and robust strategies were widely praised for their long-term impact. One university administrator remarked, *“our projects are designed by considering sustainability, this is because sustainable projects ensure we can depend on consistent revenue for years to come”* (Deka, UA3). This insisted the importance of creating projects that are self-reliant and capable of generating income over time. By providing stable revenue, these projects acted as a financial backbone for institutions struggling with budget deficits in Tanzania. Another respondent noted, *“When income streams are stable and renewable, they create a dependable financial base for years to come”* (Mai, Acc2). This comment showed how sustainability ensures continuity, preventing frequent interruptions caused by financial instability.

Additionally, one participant observed, “*the current Projects in our university are carefully planned and integrated into the institution's structure and I assure you that they do stand the test of time*” (Mani, AS4). Such integration strengthened the institutional alignment of projects, ensuring they contribute not only to immediate financial needs but also to broader goals in the long run.

## **Theme 2: Adaptability**

The ability of IGPs to adjust to changing economic conditions was emphasized as a critical factor for sustainability. As one university accountant noted, “*The adaptability of these projects allows universities to navigate financial uncertainties effectively*” (Dali, ACC). This reflects how flexibility enables IGPs to remain viable in fluctuating economic climates. For instance, adaptable projects can adjust their revenue models or diversify their offerings to maintain their relevance. Another respondent remarked, “*Our projects can pivot in response to economic challenges and I am sure that they are more likely to remain sustainable*” (Bai, UA4). This highlighted the resilience of adaptable projects, which can respond to external pressures and ensure steady income streams. Similarly, one participant explained, “*I have been attending some meetings on adjusting our projects to market demands, therefore, these external shifts ensure that projects continue to generate revenue consistently*” (Ajabu, Acc6). These reflections underlined the importance of responsiveness and innovation in sustaining income generation efforts.

The qualitative findings revealed that the ability of IGPs to adapt to changing circumstances and feedback helps maintain their relevance and sustainability. This could be the reason why the relevance and sustainability of IGPs were found with a significant positive relationship with financing budget deficits. The qualitative

findings suggested that the relevance and sustainability of income-generation projects (IGPs) significantly contribute to alleviating budget deficits in public universities, whereas the overall effectiveness of these projects does not have the same impact. This distinction can be understood through the theme of adaptability. The relevance of IGPs is crucial because it ensures that projects are aligned with the evolving needs of the university. One project manager highlighted the importance of flexibility, stating, *“Projects that can shift as our needs change tend to receive ongoing support.”* [Kandya, PM5]

This indicated that when IGPs are designed with the capacity to adapt, they remain aligned with the institution's priorities, which in turn enhances their relevance in the context of university budget deficit funding.

Furthermore, sustainability is another vital factor contributing to financial stability. A faculty member pointed out, *“Sustainable projects that demonstrate long-term value are more likely to attract consistent funding.”* - [Moe, FM4]

Such statements reflected that IGPs build stronger relationships with potential funders when they promise a lasting impact. Over time, this focus on sustaining efforts translates to greater stakeholder confidence, securing the financial resources necessary to address budget deficits. In contrast, the perceived effectiveness of IGPs, which typically refers to the immediate results or benefits derived from these projects, was found to be less significant in this context. Another project manager noted, *“While we can track the immediate results, what truly ensures our financial viability is the ongoing relevance of our projects.”* - [Jau, PM4]

These ideas suggest that having measurable outcomes is not enough; merely achieving short-term goals does not guarantee that the projects will continue to achieve the

necessary funding. Instead, the emphasis on adaptability and sustained relevance ultimately matters for financial support.

### **Theme 3: Strategic Role**

Respondents emphasized that sustainability plays a strategic role in addressing budget deficits, making it one of the most impactful factors. An administrator observed, *“I can tell you without hesitation that, long-term planning and sustainability are the keys to overcoming our financial challenges”* (Fiki, UA3). This statement underscored how sustainability aligns with institutional strategies in public universities, helping universities plan for the future with greater confidence. Another participant shared, *“Sustainability ensures that income generation initiatives remain relevant and effective over time”* (Manga, Acc4). This highlighted the enduring impact of sustainable projects, which can adapt to the changing needs of the institution while addressing financial constraints. Additionally, one respondent remarked, *“When projects are embedded into the institutional strategy, they have a more significant and lasting impact on financial stability”* (Kato, AS3). This explanation reinforced the idea that aligning projects with long-term institutional goals enhances their relevance and effectiveness.

The integration of the quantitative and qualitative findings demonstrated how the sustainability of income-generation projects (IGPs) significantly contributed to financing budget deficits in public universities in Tanzania. Quantitative analysis revealed a strong relationship between sustainability and budget deficit financing, while qualitative insights provided context to these numerical findings, explaining why sustainability was such a critical factor. Respondents elaborated on themes such as longevity, adaptability, and strategic roles in ensuring the long-term success of IGPs.

The theme of longevity emphasized how sustainable projects created reliable income streams over time. For instance, one respondent noted that stable and renewable revenue streams acted as a dependable financial backbone for institutions, enabling them to address recurring budget deficits. This perspective aligned with the quantitative findings, as it illustrated the significance of sustainability in maintaining consistent financial support, which was reflected in the strong statistical relationship.

Adaptability emerged as another important dimension of sustainability. Respondents described how the ability to pivot and adjust revenue models allowed IGPs to stay relevant and financially viable, even in changing economic conditions. This adaptability supported the quantitative results, showing how sustainability played a key role in fostering resilience and ensuring steady contributions to budget deficit financing. The ability of projects to evolve and align with institutional needs further reinforced the strong relationship identified in the data.

The strategic role of sustainability in financial planning was also a recurring theme. Respondents highlighted that long-term strategies embedded in institutional frameworks made IGPs more impactful in addressing budget deficits. For example, one respondent mentioned how aligning projects with university goals increased their effectiveness and ensured their enduring relevance. This insight helped clarify the quantitative findings, showing why sustainability had the highest standardized coefficient among the factors studied. The strategic integration of IGPs strengthened their ability to address both immediate financial concerns and long-term institutional priorities, aligning perfectly with the observed statistical significance.

While relevance and sustainability emerged as significant factors, the qualitative findings also shed light on why effectiveness did not have the same impact.

Respondents noted that short-term results and measurable outcomes often failed to guarantee sustained financial support. This explained why effectiveness had a lower standardized coefficient and an insignificant p-value in the quantitative analysis. The emphasis placed on long-term sustainability and adaptability in the qualitative phase revealed a deeper understanding of what drives financial success in public universities, reinforcing the conclusion that sustainability is paramount.

Generally, the integration of quantitative and qualitative findings provided a cohesive understanding of the role of sustainability in financing budget deficits. The quantitative results showed the strength and significance of this factor, while the qualitative data explained how and why sustainability contributed to financial stability. Together, these insights insisted on the importance of designing and implementing projects that prioritize adaptability, longevity, and strategic alignment with institutional goals to ensure their long-term success.

#### **4.11 Integration of the Quantitative and Qualitative Findings**

##### **4.11.1 Relevance of IGPs**

The integration of quantitative and qualitative findings provides a well-rounded understanding of the role of income-generation projects (IGPs) in financing budget deficits in public universities. In the quantitative phase, relevance was identified as a significant factor influencing the effectiveness of IGPs. Statistical analysis demonstrated that a one-unit increase in the relevance of IGPs led to a 0.108 increase in budget deficit financing ( $\beta=0.108$ ,  $p < 0.05$ ). This quantitative result showed the measurable financial impact of IGPs in supporting university operations.

The qualitative phase explored deeper into why IGPs were perceived as relevant. Respondents consistently emphasized that IGPs were carefully designed to fill financial

gaps while simultaneously supporting broader institutional goals. Three key themes emerged from the qualitative findings: alignment with budget deficit financing, extent of contribution, and proportion financed.

Regarding alignment with budget deficit financing, respondents highlighted that IGPs are not just financial tools but essential components in ensuring institutional sustainability. Quotes from university administrators and faculty reinforced the idea that these projects help bridge the gap between ideal budgets and actual available funds. Additionally, stakeholder involvement particularly the participation of faculty and community members was noted as vital in maintaining the success and relevance of these projects.

The extent of contribution of IGPs was another key theme. While respondents acknowledged that IGPs do not completely resolve financial challenges, they play an indispensable role in alleviating financial strain. Many participants noted that these projects provide relief where government funding falls short, enabling universities to maintain essential services despite budgetary constraints.

Furthermore, the proportion financed by IGPs further showed their significance. Interviews revealed that a substantial portion of university budget deficits is covered through income-generation projects, particularly those integrated into academic and community-focused initiatives. By reinforcing financial stability, these projects ensure that public universities can continue their operations without severe disruptions.

By combining quantitative and qualitative approaches, the study provided a clearer picture of the contribution of IGPs. The numerical data established the extent of their financial contribution, while qualitative insights explained how and why these projects work effectively. Themes such as alignment with financial goals and stakeholder

involvement played a crucial role in maximizing the success of IGPs. Respondents emphasized that faculty and community participation ensure continued relevance and support for these initiatives, further strengthening their financial impact.

Generally, the study demonstrated that IGPs are not only financially significant but also strategically essential for the sustainable academic development in public universities. Their dual role in budget deficit financing and academic advancement reinforces their importance in higher education institutions. This integration of quantitative and qualitative findings allows for a more holistic understanding of IGPs and their role in addressing financial shortfalls in public universities.

#### **4.11.2 Effectiveness of IGPs**

The integration of quantitative and qualitative findings offered a comprehensive view of the effectiveness of income-generation projects (IGPs) in financing budget deficits in public universities. The quantitative findings revealed that the effectiveness of IGPs in addressing financial deficits in public universities in Tanzania was statistically insignificant ( $B=0.002$ ;  $p>.05$ ). This suggested that while income-generation projects exist within universities, they do not substantially measurably impact financial shortfalls.

The qualitative insights provided a deeper exploration of the reasons behind this insignificance, revealing four key themes: budget deficit reduction rate, financial performance metrics, performance benchmarks, and ineffective management.

The theme of budget deficit reduction rate showed that while IGPs contribute financially, the revenue generated remains inconsistent and insufficient to significantly reduce university deficits. Respondents noted that the scale of financial challenges

faced by universities far exceeds the revenue from these projects, limiting their effectiveness as primary financial solutions.

Furthermore, financial performance metrics pointed to the unreliability of revenue generation from IGPs. Respondents described fluctuating income streams and low profitability, making these projects an unstable source of funding for universities. While some projects generate revenue, they often struggle to meet financial expectations and fail to achieve university budget sustainability.

Also, performance benchmarks further explained the insignificance observed in the quantitative findings. Respondents acknowledged that many IGPs fail to meet profitability standards due to weak oversight, poor execution, and a lack of strategic monitoring. This lack of structure undermines their ability to contribute effectively to financial stability. Lastly, ineffective management was a significant barrier to the effectiveness of IGPs in financing budget deficits. Respondents identified leadership gaps, poor planning, and a lack of stakeholder involvement as factors that reduce the potential impact of these projects. Without cohesive management strategies, many IGPs struggle to achieve financial sustainability or align with university financial goals.

By integrating these findings, the study clarified that while IGPs are relevant to university operations, their effectiveness is constrained by inconsistent revenue, management challenges, and a lack of strong financial performance. This provides a rationale for the insignificant statistical impact observed in the quantitative phase. The qualitative insights further emphasize the importance of stakeholder engagement and institutional support. While IGPs may not immediately resolve financial deficits, long-term planning, strategic execution, and improved administrative support could enhance their role in university financing. In conclusion, the study suggests that IGPs have

potential but require significant improvements in financial management and strategic alignment to become truly effective solutions for budget deficits in public universities.

#### **4.11.3 Sustainability of IGPs**

The integration of the quantitative and qualitative findings provides a comprehensive understanding of how sustainability plays a significant role in financing budget deficits in public universities in Tanzania.

The quantitative findings revealed that sustainability is a crucial factor in financial stability, as income-generation projects (IGPs) contribute significantly to budget deficit financing. This strong statistical relationship underscores the importance of sustainable practices in ensuring consistent revenue streams for universities.

The qualitative insights further explored the reasons behind this significance. Respondents emphasized that sustainability is embedded in their institutions through three key themes: longevity, adaptability, and strategic role.

The theme of longevity highlighted that IGPs with renewable revenue streams and robust strategies had a lasting financial impact on universities. Respondents praised these projects for ensuring consistent revenue, preventing frequent disruptions due to financial instability. Many participants noted that well-integrated projects stood the test of time, reinforcing the idea that sustainability contributes to the long-term financial health of universities.

Adaptability was another critical dimension of sustainability. Respondents emphasized that flexible income-generation projects remained viable despite changing economic conditions. The ability to pivot revenue models, diversify offerings, and respond to external pressures ensured ongoing financial contributions. This flexibility helps

explain why sustainability was found to be statistically significant in budget deficit financing.

The strategic role of sustainability emerged as a vital factor in financial planning. Respondents noted that long-term strategies embedded within institutional frameworks made IGPs more impactful. Sustainable projects, when aligned with university goals, maintained their relevance and effectiveness over time. This insight aligns with the quantitative findings, which showed sustainability had the highest standardized coefficient among the factors studied.

By integrating the quantitative and qualitative findings, the study clarified that sustainability strengthens financial stability by providing reliable income streams, adapting to economic changes, and aligning with institutional strategies. While effectiveness had a lower statistical significance, qualitative insights revealed that short-term financial gains were less important than long-term sustainability for securing ongoing funding. In conclusion, the study demonstrates that IGPs remain vital financial tools for public universities, provided they prioritize sustainability through adaptable and strategically aligned practices.

#### **4.12 Discussion of the Findings**

In this part, the findings from the study's quantitative and qualitative phases on the performance of income-generation projects in financing budget deficits in public universities in Tanzania were discussed. This discussion integrated the statistical relationships identified in the quantitative analysis with the rich, contextual insights from the qualitative interviews. Additionally, the study compared the current findings with previous studies to highlight similarities, differences, and contributions to the existing body of knowledge. The discussion also linked the current findings with the

Resource-Dependency Theory, the theory that guided the current study. This discussion was presented based on variables under study.

#### 4.12.1 Relevance of IGPs

The quantitative findings established a significant positive relationship between the relevance of income-generation projects (IGPs) and the ability to address budget deficits ( $B=0.108, p < .05$ ). The qualitative findings emphasized the alignment of IGPs with budget deficit financing, highlighting their strategic design to address financial gaps while supporting institutional goals. One academic staff member noted, *“The relevance of these projects is clear, they directly address our pressing funding needs”* (Mkwaju, AS1). Another respondent remarked, *“Income generation projects are a lifeline for the university; without them, our operations would be severely impacted”* (Jum, AS2). These insights supports Johnson and Lee’s (2019) assertion that institutional alignment is critical for ensuring financial stability. Also, both qualitative and quantitative results build on previous work, such as Johnson and Lee (2019), who argued that aligning projects with institutional goals is critical for achieving financial stability. This study extends their conclusions by demonstrating how Tanzanian universities strategically align their income-generating initiatives with institutional objectives, effectively addressing financial challenges.

The relevance of income-generation projects plays a pivotal role in enhancing financial stability for public universities. Consistent with Odundo et al. (2013), who found that schools engaged in income-generating activities managed their finances more effectively and accumulated assets, this study highlights how relevant projects improve the financial health of Tanzanian universities, reducing budget deficits. Similarly, respondents in the qualitative phase observed that the integration of income-generation

into academic programs strengthened their impact by providing both financial and institutional benefits. For example, one participant shared, *“The integration of income generation into academic programs has strengthened their impact, providing both financial and institutional benefits”* (Makiri, AS4). This observation aligns with Odundo et al.’s (2013) conclusions.

Additionally, Adan and Keiyoro (2017) emphasized strategic planning and needs assessment as critical factors for the success of income-generating initiatives. The findings from this study reinforce their conclusions by showing how Tanzanian universities conduct thorough needs assessments to ensure the relevance of their projects, thereby boosting financial viability. *Qualitative respondents further validated this, with one stating, “These projects resonate strongly with our financial objectives, bridging the gap between the ideal budget and actual funds available”* (Mwansa, UA2). Another respondent highlighted, *“Their contribution is significant; they allow the university to maintain essential services even during tough times”* (Nasi, AS3). These qualitative insights illustrated how needs assessments enhance project relevance, consistent with Adan and Keiyoro’s (2017) emphasis.

The study further emphasized the role of stakeholder perspectives in the success of income-generation projects. For instance, Tan et al. (2021) underlined the importance of aligning university projects with student needs to foster academic and social well-being. The current research supported this by demonstrating how Tanzanian universities incorporate student and stakeholder input into their income-generating initiatives, enhancing both financial outcomes and educational effectiveness. Similarly, Cansiz and Cansiz (2019) stressed that aligning educational programs with student interests is crucial for achieving positive outcomes. The qualitative findings supported

this perspective, with respondents emphasizing stakeholder collaboration as a critical factor for enhancing relevance. As one administrator remarked, *“Engaging stakeholders ensured that our projects remain relevant and effective over time”* (Bai, UA4). This further validated the importance of stakeholder engagement in ensuring project success.

Strategic alignment with institutional goals has also emerged as a key theme in the success of income-generating projects. Mohamed (2019) and Saidi (2019) pointed out that alignment with strategic plans is essential for achieving financial sustainability in public universities. The findings of this study echo their conclusions, illustrating how Tanzanian universities' income-generating initiatives are closely tied to institutional objectives. Respondents emphasized the strategic role of these projects, noting that aligning them with institutional strategies enhances their relevance and contribution to budget deficit reduction. For example, one administrator observed, *“When projects are embedded into the institutional strategy, they have a more significant and lasting impact on financial stability”* (Kato, AS2). This alignment ensures that the projects not only contribute to financial stability but also support the long-term strategic goals of the institutions.

These findings have several important implications. Practically, they highlighted the value of strategic planning and needs assessment as tools for ensuring the relevance of income-generating projects. This relevance, in turn, enhances their effectiveness in addressing budget deficits.

For further understanding the quantitative findings, the qualitative findings provided greater context and depth to the quantitative results by shedding light on the mechanisms through which relevance enhances the financial performance of IGPs.

University administrators stressed the importance of aligning IGPs with their universities' strategic goals. This sentiment was echoed in the work of Mohamed (2019) and Saidi (2019), who emphasized that projects aligned with strategic plans are more likely to achieve financial sustainability. Tanzanian universities integrate income-generating initiatives into their institutional strategies, ensuring that they do not operate in isolation but instead contribute to both financial and long-term strategic objectives. This supports the quantitative conclusion that relevance significantly impacts financial outcomes and reflects the alignment highlighted by Johnson and Lee (2019).

Moreover, Turner and Müller (2005) argued that projects aligned with strategic goals experience fewer failures, as they receive adequate support and resources. The qualitative findings from Tanzanian universities validated this by showing how strategic alignment ensures better project outcomes, addressing budget deficits effectively. The role of needs assessment emerged as another crucial factor in ensuring the relevance of IGPs. Administrators and project managers highlighted that thorough needs assessments help identify projects that align not only with institutional goals but also with external demands, such as community and stakeholder expectations. This observation is consistent with Kuprenas (2003), who found that understanding organizational needs enhances project alignment, improving financial viability. The quantitative results, which underscore the importance of needs assessment, are enriched by this qualitative perspective, showcasing how Tanzanian universities evaluate both internal and external needs to enhance relevance.

The qualitative findings showed the value of incorporating stakeholder and student input into the design and implementation of IGPs. Tan et al. (2021) emphasized that aligning projects with student needs fosters academic and social well-being while

ensuring the financial success of initiatives. Tanzanian universities were found to actively engage students and stakeholders in shaping income-generation strategies, which strengthened both their relevance and their financial contribution. This aligns with the quantitative finding that relevant projects effectively address budget deficits by responding to stakeholder needs.

Furthermore, Cansiz and Cansiz (2019) found that aligning programs with student interests directly contributes to positive financial and educational outcomes. The qualitative evidence supports this by illustrating how Tanzanian universities ensure project relevance by addressing the diverse interests of their stakeholders, creating initiatives that resonate with their community while enhancing financial performance.

The quantitative findings suggested that relevance drives the financial success of IGPs, but the qualitative data added a good understanding of this process. The strategic alignment, informed needs assessments and stakeholder engagement revealed in the qualitative discussions explain how relevance is operationalized in Tanzanian universities. For example, while Adan and Keiyoro (2017) emphasized planning as key to relevance, the qualitative findings highlighted the role of stakeholder inputs as a complementary factor in ensuring projects align with both institutional and societal needs.

The findings of this study provided a solid foundation for applying Resource-Dependency Theory (RDT) to understand how Tanzanian public universities manage their financial challenges. RDT, conceptualized by Pfeffer and Salancik (1978), emphasizes that organizations are embedded in environments where they must secure critical resources to survive and operate effectively. These environments often include external stakeholders, funding agencies, and other entities that influence resource

availability and allocation. The findings of this study on the relevance of income-generation projects (IGPs) on financing budget deficits in public universities provided practical insights into how these theoretical principles manifested in Tanzanian public universities.

The study found a significant positive relationship between the relevance of IGPs and budget deficit financing in public universities ( $\beta=0.123$ ,  $T=3.022$ ,  $p<.05$ ). This aligned with RDT's principle that organizations must strategically align themselves with external resource providers to reduce dependency on any single source (Pfeffer and Salancik, 1978). In the case of Tanzanian universities, relevant IGPs are those that addressed community needs, institutional goal of financing budget deficit, and market demands.

The qualitative findings revealed that needs assessments and stakeholder engagement played a critical role in ensuring that IGPs aligned with both external demands and goal of financing budget deficits. By actively designing projects that are perceived as valuable by stakeholders, universities increase their attractiveness as resource recipients. This alignment not only secures financial support but also ensures the long-term viability of projects.

For example, universities that strategically align IGPs with external markets can attract partnerships, consultancy opportunities, or rental agreements that directly contribute to budget stability. This resonated with RDT's assertion that organizations can shape their environments by proactively building relationships with external resource controllers (Pfeffer and Salancik, 1978). The ability to meet market and community demands through relevant projects enhances universities' bargaining power and reduces reliance on volatile government funding.

#### 4.12.2 Effectiveness of IGPs

In the quantitative phase, the findings revealed a positive yet statistically insignificant relationship between the effectiveness of income-generation projects and financing budget deficits in Tanzanian public universities ( $B=0.002$ ;  $p>.05$ ), while in the qualitative phase, the findings explained why the effectiveness of IGPs in financing budget deficits in public universities was insignificant. Generally, these findings contrast with Brown and Taylor's (2020) study, which reported a significant impact of project effectiveness on financial outcomes. This discrepancy may stem from contextual differences, indicating that sustainability and relevance may hold greater importance in the Tanzanian setting. Nevertheless, the findings align with other studies conducted in similar contexts, emphasizing the critical role of governance and financial controls in determining the success of IGPs.

The qualitative findings provided additional insights into the limited effectiveness of IGPs, particularly in addressing financial challenges. Respondents consistently emphasized that the financial returns of IGPs, while valuable, were often undermined by operational inefficiencies. One respondent remarked, *“While these projects generate funds, the revenue is too inconsistent to make a real dent in deficits”* (Masa, AS2). This observation highlights the operational limitations that may explain the statistically insignificant relationship observed in the quantitative results.

The results suggested that while income-generation projects contribute to university finances, their success in mitigating budget deficits depends heavily on robust governance structures and effective financial management. For instance, Tadei (2014) examined financial control mechanisms at the Open University of Tanzania and found that income from fee collection, consultancy, and rentals was only impactful when

supported by effective corporate governance. This reinforced the idea that without strong governance, the financial contributions of IGPs may remain limited. Respondents echoed similar sentiments, with one participant noting, *“The financial outcomes fall short of expectations, mainly because of weak execution and oversight”* (Fatu, AS2). Similarly, Towett, Naibei, and Rop (2019) highlighted the importance of financial control mechanisms such as internal audits, risk management strategies, and credit policies in Kenyan public universities. Their findings confirmed that financial control measures are essential for the success of IGPs, supporting the current study’s conclusion that ineffective controls can result in limited financial impact.

The findings also align with Yakubu's (2020) study on Nigerian higher learning institutions, which revealed a positive relationship between internal control systems and revenue generation. Yakubu emphasized that institutions with strong internal controls reported higher revenues, suggesting that the absence of such systems may explain the statistically insignificant financial impact of IGPs in Tanzanian universities. This was echoed in the qualitative findings, with respondents identifying poor revenue consistency and failure to meet benchmarks as key challenges to financial effectiveness. As one participant stated, *“Effectiveness requires better strategy and monitoring, which is currently lacking”* (Ziko, Acc3).

Masaiti's (2015) evaluation of revenue diversification policies in Zambian public universities further complements these findings. The study found that while diversification efforts had modest financial impacts, supportive policies and decentralized decision-making were necessary for success. This resonated with the current findings, which highlighted the need for diversified revenue streams alongside effective IGPs to address budget deficits comprehensively. Respondents similarly noted

that a lack of strategic planning and decentralized oversight reduced the financial impact of IGPs.

Ofoegbu and Alonge's (2016) research in Nigerian universities also supported this perspective, emphasizing that transformative leadership and strong financial management are critical for the success of income-generating ventures in universities. Their findings reinforced the current study's emphasis on the role of leadership and governance in enhancing the effectiveness of IGPs in public universities in Tanzania. Respondents in the qualitative phase highlighted the importance of leadership, with one stating, *"Our IGPs often face leadership challenges, which limits their ability to achieve maximum financial effectiveness"* (Simba, UA3).

External economic factors and internal financial practices also play significant roles in the performance of IGPs. For example, Tsuma and Mugambi (2014) noted that economic conditions such as inflation and inadequate resource allocation impacted the performance of income-generating units in Kenyan universities. They also highlighted the importance of internal controls and accountability in ensuring reliable financial reporting. These findings aligned with the current study's findings, emphasizing that both external economic factors and internal governance practices shape the financial impact of IGPs. Respondents also identified external challenges, such as fluctuating economic conditions, as contributing to the limited financial impact of IGPs. As one participant explained, *"External pressures, like inflation, make it difficult for our projects to remain effective financially"* (Makiri, AS4).

Furthermore, Odundo and Rambo's (2013) study in Kenyan secondary schools underscored the importance of policy frameworks in guiding and standardizing income-generating activities. Their recommendations for supportive policies resonate with the

current findings, suggesting that IGPs require an enabling environment to maximize their financial contributions effectively. Qualitative respondents similarly noted that a lack of comprehensive policy frameworks limited the effectiveness of IGPs.

The current findings that showed that the effectiveness of IGPs had no significant relationship with budget deficit financing in public universities in Tanzania in the quantitative findings ( $\beta=0.002$ ,  $T=0.055$ ,  $p>0.05$ ). theoretically, RDT offers valuable insights into this discrepancy. The theory acknowledges that resource dependencies often create structural constraints, which can limit an organization's capacity to fully utilize available resources (Pfeffer and Salancik, 1978). In this case, Tanzanian universities faced operational inefficiencies and rigid administrative frameworks that hindered the full realization of income-generation potential through IGPs.

The qualitative findings revealed several factors undermining the effectiveness of IGPs. For example, inconsistent revenue streams, bureaucratic delays, and limited flexibility in project implementation emerged as key barriers. According to RDT, such internal inefficiencies exacerbate dependency by preventing organizations from fully exploiting their resource environments (Pfeffer and Salancik, 1978). Even when resources are acquired, their suboptimal utilization limits their impact on financial stability. However, RDT also emphasizes the role of adaptability in overcoming these constraints. For Tanzanian universities, addressing operational inefficiencies through performance tracking, streamlined processes, and regular project evaluations could enhance the effectiveness of IGPs. This aligned with the theory's argument that organizations must constantly adjust their internal structures to maximize resource utility while minimizing vulnerabilities (Pfeffer and Salancik, 1978).

#### 4.12.3 Sustainability of IGPs

The quantitative findings showed that there is a statistically significant relationship between sustainability of IGPs and financing budget deficit in public universities in Tanzania ( $B=.628$ ,  $p<.05$ ), this discovery aligns with earlier studies, such as Smith et al. (2018), who insisted the essential role sustainable projects play in achieving long-term financial stability within higher education institutions. This study builds on their findings by presenting specific insights into how sustainability operates in the Tanzanian context, offering fresh perspectives on overcoming budgetary challenges.

The qualitative findings reinforced the critical role of sustainability in managing budget deficits, particularly in Tanzanian public universities. Respondents consistently emphasized themes such as longevity, adaptability, and strategic integration as the key mechanisms through which sustainable IGPs achieve financial stability. One respondent noted, “*Sustainable projects ensure we can depend on consistent revenue for years to come*” (Deka, UA3). This observation directly supports Smith et al.’s (2018) assertion that sustainability enhances resilience and provides reliable financial contributions over time.

In general, the findings revealed that sustainable income-generation projects are instrumental in supporting both immediate financial demands and long-term financial stability for public universities. These findings were justified by the qualitative findings explaining how the universities ensured the sustainability of income generation projects in financing the budget deficit. These findings on the sustainability of income generation projects on financing budget deficits in public universities in Tanzania are in line with Johnson and Lee's (2017) argument that universities with a focus on sustainability are better equipped to handle financial challenges, particularly in times

of economic strain. Respondents in the qualitative phase emphasized adaptability as a critical element, stating that, “*The adaptability of these projects allows universities to navigate financial uncertainties effectively*” (Dali, Acc3). This aligned closely with Davis’s (2020) emphasis on the effectiveness of adaptive strategies in addressing budgetary inconsistencies. Another respondent explained, “Adjusting to market demands and external shifts ensures that projects continue to generate revenue consistently” (Ajabu, Acc6), which builds on Clark’s (2019) finding that sustainable practices align with both short-term outcomes and long-term institutional goals.

Similarly, Davis (2020) and Martin (2021) support these conclusions. Davis showed that income-generation strategies centered on sustainability are more effective in addressing budgetary inconsistencies. Martin (2021) emphasized the value of collaboration among stakeholders, noting that such involvement significantly strengthens financial management outcomes in sustainable projects. Respondents in the qualitative findings provided similar insights, emphasizing the importance of stakeholder collaboration for maintaining project relevance and sustainability. As one participant shared, “*Engaging stakeholders ensures that our projects remain relevant and effective over time*” (Bai, UA4). This finding validates Martin’s (2021) quantitative observation that stakeholder engagement enhances financial resilience.

While these findings mostly align with prior literature, there are notable deviations. For example, Ouma and Kiarie (2017) observed that stakeholder participation did not play a significant role in project sustainability. Instead, they identified project planning and monitoring as pivotal factors, with significant correlations of 79% and 88%, respectively. The qualitative data echoed this emphasis on planning and oversight, as university administrators consistently stressed the importance of continuous monitoring

to ensure project viability. This perspective aligns with Green and White's (2017) findings, which demonstrated that a lack of regular assessments leads to challenges in maintaining project sustainability.

The study also aligns with Some's (2015) research from Soy Sub-County, Kenya, which emphasized the necessity of maintaining accurate financial records and experienced project leadership for sustainability. Respondents in Tanzanian universities similarly highlighted leadership and financial management as essential components, with one noting, "Our projects are designed with robust planning and monitoring systems to ensure sustainability" (Mai, Acc2). Likewise, Green and Motiki (2011) in Botswana pointed to poor management and lack of financial resources as major barriers to sustainability. These findings reaffirm the importance of addressing financial shortcomings as a pathway to achieving stable income-generation outcomes, a sentiment echoed in the qualitative findings.

The contributions of Mokgotho (2010) and Wathome (2013) add further depth to this discussion. Both emphasized the role of financial management training, highlighting it as a critical factor in overcoming budgetary challenges and fostering sustainable practices. Tanzanian respondents validated this view, noting that financial training enhances the ability to maintain project alignment and adapt to shifting economic conditions.

The results have significant implications for both practice and theory. Practically, they emphasize the importance of embedding financial management training into project planning processes to enhance sustainability. From a theoretical perspective, the findings expanded on Resource-Dependency Theory by illustrating how sustainable

income-generation practices serve as strategic tools for universities to overcome financial constraints, ensuring long-term stability and resilience.

On the other hand, the qualitative findings built on the quantitative findings as they revealed practical approaches to achieving sustainability that complement the quantitative results. University administrators consistently stressed the importance of continuous monitoring and adjustment to ensure project viability. This aligned with Green and White's (2017) findings, which demonstrated that a lack of regular assessments leads to challenges in maintaining project sustainability. In the Tanzanian context, continuous monitoring allows administrators to identify areas requiring adjustment and ensure that projects remain aligned with financial goals, thereby supporting the quantitative result of a positive relationship between sustainability and budget deficit reduction.

Building on this, Smith and Johnson (2019) provided evidence that effective performance tracking is instrumental in sustaining income-generation projects. Their research indicated that without regular assessments, projects are prone to deviations from their intended objectives, resulting in sustainability issues. This insight was crucial in understanding why sustainable projects in Tanzanian public universities, as observed in the quantitative findings, can address budget deficits effectively. Respondents confirmed this in the qualitative phase by emphasizing that ongoing evaluation ensures that resources are managed efficiently and goals are consistently met.

Furthermore, the role of stakeholder engagement emerged as a vital aspect of sustainability in the qualitative findings. Martinez et al. (2020) highlighted that fostering partnerships with local stakeholders enhanced project relevance and provided

additional resources, thereby strengthening financial resilience. This perspective aligned with Martin's (2021) quantitative observation that stakeholder collaboration enhances financial management outcomes. In Tanzanian universities, engaging local communities not only amplifies the impact of IGPs but also ensures their longevity by integrating diverse support systems. Respondents remarked, "Stakeholder partnerships provide additional resources and help maintain community buy-in" (Makiri, AS4), illustrating how collaboration strengthens project sustainability.

From a financial standpoint, diversified funding sources were identified as critical in sustaining projects during interviews regarding financing budget deficits in public universities in Tanzania through IGPs. Patel and Garcia (2021) showed the importance of incorporating grants, donations, and other income-generation activities to mitigate dependency on external funding fluctuations. This insight complemented the quantitative findings, which revealed that sustainable practices effectively address budget inconsistencies by leveraging multiple funding streams. Respondents highlighted that diversified funding mechanisms reduce reliance on any single revenue source, ensuring stability in challenging financial climates.

Market demand was found to be one of the reasons why relevance and sustainability were significant factors in enhancing IGP performance in financing budget deficits. The qualitative findings emphasized the importance of market demand as a determinant of sustainability, noting that IGPs designed in response to clearly identified community needs tend to perform better due to their alignment with real-world demands. Respondents highlighted, "Projects tailored to market needs are more likely to receive community buy-in and maintain their viability over time" (Katu, UA1). This perspective complements Martinez et al.'s (2020) findings, which showed that

community engagement strengthens project sustainability by providing additional resources and relevance.

Furthermore, the emphasis on market demand as a determinant of relevance ties directly to the sustainability of IGPs. Respondents noted that when projects address specific, clearly identified community priorities, they resonate more deeply with local stakeholders and retain their relevance over time. This aligns with Cansiz and Cansiz's (2019) conclusion that tailoring projects to stakeholder interests is essential for achieving positive outcomes. Needs assessments and stakeholder engagement ensure that IGPs remain grounded in the realities of their operating environments, explaining their strong performance in the quantitative findings.

It is important to note that the study's geographical focus may limit the generalizability of its findings. Future research could explore similar relationships in other regions and employ longitudinal methods to establish causality between sustainability measures and financial outcomes. Ultimately, the findings showed the critical role of sustainability in income-generation projects for managing budget deficits in public universities. By integrating these results with existing literature, the study underscored the importance of financial management and long-term planning in achieving institutional resilience and stability.

In the RDT perspective, the significant sustainability of IGPs and their ability to mitigate budget deficits ( $\beta=0.694$ ,  $T=17.278$ ,  $p<.05$ ) reflected the organization's capacity to consistently secure and utilize resources over time while adapting to environmental changes (Pfeffer and Salancik, 1978). In this context, Tanzanian universities demonstrated how sustainable practices, such as stakeholder collaboration, diversification of funding sources, and adaptability to economic shifts, are pivotal in

ensuring steady resource flows. The qualitative findings reinforced this by highlighting how universities designed IGPs to withstand external fluctuations, such as changing market demands or economic conditions. For instance, projects that incorporated diverse funding sources (consultancy, grants, rentals) demonstrated resilience against resource volatility. According to RDT, this strategic diversification mitigates the risks associated with dependency on a single resource provider (Pfeffer and Salancik, 1978).

Furthermore, stakeholder collaboration emerged as an essential component of sustainability. Engaging local communities, businesses, and government agencies not only secures immediate resources but also builds long-term relationships that enhance resource stability. This practical application of RDT insisted that sustainable practices enable organizations to navigate uncertainties effectively while maintaining access to critical resources.

The application of Resource-Dependency Theory to the study findings provided several actionable insights for Tanzanian universities; leverage Strategic Alignment by aligning IGPs with stakeholder priorities and market demands, universities can enhance their relevance and secure critical resources more effectively; promote sustainability diversifying income streams and fostering stakeholder partnerships, reduce resource dependency and improve financial resilience; streamlining administrative processes and increasing adaptability are essential to improving the effectiveness of IGPs and optimizing their impact on financial outcomes. Lastly, engaging Stakeholders Proactively and building long-term relationships with external resource providers strengthens the organization's position within its resource environment, as advocated by RDT.

### 4.13 Summary of the Chapter

This chapter discussed the findings from both the quantitative and qualitative phases of the study on the performance of income-generation projects in financing budget deficits in public universities in Tanzania. The discussion integrated statistical relationships identified in the quantitative analysis with rich, contextual insights from the qualitative interviews, and compared these findings with previous studies. A significant positive relationship was found between the sustainability and relevance of income-generation projects and financing budget deficits, aligning with previous research by Smith et al. (2018) and Johnson and Lee (2019) respectively. Furthermore, the relationship between the effectiveness of income-generation projects and financing budget deficits was positive but not statistically significant, contrasting with the findings of Brown and Taylor (2020).

On the side of qualitative findings, university administrators emphasized continuous monitoring and adjustment to ensure sustainability, consistent with Green and White (2017). Administrators and project managers highlighted the need for strategic alignment and needs assessments, aligning with Davis and Miller (2016). Various criteria for assessing effectiveness were discussed, including financial returns, student engagement, and community impact, in line with Harris and Clark (2018). Also, it was found that effective management involves clear planning, regular monitoring, and stakeholder involvement in income-generation projects in higher learning institutions, supporting Thompson and Adams (2017). Regular meetings, feedback sessions, and collaborative planning were found to be crucial for engaging stakeholders, consistent with Wilson and Roberts (2019). In connection to these, faculty and staff generally had positive perceptions of income-generation projects, aligning with Evans and Turner (2018). Income-generation projects opened up new avenues for growth and

collaboration, supporting Martin and Lewis (2017). Students' awareness and perceptions of income-generation projects were generally positive, consistent with Young and Parker (2019). Students gained valuable hands-on experience and sometimes financial support through their involvement in these projects, aligning with Baker and Hall (2018).

On the sustainability of projects, the integration highlighted the need for robust strategies and continuous improvement to maintain project viability. For the relevance of Projects, the respondents emphasized the need for strategic alignment and thorough needs assessments in project selection. Furthermore, the effectiveness of Projects the chapter has suggested that while effectiveness is important, other factors like sustainability and relevance may play more critical roles in the Tanzanian context. The findings also underscored the importance of robust management practices in achieving project success. The findings have also highlighted the need for active stakeholder involvement to enhance project success. Lastly, the findings underscored the importance of providing training and resources to maximize the benefits of income-generation projects in public universities in Tanzania.

Through the lens of Resource-Dependency Theory, the findings of this study highlighted the critical role of relevance and sustainability of IGPs in managing resource dependencies for Tanzanian public universities. The theory provided a valuable framework for interpreting how universities interact with their external environments to secure and stabilize resources. While the effectiveness of IGPs remained constrained by operational challenges, strategic interventions rooted in RDT principles can enhance the overall performance of income-generation projects. By actively managing their resource environments, Tanzanian universities can mitigate

budget deficits and achieve greater financial stability, ensuring their long-term survival and success.

## CHAPTER FIVE

### SUMMARY OF THE FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Introduction

This chapter presents a summary of the key findings from the study, draws conclusions based on these findings, and offers recommendations for policy and practice. The study aimed to assess the performance of income-generation projects in financing budget deficits in public universities in Tanzania, integrating both quantitative and qualitative data to provide a comprehensive understanding of the factors influencing project success. By synthesizing the insights gained, this chapter aims to provide actionable recommendations that can enhance the relevance, effectiveness, and sustainability of income-generation projects, ultimately contributing to the financial stability and educational quality of public universities in Tanzania.

#### 5.2 Summary of the Findings

##### 5.2.1 Relevance of Projects

There was a significant positive relationship between the relevance of income-generation projects and financing budget deficits ( $B=0.108$ ,  $\beta=0.123$ ,  $T=3.022$ ,  $p<.05$ ). Projects that align with the university's strategic goals and address specific needs are more effective in addressing financial shortfalls. Through interviews, administrators and project managers discussed the need to align projects with the university's strategic goals and conduct needs assessments. Relevant projects, such as tech incubators, were highlighted as key to project success.

### **5.2.2 Effectiveness of Projects**

The relationship between the effectiveness of income-generation projects and financing budget deficits was positive but not statistically significant ( $B=0.002$ ,  $\beta=0.002$ ,  $T=0.055$ ,  $p>0.05$ ). This suggests that while effective projects are beneficial, their impact on budget deficits may be influenced by other factors, such as sustainability and relevance. During the interview session, various criteria for assessing effectiveness were discussed, including financial returns, student engagement, and community impact. Examples of both successful and unsuccessful projects were provided, highlighting the importance of comprehensive criteria for assessing effectiveness.

### **5.2.3 Sustainability of IGPs**

The study found a significant positive relationship between the sustainability of income-generation projects and financing budget deficits ( $B=0.628$ ,  $\beta=0.694$ ,  $T=17.278$ ,  $p<.05$ ). Sustainable projects, characterized by continuous monitoring and adjustments, contribute significantly to reducing budget deficits in public universities in Tanzania. During an interview, the respondents emphasized the importance of continuous monitoring and adjustment to ensure sustainability. Challenges such as the drying up of external funding sources were also shown, necessitating innovation and diversification of projects.

## **5.3 Conclusions of the Study**

### **5.3.1 Relevance of Projects**

The relevance of income-generation projects to the strategic goal of financing the budget deficits in public universities is a key factor in their success. Projects that align with the university's strategic goals and address specific needs are more effective in addressing financial shortfalls. This highlighted the necessity for thorough needs

assessments and strategic alignment in project selection and implementation. Relevance ensures that income-generation projects effectively address both institutional and stakeholder objectives. By aligning projects with the specific needs of the university and its community, institutions can maximize the impact of IGPs on the financial health of public universities.

### **5.3.2 Effectiveness of Projects**

While the effectiveness of income-generation projects is beneficial, its impact on budget deficits may be influenced by other factors such as sustainability and relevance. The study concludes that effectiveness alone may not significantly impact budget deficits, suggesting that a holistic approach considering multiple factors during the formulation of IGPs is essential for project success. The financial effectiveness of IGPs is inherently tied to robust governance and financial management systems. By fostering transformative leadership and implementing stringent financial controls, universities can enhance the performance of IGPs and their ability to address budget deficits.

### **5.3.3 Sustainability of Projects**

The study concluded that the sustainability of income-generation projects is crucial for financing budget deficits in public universities in Tanzania. Sustainable projects, characterized by continuous monitoring and adjustments, significantly contribute to reducing budget deficits. The findings underscored the importance of implementing robust strategies and continuous improvement practices to maintain project viability. Sustainability serves as a cornerstone for successful income-generation projects, ensuring that they address budget deficits while supporting long-term institutional goals. By embedding sound financial practices and governance structures, universities can create enduring sources of revenue.

Generally, the study concluded that the success of income-generation projects in public universities in Tanzania is influenced by multiple factors, including sustainability, relevance, implementation and management practices, stakeholder engagement, perceptions and experiences, professional development, and student involvement. A holistic approach that considers these factors is essential for achieving sustainable financial outcomes and enhancing the educational quality of public universities

#### **5.4 Contributions of the Study Findings to the Resource-Dependency Theory (RDT)**

This study enriched RDT by emphasizing the interconnectedness of relevance, sustainability, and effectiveness in managing resource dependencies. It highlighted that dependency reduction is not solely about acquiring resources but about strategically designing projects that align with institutional goals, sustain operations, and achieve measurable success. Additionally, the findings underlined the importance of adaptive practices, innovation, and stakeholder collaboration in building resilience against resource constraints. The findings of the current study offer a valuable perspective for applying RDT in the context of higher education institutions, particularly in resource-scarce environments like Tanzania.

#### **5.5 Recommendations of the Study**

Public universities in Tanzania face increasing financial challenges that require innovative and sustainable solutions. The findings of the current study provided the foundation for a set of new recommendations aimed at improving income-generation projects (IGPs) and their impact on budget deficit financing in public universities in Tanzania. These recommendations have been developed to ensure originality and relevance while addressing the unique context of Tanzanian higher education.

- i. Public universities should expand their collaboration with private sector organizations, international donors, and local businesses to strengthen the relevance and sustainability of IGPs. These partnerships can unlock additional funding streams, provide technical expertise, and create opportunities for mutual benefits. For example, universities can establish partnerships with agricultural or manufacturing industries to design IGPs tailored to community needs while generating consistent revenue.
- ii. Institutions should incorporate stakeholder feedback during the planning and implementation of IGPs to ensure alignment with market demands and community priorities. By conducting comprehensive stakeholder consultations, universities can create projects that are not only relevant but also widely supported, reducing risks of failure and increasing their social impact.
- iii. Universities should establish centralized units specifically tasked with managing IGPs. These units would oversee project planning, implementation, and monitoring to ensure operational efficiency and financial accountability. Centralizing the management structure can reduce administrative bottlenecks and promote transparency, which was identified as a challenge in this study.
- iv. To enhance sustainability, universities should explore opportunities to diversify their IGP portfolio. This includes designing projects across various sectors, such as consulting services, real estate development, technology innovation, and cultural events. By spreading financial risks across multiple ventures, universities can reduce reliance on single income sources and buffer themselves against economic fluctuations.
- v. TCU should introduce leadership training programs tailored to senior university managers overseeing IGPs. These programs should focus on financial

management, stakeholder engagement, and strategic planning to ensure leaders are equipped to drive the success of these projects. Enhancing leadership capacity will help address operational inefficiencies and improve project effectiveness.

- vi. Public universities should develop long-term sustainability frameworks for their IGPs that emphasize adaptability to changing economic and social conditions. These frameworks could include strategic plans for project diversification, financial risk assessment, and regular performance evaluations. By prioritizing sustainability, universities can ensure that their projects remain relevant and productive for years to come.
- vii. Universities should explore non-traditional funding options for launching and sustaining IGPs. Crowdfunding platforms, impact investors, and blended financing models can offer new ways to secure initial capital while engaging stakeholders in the success of these projects. These mechanisms could complement traditional grant funding and provide greater financial flexibility.
- viii. TCU should require universities to adopt robust performance monitoring systems for all IGPs. These systems would use key performance indicators (KPIs) to evaluate project outcomes regularly, ensuring timely adjustments to improve efficiency and financial returns. Transparent monitoring fosters accountability and enables administrators to identify successful practices worth scaling.
- ix. Public universities should leverage their proximity to local communities by designing IGPs focused on addressing immediate societal needs. For example, universities can engage in agricultural innovations, vocational training programs, or healthcare initiatives that contribute to community development

while generating revenue. Such projects can strengthen relationships between universities and their surrounding communities.

- x. TCU and government bodies should ensure that policies governing IGPs in public universities align with the United Nations Sustainable Development Goals (SDGs). This includes incentivizing projects that foster education quality (SDG 4), sustainable economic growth (SDG 8), and partnerships for development (SDG 17). Aligning IGP frameworks with global goals can attract international funding and partnerships.

### **5.7 The Proposed Model for IGPs Design in Public Universities in Tanzania Based on the Study Findings**

The findings on the factors for the performance of Income Generation Projects (IGPs) on financing budget deficits in public universities in Tanzania revealed crucial insights. Specifically, the relevance and sustainability of IGPs emerged as significant factors contributing to the success of IGPs in addressing financial challenges in public universities. However, the effectiveness of these projects (IGPs) was found to be an insignificant factor. Based on these findings, the researcher proposed a comprehensive model to guide public universities in designing and implementing IGPs that not only generate revenue but also contribute meaningfully to the financial sustainability of the public universities in Tanzania that implement IGPs as their way of supplementing their budgets. This model serves as a roadmap for designing IGPs that can address budgetary challenges. The following are the components included in the model in *Figure 5.1*;

#### **5.7.1 Strategic Planning and Governance**

The first aspect is Strategic planning, strategic planning in the IGPs model focuses on aligning project objectives specifically to reduce the persistent budget deficits faced by

Tanzanian public universities. By identifying viable and impactful initiatives, universities can address financial gaps while supporting their broader educational mission. Governance plays a key role in this process, with the establishment of a dedicated committee to oversee project development, implementation, and evaluation. This committee ensures transparency, accountability, and effective resource management while continuously adapting to challenges such as political influences or fluctuating funding. A well-defined governance structure creates a solid foundation for sustainable income generation.

### **5.7.2 Sustainable Project Selection**

The second aspect is the sustainable IGP selection for implementation. The selection of income-generating projects should hinge on long-term sustainability and the potential for consistent revenue streams. Public universities in Tanzania must conduct in-depth feasibility studies to identify opportunities that align with their institutional strengths and the socio-economic needs of their environment. From agricultural ventures to research consultancy services, projects are evaluated for scalability, adaptability, and alignment with market demands. Prioritizing sustainable initiatives ensures that the selected projects contribute meaningfully to reducing budget deficits while fostering community engagement and environmental responsibility.

### **5.7.3 Resource Allocation and Management**

The third aspect is resource allocation, efficient allocation and management of resources are vital to the success of IGPs. Universities must strategically channel initial investments into projects with high growth potential while maintaining rigorous cost control. Capacity building, through staff training and infrastructure upgrades, strengthens the operational efficiency of income-generating activities. A commitment

to effective resource management enables Tanzanian universities to optimize their investments, mitigate risks, and enhance project productivity, ultimately supporting financial sustainability in the long term.

#### **5.7.4 Monitoring and Evaluation**

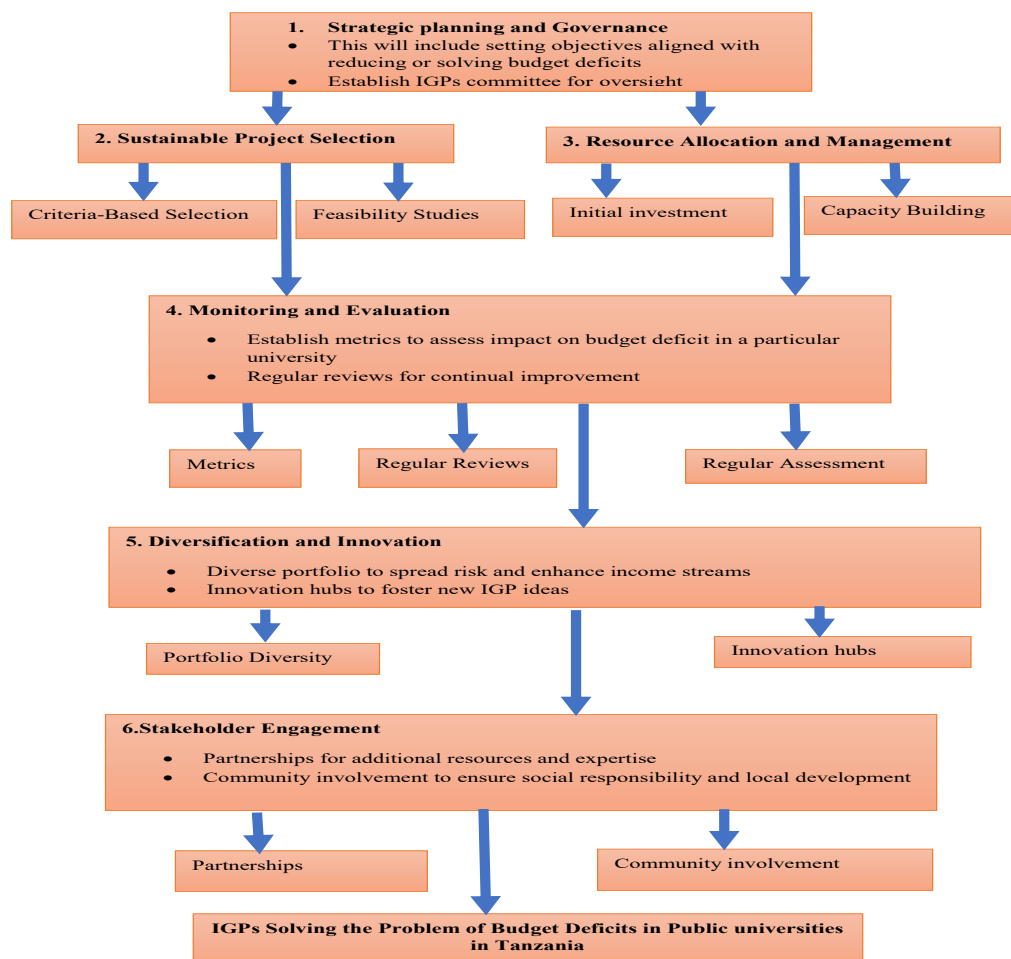
The fourth aspect is monitoring and evaluation, regular monitoring and evaluation provide insights into the performance and financial impact of income-generating projects. Public universities in Tanzania can establish metrics to assess how effectively their initiatives contribute to reducing budget deficits. Continuous evaluation will allow for the identification of underperforming areas and the refinement of strategies, ensuring projects remain aligned with institutional goals. Feedback mechanisms involving stakeholders, including staff and community members, foster accountability and collaborative growth, further enhancing the success of IGPs.

#### **5.7.5 Diversification and Innovation**

To minimize risks and maximize revenue potential, Tanzanian public universities should diversify their income-generating portfolios across multiple industries and services. Diversification spreads financial risk and creates resilience against external changes, such as market fluctuations or policy shifts. Innovation drives the creation of new, effective projects and fosters entrepreneurship within universities. By adopting technology and nurturing creative hubs, universities can develop competitive and sustainable initiatives that contribute to financial stability and broader economic development.

### 5.7.6 Stakeholder Engagement

Lastly, stakeholder engagement is crucial to the sustainability and success of income-generating projects. Tanzanian universities benefit from partnerships with government agencies, industries, and NGOs, which provide financial support, expertise, and resources. Engaging the local community further ensures that projects are socially responsible and aligned with local priorities, fostering goodwill and collaboration. Clear communication channels enable universities to maintain trust and transparency with stakeholders, promoting shared ownership and long-term success in addressing budget deficits.



Source: Survey Data (2025)

**Fig 5.1 The IGPs Initiation Proposed Model in Public Universities in Tanzania Based on the Study Findings**

## **5.8 Recommendation for Research Studies**

### **5.8.1 Longitudinal Impact of Income-generation Projects**

Future research should focus on the long-term effects of income-generation projects on the financial health and educational quality of public universities in Tanzania. It would be beneficial to examine how these initiatives develop over time and how effective they are at addressing persistent budget deficits.

To do this, researchers could conduct longitudinal studies that track the financial performance of these universities over many years. This would help to clarify how income-generation efforts contribute to their overall fiscal stability. Additionally, it's important to look at the relationship between these projects and improvements in educational quality such as student retention, graduation rates, and the overall learning experience. Identifying which types of income-generation projects are most successful and understanding the factors that contribute to their long-term viability will provide valuable insights. Engaging with various stakeholders like university administrators, faculty, students, and the wider community will also shed light on the broader social implications of these initiatives.

Moreover, comparing the outcomes of income-generation projects across different universities and regions in Tanzania could uncover unique challenges and successes specific to different contexts. By doing this comparative analysis, researchers can contribute to more targeted policies that enhance both financial resilience and educational standards in public universities. Ultimately, this work could play a crucial role in shaping the future of higher education funding in Tanzania, ensuring that these institutions can remain financially sound while delivering high-quality education.

### **5.8.2 Comparative Analysis of Different Income-Generation Models**

Conducting comparative studies on various income-generation models implemented by public universities across different regions or countries can provide valuable insights for addressing budget deficits in Tanzanian public universities. By analyzing how these institutions successfully diversify their income streams, researchers can identify best practices that are both effective and adaptable to the unique socio-economic landscape of Tanzania. This exploration could include examining initiatives such as technology transfer, partnerships with industry, alumni engagement, and innovative educational programs that generate additional funding. Understanding these models can inspire local universities to think creatively about their financial strategies, ultimately improving their sustainability and resilience in the face of budgetary challenges.

Furthermore, these comparative studies can highlight innovative approaches that have been tested and evaluated in other contexts. For instance, examining successful strategies from universities in emerging economies or those facing similar financial pressures can provide a wealth of practical ideas. By looking at diverse income-generation strategies such as community-based projects, research grants, and entrepreneurial ventures Tanzania's public universities can learn how to tailor these approaches to fit their specific needs. Additionally, understanding the cultural and economic factors that contribute to the success or failure of these models will allow for more informed decision-making and implementation strategies.

Lastly, fostering international collaborations through these studies can open doors for joint ventures, funding opportunities, and knowledge exchange. Engaging with foreign universities that have successfully implemented income-generation models could lead to partnerships that benefit both parties. Faculty and staff exchanges, joint research initiatives, and shared resources can enhance the capacity of Tanzanian universities to

implement effective income-generation strategies. This collaborative approach not only broadens the scope of learning but also strengthens the global academic network, supporting the long-term growth and financial stability of public universities in Tanzania.

### **5.8.3 Impact of Technological Advancements**

Building on the current study on income generation projects and their role in addressing budget deficits in public universities, it is essential to consider how technological advancements can enhance these efforts. Future research should focus on identifying specific digital tools and online platforms that have shown promise in improving the effectiveness of income-generation initiatives. By examining case studies from universities that have successfully implemented technologies like crowdfunding, virtual events, and online courses, the university community can gain valuable insights into how these innovations drive better financial outcomes. Understanding the practical applications of these tools can provide a roadmap for other institutions looking to bolster their income generation strategies.

Moreover, future studies need to assess the long-term sustainability of these income-generation projects that leverage technology. This means not only looking at the immediate financial benefits but also analyzing how these projects can contribute to the university's overall budget health in the long run. A multidisciplinary approach that connects financial management with educational innovation and technology could yield rich insights. By evaluating existing projects that utilize technology, we can uncover other key factors contributing to their success, such as engagement with stakeholders and collaboration within the community, which are vital for ensuring these initiatives thrive beyond their initial launch.

Finally, addressing the challenges that public universities face in adopting these technologies is crucial for effective implementation. Future research should focus on institutional barriers, such as cultural resistance, funding constraints, and the need for adequate training and support for staff. Identifying these challenges will be key to developing strategies that help universities overcome them. By providing actionable recommendations, researchers can empower public universities to effectively harness technological innovations, ultimately supporting their financial stability and reducing budget deficits. This comprehensive approach will help pave the way for sustainable income-generation practices in the academic landscape.

#### **5.8.4 Stakeholder Engagement Strategies**

The current study findings found that, the success of income generation projects in public universities in Tanzania hinges significantly on the effective engagement of various stakeholders, including faculty, staff, students, and external partners. To deepen the understanding of this engagement, the current study recommends that further research be conducted to explore innovative strategies that foster collaboration among these groups. One potential avenue is the development of tailored communication platforms that facilitate ongoing dialogue between stakeholders. By investigating how these platforms can be utilized to promote transparency and inclusivity, researchers can identify best practices that empower all parties involved, ultimately enhancing the overall performance of income-generation initiatives in public universities.

Moreover, it is important to consider the diverse motivations and interests of each stakeholder group when designing engagement strategies. Faculty members may prioritize academic relevance and research opportunities, while students might seek practical learning experiences and career development through participation in income generation projects. By conducting qualitative studies that capture the perspectives and

aspirations of these different groups, researchers can uncover insights that lead to more effective collaboration. This could involve focus groups, surveys, or interviews that aim to understand the unique contributions each stakeholder can make, as well as the barriers they face. Focusing on this area will support the creation of tailored approaches that not only engage stakeholders but also align their goals with the income generation objectives of the university and making them effective in financing budget deficits that may occur in all universities where the financing system is under the central government through national budgets.

Lastly, research can also investigate the role of external partners, such as businesses and government agencies, in bolstering stakeholder engagement efforts. These partners can bring vital resources, expertise, and networks that significantly enhance the scope and impact of income-generation projects. Future studies could explore successful case studies where universities have effectively partnered with external entities, analyzing the strategies employed and the outcomes achieved. By understanding the dynamics of these collaborations, researchers can provide actionable recommendations to help public universities in Tanzania build sustainable partnerships that further drive income generation. This comprehensive approach to stakeholder engagement will not only address current budget deficits but also lay a sustainable foundation for future financial stability in the higher education sector.

#### **5.8.5 The Role of Politics in Shaping Effectiveness of IGPs**

The current study findings showed a critical gap in understanding the dynamics of income generation projects (IGPs) in addressing budget deficits in public universities. While relevance and sustainability emerged as significant contributors to the success of IGPs, the apparent insignificance of their effectiveness raised intriguing questions. One potential area for further exploration is the role of politics in shaping the effectiveness

of these projects, particularly in the context of public universities in Tanzania. Political influences, whether through policy decisions, resource allocation, or governance structures, may have profound implications on how IGPs perform and contribute to financial stability. Investigating this aspect could provide valuable insights into the interplay between political factors and the operational success of IGPs.

Future research could be conducted into how political priorities, leadership dynamics, and institutional policies impact the effectiveness of IGPs in financing budget deficits. By examining case studies or conducting comparative analyses across different universities, researchers could uncover patterns and identify best practices for mitigating political challenges. This line of inquiry not only addresses a significant knowledge gap but also offers practical recommendations for policymakers and university administrators striving to enhance the financial sustainability of public institutions. Such studies could ultimately contribute to more robust and resilient income generation strategies in the higher education sector.

### **5.9 Acknowledging Limitations of the Study**

One of the notable limitations of the current study on the performance of IGPs on financing budget deficits in universities in Tanzania was its exclusive focus on public universities in the United Republic of Tanzania. While this scope provided valuable insights into the specific context of Tanzanian public universities, it also restricted the generalizability of the findings to other settings. Private universities or institutions in different countries may operate under distinct socio-economic and institutional frameworks, which could influence the relevance, sustainability, and effectiveness of Income Generation Projects (IGPs). As a result, the conclusions drawn from this study might not fully apply to these other contexts, highlighting the need for future research to broaden the scope beyond public universities in Tanzania.

Another limitation was related to the study's assessment of the effectiveness of IGPs, which was found to be an insignificant factor in their performance. The methodology employed may not have comprehensively captured the multifaceted nature of effectiveness. Effectiveness could encompass a range of dimensions, such as operational efficiency, contribution to academic quality, or responsiveness to evolving market demands. These aspects may not have been fully addressed in the study, leaving room for deeper exploration in future research. Alternative approaches to measuring effectiveness or examining its subcomponents could potentially yield more nuanced insights into its role in the performance of IGPs.

Lastly, the study faced challenges related to data collection and availability across the universities included in the research. Limitations such as inconsistent reporting standards, limited access to reliable financial and operational records, and differences in the maturity of income-generating projects may have impacted the robustness of the findings. These challenges might have particularly influenced the results regarding the insignificance of effectiveness. Future studies could address these limitations by employing longitudinal research designs, repeating the integration of qualitative methods like interviews with stakeholders, or utilizing advanced data collection and analysis tools. Such approaches would enable a more comprehensive understanding of the factors affecting the performance of IGPs in financing budget deficits.

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**APPENDICES**  
**Appendix I: Informed Consent Form**

**PART A: The Researcher**

**Dear Respondent,**

My name is John Samson Magara Mgejwa, I am a Doctor of Philosophy in Education Research and Evaluation Candidate at Moi University in Kenya. I am inviting you to participate in my research study as one of my respondents. Note that involvement in the study is voluntary, so you may choose to participate or not. I am now going to explain the study to you. Please feel free to ask any questions that you may have about the research; I will be happy to explain anything in detail. I am interested in learning more about income-generation projects on financing budget deficits in public universities in Tanzania, a case of selected public universities in Tanzania. You are asked to participate in an interview and answering study questionnaire. This will take approximately 15 minutes of your time. All information will be treated with dignity.

**Confidentially.**

You are allowed to withhold your name in the interview and during filling questionnaire. In the event that your name shall be recorded in reference to your response, the case where subjects' identities need to be retained or can be associated with their responses, or anonymous and confidential, in the case where data collection does not allow responses to be connected with a particular subject). If anonymous, this means that your name will not appear anywhere and no one except me will know about your specific answers. I will assign a number to your responses, and only I will have the key to indicate which number belongs to which participant. In any articles I write or any presentations that I make, I will use a made-up name for you, and I will not

reveal details or I will change details about where you work, where you live, any personal information about you, and so forth.

“The benefit of this research is that you will be helping to understand the income-generation projects on financing budget deficits in public universities in Tanzania (topic of research). This information should help me and the completely academic world to know exactly how to establish best ways of designing relevant, effective and sustainable income-generation projects that can help to increase income-generation in financing budget deficit in public universities in Tanzania. The most of risks associated with research studies to you for participating in this study include mentioning your real names. These risks will be prevented by ensuring that no name of any respondent will be exposed rather than using words like “a respondent said that” because these are general words. If you do not wish to continue, you have the right to withdraw from the study, without penalty, at any time.

**PART B: B Participant**

All of my questions and concerns about this study have been addressed. I choose, voluntarily, to participate in this research project. I certify that I am at least 18 years of age.

---

Name of participant

---

Signature of participant

---

date

---

Name of researcher

---

Signature of researcher

---

date

## Appendix II: Questionnaire

John Samson Magara Mgejwa

Moi University in Kenya

Dear respondent,

My name is John Samson Magara Mgejwa, a student at Moi University in Kenya. I am studying a PhD in Education Research and Evaluation. Currently I am conducting a research on *Performance of Income-generation Projects on Financing Budget Deficits in Public Universities; a Case of Selected Public Universities in Tanzania*. This research is part of the requirements for the student to complete PhD studies at Moi University. This cover letter requests you to respond to the questions provided that will help in obtaining data for the study objectives.

I assure you that the information that you will provide in this questionnaire will be used for academic purposes only. Your names and other personal particulars will not be exposed to anyone. Confidentiality is the key element in this study.

Thank you so much for your cooperation.

Kind Regards

John Samson Magara Mgejwa

+255759708499

### **PART A: DEMOGRAPHIC INFORMATION OF RESPONDENTS AND INSTITUTIONS UNDER STUDY**

#### **Instructions**

Please put a tick on what you think is a correct answer for you

1. What is your gender?
  - a. Male
  - b. Female
2. What is your education level?
  - a. Diploma

- b. Bachelor's Degree
  - c. Master's degree
  - d. PhD
3. What is your age group?
- a. 18-35 years
  - b. 36-53 years
  - c. 54 and above
4. University's age of operation since its establishment
- a. Less than 5 years
  - b. Between 6 and 15 years
  - c. Between 16 to 25 years
  - d. 26 and above
5. The size of your University in terms of the number of students
- a. 1,000-5,000 students
  - b. 6,000-10,000 students
  - c. 11,000 students and above

### **B.1 Relevance of Income-generation Projects in relation Financing Budget deficits (IGPs)**

Rate the following items on a 5-point Likert scale

**Key:** 1- Strongly disagree, 2- Disagree, 3-Neutral, 4-Agree, 5- Strongly Agree

<b>Item on Relevance of the Adopted IGPs in Public Universities</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
The adopted IGPs supports the budget deficit financing because there are designed to solve budget deficits					
The design of the adopted IGPs supports the aim of solving budget deficits in public universities					
The context in which the adopted IGPs are operating is relevant to the aim of IGPs of financing budget deficits in public universities, it makes IGPs to generate more revenue					

The human resources operating the adopted IGPs is relevant and it has helped to achieve the goal of IGPs in financing budget deficits in public universities					
The current adopted IGPs are relevant to the goal of financing budget deficits because it generates income that is enough to meet the main goal					
The current adopted IGPs is relevant because its operating cost is low, this has brought the room for more revenue generation that has helped to reduce the budget deficits in public universities					

## **B.2 Effectiveness of the Adopted Income-generation Projects in relation to financing budget deficits in Public Universities**

Rate the following items on a 5-point Likert scale

**Key:** 1- Strongly disagree, 2- Disagree, 3-Neutral, 4-Agree, 5- Strongly Agree

<b>Item on Effectiveness of Adopted IGPs in public universities</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
The current adopted IGPs are objective focused and they facilitate the achievement of the goal of financing budget deficits because they produce revenue as they were designed for					
The cost for operating the current adopted IGPs is minimal, this has helped to serve more revenue that have been used to solve budget deficit					
The current adopted IGPs are effective because they strongly finance the budget deficit, this in long run supports implementation of academic activities					

There is engagement of stakeholders in the current adopted IGPs, this engagement makes IGPs effective that is why they are currently solving the budget deficits in public universities in Tanzania					
The current adopted IGPs are progressing smoothly according to the plan as they were established basing on financing budget deficit plan, this is a reason why they highly solving budget deficits in public universities					
The current adopted IGPs are effective in financing budget deficit in public universities because they were formulated basing on the factors causing budget deficits in public universities					

### **B.3 Sustainability of the Adopted Income-generation Projects in relation to financing budget deficits in Public Universities**

Rate the following items on a 5-point Likert scale

**Key:** 1- Strongly disagree, 2- Disagree, 3-Neutral, 4-Agree, 5- Strongly Agree

<b>Item on Sustainability of Adopted IGPs in public universities</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
The current contribution done by adopted IGPs on financing budget deficit in my university lasts for long as their contribution is sustainable					
The adopted IGPs in public universities to finance budget deficits have great economic impact because they have managed to reduce budget deficit in my university					
The current adopted IGPs in my university have impacted the lives of the university community because					

of its great contribution on reducing budget deficits in academic year					
Since the adopted IGPs at my university are sustainable, they have greatly improved the provision of quality education. This is a result of its high contribution in solving budget deficits					
The current adopted IGPs have facilitated the improvement of welfare of the university community particularly the academic staff because the problem of budget deficit that tend to challenge their internal payments has been solved					
The current adopted IGPs are designed to finance budget deficit in my university over a long term that is why for now they are doing better in solving budget deficits					

#### B.4 Budget Deficit Financing in Public University

Rate the following items on a 5-point Likert scale

**Key:** 1- Strongly disagree, 2- Disagree, 3-Neutral, 4-Agree, 5- Strongly Agree

<b>Items on Budget Deficit Financing in Public University</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
The human resources operating the adopted IGPs are relevant and it has helped to achieve the goal of IGPs in financing budget deficits in public universities					
The current adopted IGPs are relevant to the goal of financing budget deficits because it generates income that is enough to meet the main goal					

<p>The current adopted IGPs are objective focused and they facilitate the achievement of the goal of financing budget deficits because they produce revenue as they were designed for</p>					
<p>There is engagement of stakeholders in the current adopted IGPs, this engagement makes IGPs effective that is why they are currently solving the budget deficits in public universities in Tanzania</p>					
<p>The current adopted IGPs have facilitated the improvement of welfare of the university community, particularly the academic staff because the problem of budget deficit that tend to challenge their internal payments has been solved</p>					
<p>The current adopted IGPs are designed to finance budget deficit in my university over a long term that is why for now they are doing better in solving budget deficits</p>					

## **Appendix III: Interview Guide**

### **For University Administrators**

1. How do you ensure the sustainability of income-generation projects in your university?
2. What challenges have you faced in maintaining the sustainability of these projects?
3. How do you determine the relevance of income-generation projects to the university's goals and needs?
4. Can you provide examples of projects that have been particularly relevant or irrelevant?
5. What criteria do you use to assess the effectiveness of income-generation projects?
6. Can you share any instances where a project was effective or ineffective in addressing budget deficits?

### **For Project Managers**

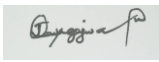
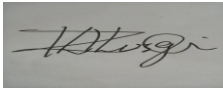
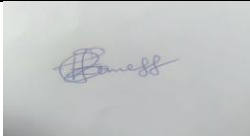
7. What strategies do you employ to manage and implement income-generation projects effectively?
8. What are the key factors that contribute to the success or failure of these projects?
9. How do you engage stakeholders (e.g., faculty, students, external partners) in income-generation projects?
10. What impact does stakeholder engagement have on the success of these projects?

### **For Faculty and Staff**

11. How do you perceive the impact of income-generation projects on the university's financial health?
12. Can you describe your experiences with any specific income-generation projects?
13. How have income-generation projects influenced your professional development and opportunities?
14. What support or resources do you need to contribute more effectively to these projects?

### Appendix IV: Research Budget

S/ N	Main Item	Activity	Rate (Ksh)	Total (Ksh)
1	Research Permit from COSTECH			
		Research Permit Application Fee	7,000	7,000
2	Validation of Research Tools, Pilot study and Data Collection			
		<b>University of Dar es Salaam (Main Campus), Open University of Tanzania (Dar es Salaam Campus)</b>		
		Transport from Moi University, Kenya to Dar es Salaam, Tanzania	6,000	6,000
		Food (on transit service)	4 days x 2000 per day	8,000
		Accommodation Fee	4 days x 2000 Ksh per day	8,000
		<b>State University of Zanzibar (Unguja)</b>		
		Transport from Dar es Salaam to Zanzibar, Zanzibar to Dar es Salaam	5,000 × 4	20,000
		Food	4 days x 3000 per day	12,000
		Accommodation Fee	4 days x 2,500 Ksh per day	10,000
		<b>Sokoine University of Agriculture (main Campus, Morogoro), Mzumbe University</b>		
		Transport from Dar es Salaam to Morogoro	700 × 4	2,800
		Food	4 days x 1,800 per day	7,200

		Accommodation Fee	4 days x 1,900 Ksh per day	7,200
		<b>University of Dodoma</b>		
		Transport from Morogoro to Dodoma, and from Dodoma to Dar es Salaam	2,500 x2	5,000
		Food	4 days x 1700 per day	6,800
		Accommodation Fee	4 days x 2000 Ksh per day	8,000
3	Printing and photocopies cost	Printing and photocopies cost	Printing and photocopies cost	40,000
4	Data Analysis	SPSS and AMOS software license expenses	30,000	30,000
5	Paper Publication		30,000	30,000
	<b>Total</b>			<b>188,200ksh s</b>
	<b>Student Name:</b>	<b>John Samson Magara Mgejwa</b>		
	<b>Signature</b>	 Date; 25/10/2023		
	<b>Supervisor Name:</b>	<b>Prof. Zacharia Kosgei</b>		
	<b>Signature</b>	 Date; 25/10/2023		
	<b>Supervisor Name:</b>	<b>Dr. Emily Bomet</b>		
	<b>Signature</b>	 Date; 25/10/2023		

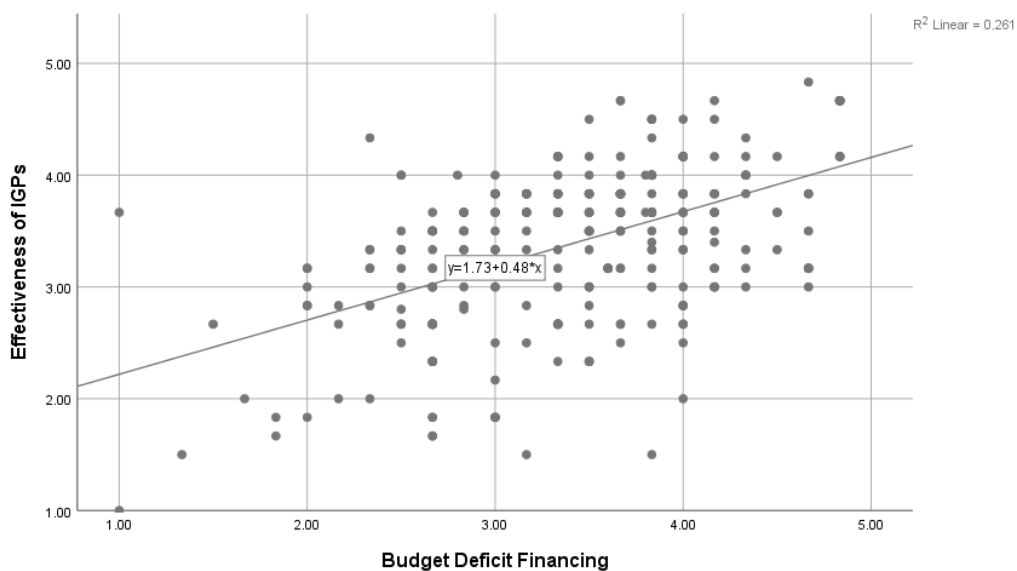
**Appendix V: Research Timetable 2023**

<b>Activities</b>	<b>JUNE</b>	<b>JULY</b>	<b>AUG</b>	<b>SEPT</b>	<b>OCT</b>	<b>NOV</b>	<b>DEC</b>
First research proposal draft submission							
Second research proposal draft submission							
Research Proposal Defense							
Working on the comments							
Submission of Introduction Letter for Research Permit							
Confirming validity, reliability and trustworthiness of research instruments							

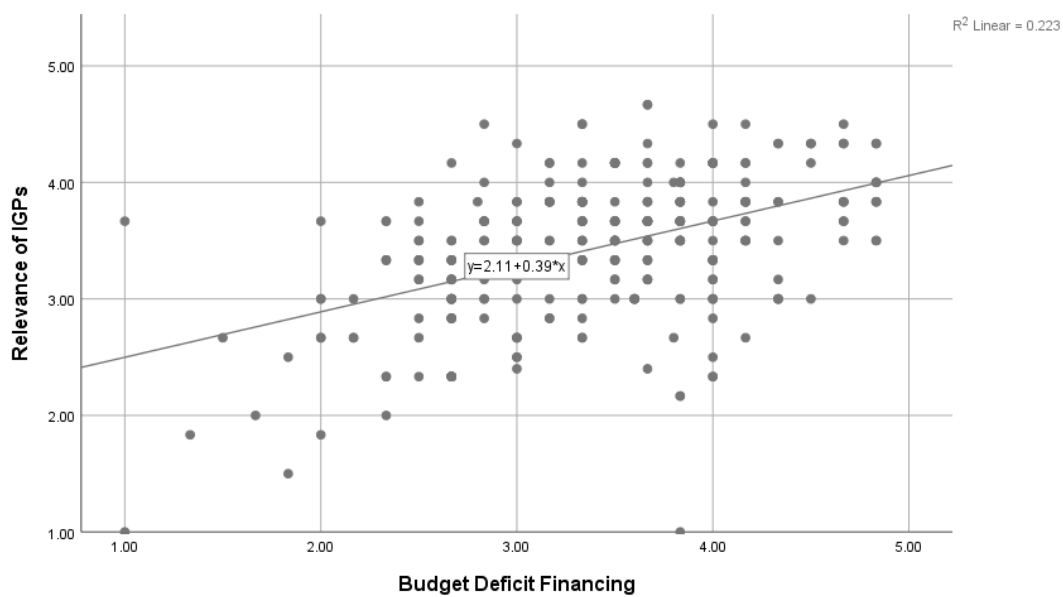


### Appendix VII: Research Timetable 2025

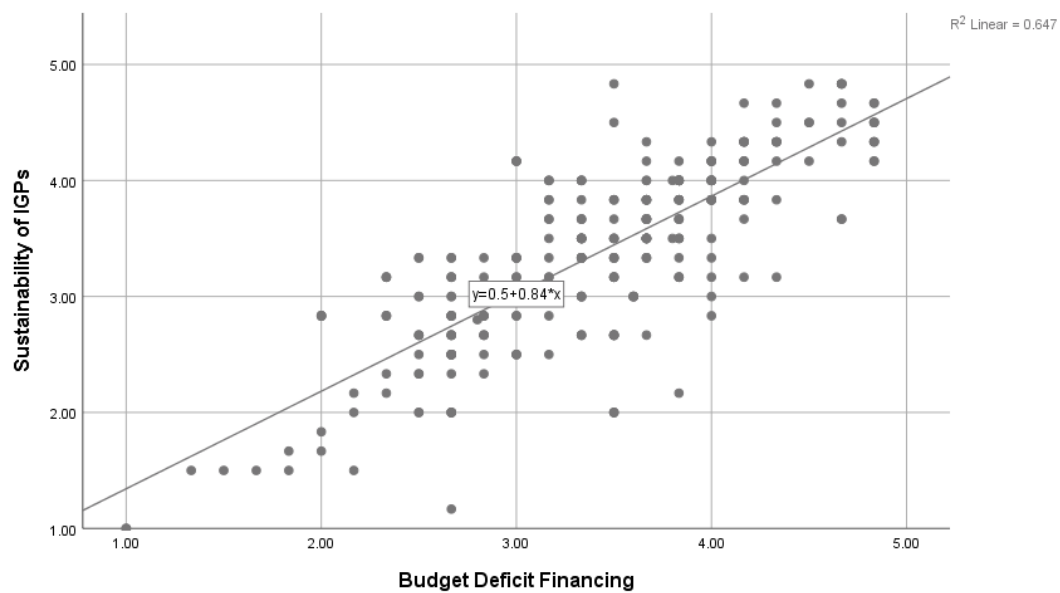
Activities	1	2	3	4	5	6	7	8	9	10	11	12
Final Draft submission												
Article publication												
Viva Voce												



**Fig. 4.1 Simple Scatter of Effectiveness of IGPs by Budget Deficit Financing**



**Fig. 4.2 Simple Scatter of Relevance of IGPs by Budget Deficit Financing in public universities in Tanzania**



**Fig 4.3 Simple Scatter Plot of Sustainability of IGPs by Budget Deficit Financing**

## Appendix VIII: Research Permits

	<p><b>UNITED REPUBLIC OF TANZANIA</b>  <b>MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY</b>  <b>TANZANIA COMMISSION FOR SCIENCE AND TECHNOLOGY</b></p>	
		
<p><b>RESEARCH PERMIT</b></p>		
Permit Number:	<b>CST00000300-2024-2024-00391</b>	
Date issued:	<b>17/05/2024</b>	
Researcher Name:	<b>John Samson Magara Mgejwa</b>	
Nationality:	<b>UNITED REPUBLIC OF TANZANIA</b>	
Research Title:	<b>Performance of Income Generation Projects on Financing Budget Deficits: A Case of Selected Public Universities in Tanzania</b>	
Research Areas:	<b>Dar es Salaam, Morogoro</b>	
Validity:	<b>From 17/05/2024 to 16/05/2025</b>	
 		
<p>Director Research Coordination and Promotion</p>		<p>Director General</p>
		 DOI: 77E0 5EBF

### IMPORTANT INFORMATION

1. A PI who wishes to continue with a research beyond the expiry date of the research permit should write to COSTECH two months before the operational permit's expiry date, to request for an extension or renewal of the permit.
2. Research permit that involves collecting human, plant or animal materials / data that will be exported outside Tanzania must submit a signed Material Transfer Agreement (MTA), Data Transfer Agreement (DTA) between Tanzania host institution and the foreign counterpart. The MTA/DTA will indicate terms for collecting, storing/managing, transporting, disposal or returning of the materials/DATA to Tanzania after the closure of the research.
3. Any patent or intellectual property and royalty emanating from any research approved by the National Research Registration Committee (NRCC) shall be owned as stipulated in the research proposals and in accordance with the IP policy of the respective research institutions.
4. All researchers are required to report to the Regional Administrative Secretary (RAS) of the study area and present the introduction letter and activity schedule (plan) prior starting any research activity.
5. All researchers are required to submit quarterly progress reports and all relevant publications made after completion of the research.
6. Terms and conditions of the permit are found at [www.costech.or.tz](http://www.costech.or.tz)
7. All communications should be addressed to COSTECH Director General through [rclearance@costech.or.tz](mailto:rclearance@costech.or.tz); [dg@costech.or.tz](mailto:dg@costech.or.tz) or +255 (022) 2700749; +255 (022) 2771358.



UNITED REPUBLIC OF TANZANIA  
MINISTRY OF EDUCATION, SCIENCE AND TECHNOLOGY  
TANZANIA COMMISSION FOR SCIENCE AND TECHNOLOGY



In reply please quote: **CST00000300-2024**

Date **17/05/2024**

Permanent Secretary,  
President's Office,  
Regional Administration and Local Government,  
P.O Box 1923,  
**DODOMA.**

Dear Sir/Madam,

**INTRODUCTION LETTER ON RESEARCH PERMIT**

1. I wish to introduce John Samson Magara Mgejwa, citizen of UNITED REPUBLIC OF TANZANIA who has been granted Research Permit No. CST00000300-2024-2024-00391 dated 17/05/2024.
2. The permit allows him/her to conduct research titled " Performance of Income Generation Projects on Financing Budget Deficits: A Case of Selected Public Universities in Tanzania" under the terms and conditons as per the National Research Registration and Clearance Guideline of 2022. The research will be conducted in Dar es Salaam,Morogoro.
3. COSTECH is therefore kindly requesting you to introduce the researcher(s) to relevant Regional Administrative Officer(s) and support with any necessary assistance and guidance under national laws and regulations.
4. Thank you for your cooperation

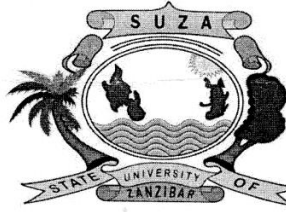
Dr. Amos Nungu  
DIRECTOR GENERAL

**CC. Regional Administrative Secretary:**  
Dar es Salaam,Morogoro



DOI: 77E0 5EBF

THE STATE UNIVERSITY OF  
ZANZIBAR  
192 BARABARA YA TUNGUU,  
P.O.Box 146  
Simu: +255773333167  
72214 Kati, Zanzibar – Tanzania  
E-mail: [vc@suza.ac.tz](mailto:vc@suza.ac.tz)  
Web site: [www.suza.ac.tz](http://www.suza.ac.tz)



CHUO KIKUU CHA TAIFA CHA  
ZANZIBAR  
192 TUNGUU ROAD,  
S.L.P 146  
Tel: +255773333167  
72214 Kati, Zanzibar – Tanzania  
E-mail: [vc@suza.ac.tz](mailto:vc@suza.ac.tz)  
Web site: [www.suza.ac.tz](http://www.suza.ac.tz)

HA.248/299/02/90

11/06/2024

Ndugu John Samson Magara,  
Chuo Kikuu cha MOI,  
**KENYA.**

### RUHUSA YA KUFANYA UTAFITI

Kwa heshima naomba uhusike na mada ya hapo juu.

Chuo Kikuu cha Taifa cha Zanzibar (SUZA), kimepokea barua yako ya ruhusa ya kufanya Utafiti hapa SUZA kutoka Ofisi ya Makamu wa Pili wa Rais kwa mada inayosema **“Performance of Income Generation Projects on Financing Budget Deficit in Public Universities: A Case of Selected Public Universities in Tanzania”**.

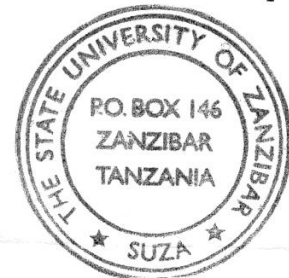
Chuo hakina pingamizi kuhusu suala hilo na Utafiti huo utafanyika kuanzia tarehe **30/05/2024** hadi **29/08/2024**.

Tunakutakia kila la kheri katika utafiti wako na tunakuahidi kupata mashirikiano mazuri kutoka kwetu.

Tunatanguliza shukrani.

Ahsante,

Prof. Moh'd Makame Haji,  
Makamu Mkuu wa Chuo,  
**Chuo Kikuu cha Taifa cha Zanzibar.**



0759708499

UNITED REPUBLIC OF TANZANIA  
MINISTRY OF EDUCATION, SCIENCE AND  
TECHNOLOGY



UNIVERSITY OF DAR ES SALAAM  
DIRECTORATE OF RESEARCH AND  
PUBLICATION



In replying please quote:

Ref. No. AB.269/319/01

22<sup>nd</sup> May, 2024

I Principal  
College of Engineering and Technology (COET)  
University of Dar es Salaam.

II Head of HRMRA  
Kindly handle  
Bashir 23/05/2024

RE: INTRODUCTORY LETTER

Kindly refer to the subject mentioned above.

2. This is to introduce **Mr. Mgejwa John Samson Magara** who is a researcher of Moi University. **Mr. Mgejwa John Samson Magara** is at the moment conducting data collection as part of his studies. The title of his research is **'Performance of Income Generation Projects on Financing Budget Deficits: A case of selected public universities in Tanzania'**.

3. This is to request you to grant the above-mentioned researcher any help that may enable him to achieve his study objectives. The period for which this permission has been granted is **May 2024 to August 2024**.

4. Yours sincerely,

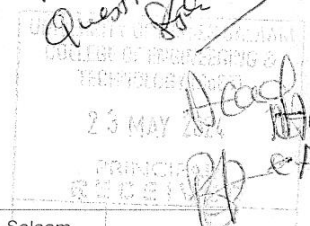
Dr. Mussa I. Mgwatu

DIRECTOR OF RESEARCH AND PUBLICATION

TO  
Please Staff (wred)  
Support the  
researcher by filling the  
Questionnaire  
Sf. 23/05/24

c.c. Deputy Vice Chancellor - Research

c.c. **Mr. Mgejwa John Samson Magara**



Cranford Pratt Building, University of Dar es Salaam, P.O. Box 35091, Dar es Salaam.  
Phone: +255 22 2410500-8 Ext. 2084, Phone: +255 22 2410727 - Direct, Email: research@udsm.ac.tz, Website: www.udsm.ac.tz

Head(s) WRE, CPE, MIE Kindly advise  
Mr. John the fact that your Dept(s)



**SERIKALI YA MAPINDUZI YA ZANZIBAR  
AFISI YA MAKAMU WA PILI WA RAIS,**

22279 Barabara ya Vuga,  
Vuga, S.L.P. 239,  
70460 Mjini Magharibi, Zanzibar

Tovuti : [www.ompr.go.tz](http://www.ompr.go.tz)  
Barua pepe : [Info@ompr.go.tz](mailto:Info@ompr.go.tz)  
Faksi : 0242231826

CA.33/411/01M/34

30/05/2024.

**MAKAMO MKUU WA CHUO,  
CHUO KIKUU CHA TAIFA CHA ZANZIBAR (SUZA),  
ZANZIBAR.**

**KUH: RUHUSA YA KUFANYA UTAFITI**

Kwa heshima, naomba uhusike na mada ya hapo juu.

Serikali ya Mapinduzi ya Zanzibar imemruhusu **Ndg. John Samson Magara Mgenjwa** mwanafunzi kutoka **Chuo Kikuu cha MOI, Kenya** anaesomea **Shahada ya Uzamivu (PhD)** katika fani ya **Elimu** kufanya utafiti katika mada inayohusiana na **“Performance of Income Generation Projects on Financing Budget Deficit in Public Universities: A Case of Selected Public Universities in Tanzania”**. Utafiti huo utafanyika hapo Chuoni SUZA yako kuanzia tarehe **30/05/2024** mpaka **29/08/2024**. Tunaomba asaidiwe ili aweze kukamilisha utafiti huo.

Kwa nakala ya barua hii mara baada ya kumaliza utafiti, mtafiti anatakiwa kuwasilisha nakala (copy) 3 za ripoti ya utafiti huo, Afisi ya Makamu wa Pili wa Rais Zanzibar.

Naambatanisha na kivuli cha kibali cha kufanyia utafiti.

*Gharib H. Kombo*  
wako mtafiti,

**GHARIB H. KOMBO,  
/KATIBU MKUU,  
AFISI YA MAKAMU WA PILI WA RAIS,  
ZANZIBAR.**

**NAKALA: Ndg. John Samson Magara Mgenjwa (0795 708499/0782 567135).**



## REVOLUTIONARY GOVERNMENT OF ZANZIBAR

SECRETARY  
ZANZIBAR RESEARCH COMMITTEE  
P. O. Box 2321 - MAZIZINI, ZANZIBAR  
Tel: 024 2231869  
Fax: 024 2231742



### RESEARCH/FILMING PERMIT

(This Permit is only Applicable in Zanzibar for duration specified)

#### SECTION

Ref: 2001714151240324776021

Name	JOHN SAMSON MAGARA MGEJWA
Gender	M
Date and Place of Birth	27-08-1988 - MARA, TANZANIA
Nationality	TANZANIAN
Data Collection Duration	12 Month(s)
Research Tittle	PERFORMANCE OF INCOME GENERATION PROJECTS ON FINANCING BUDGET DEFICITS : <i>A CASE OF SELECTED PUBLIC UNIVERSITIES IN TANZANIA</i>
Date of Issue	30-05-2024
Valid until	29-05-2025

#### FULL ADDRESS OF SPONSOR

Name of the Authorizing Officer

Signature and Seal

Institution

Address

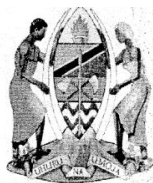
Printed Date

BAKARI K. MAKAME  
CHIEF GOVERNMENT STATISTICIAN  
P.O. Box 2321  
ZANZIBAR

Office of the Chief Government Statistician

P. O. Box 2321, Zanzibar

30-05-2024



UNITED REPUBLIC OF TANZANIA  
MINISTRY OF EDUCATION, SCIENCE AND  
TECHNOLOGY



MZUMBE UNIVERSITY

Tel: +255 023 2931220/1/2  
Fax: +255 023 2931216  
Mobile: +255 0754 694029  
E-mail: [vc@mu.ac.tz](mailto:vc@mu.ac.tz)  
Website: [www.mzumbe.ac.tz](http://www.mzumbe.ac.tz)

P.O. BOX 1  
MZUMBE  
MOROGORO, TANZANIA

*In replying please quote:*

Ref. AL. 3/267/01/380

5<sup>th</sup> June, 2024

Principal/Deans/Directors and Heads,  
P.o Box 1  
**MZUMBE UNIVERSITY.**


**RE: REQUEST FOR DATA COLLECTION**

Please refer to the heading above.

2. This is to inform you that, **Mr. John Samson Mgejwa** with Reg. No. EDU/DPHILERE/4837/23 is requesting for Data Collection with a Course title **"PERFORMANCE OF INCOME GENERATION PROJECTS ON FINANCING BUDGET DEFICITS; A CASE OF SELECTED PUBLIC UNIVERSITIES IN TANZANIA"** has been accepted. The permitted period for data collection will be effective from 10<sup>th</sup> June, 2024 to 28<sup>th</sup> June, 2024.

3. We kindly request your good office to accord with necessary assistance she may need.

4. Yours in Public Service.

  
Mahmud Kilangi  
For: **VICE CHANCELLOR**

MZUMBE UNIVERSITY  
P. O. Box 1, MZUMBE  
TANZANIA

Training Office - a copy

UNITED REPUBLIC OF TANZANIA  
MINISTRY OF EDUCATION, SCIENCE AND  
TECHNOLOGY



UNIVERSITY OF DAR ES SALAAM  
DIRECTORATE OF RESEARCH AND  
PUBLICATION



*In replying please quote:*

Ref. No. AB.269/319/01

22<sup>nd</sup> May, 2024

Principal  
College of Engineering and Technology (COET)  
University of Dar es Salaam.

**RE: INTRODUCTORY LETTER**

Kindly refer to the subject mentioned above.

2. This is to introduce **Mr. Mgejwa John Samson Magara** who is a researcher of Moi University. **Mr. Mgejwa John Samson Magara** is at the moment conducting data collection as part of his studies. The title of his research is '**Performance of Income Generation Projects on Financing Budget Deficits: A case of selected public universities in Tanzania**'.
3. This is to request you to grant the above-mentioned researcher any help that may enable him to achieve his study objectives. The period for which this permission has been granted is **May 2024 to August 2024**.

4. Yours sincerely,

Dr. Mussa I. Mgwatu

**DIRECTOR OF RESEARCH AND PUBLICATION**

DIRECTOR OF RESEARCH  
UNIVERSITY OF DAR-ES-SALAAM  
P.O. Box 35091  
DAR-ES-SALAAM

c.c. Deputy Vice Chancellor - Research  
c.c. **Mr. Mgejwa John Samson Magara**

UNITED REPUBLIC OF TANZANIA  
MINISTRY OF EDUCATION, SCIENCE AND  
TECHNOLOGY



UNIVERSITY OF DAR ES SALAAM  
DIRECTORATE OF RESEARCH AND  
PUBLICATION



*In replying please quote:*

Ref. No. AB.269/319/01

22<sup>nd</sup> May, 2024

Director  
University of Dar es Salaam Computing Centre (UCC)  
University of Dar es Salaam.

**RE: INTRODUCTORY LETTER**

Kindly refer to the subject mentioned above.

2. This is to introduce **Mr. Mgejwa John Samson Magara** who is a researcher of Moi University. **Mr. Mgejwa John Samson Magara** is at the moment conducting data collection as part of his studies. The title of his research is '**Performance of Income Generation Projects on Financing Budget Deficits: A case of selected public universities in Tanzania**'.

3. This is to request you to grant the above-mentioned researcher any help that may enable him to achieve his study objectives. The period for which this permission has been granted is **May 2024 to August 2024**.

4. Yours sincerely,

Dr. Mussa I. Mgwatu  
**DIRECTOR OF RESEARCH AND PUBLICATION**

c.c. Deputy Vice Chancellor - Research  
c.c. **Mr. Mgejwa John Samson Magara**

**DIRECTOR OF RESEARCH  
UNIVERSITY OF DAR ES SALAAM  
P.O. Box 35091**

UNITED REPUBLIC OF TANZANIA  
MINISTRY OF EDUCATION, SCIENCE AND  
TECHNOLOGY



UNIVERSITY OF DAR ES SALAAM  
DIRECTORATE OF RESEARCH AND  
PUBLICATION



*In replying please quote:*

Ref. No. AB.269/319/01

22<sup>nd</sup> May, 2024

Director  
Directorate of Planning, development and investment  
University of Dar es Salaam.

**RE: INTRODUCTORY LETTER**

Kindly refer to the subject mentioned above.

2. This is to introduce **Mr. Mgejwa John Samson Magara** who is a researcher of Moi University. **Mr. Mgejwa John Samson Magara** is at the moment conducting data collection as part of his studies. The title of his research is '**Performance of Income Generation Projects on Financing Budget Deficits: A case of selected public universities in Tanzania**'.

3. This is to request you to grant the above-mentioned researcher any help that may enable him to achieve his study objectives. The period for which this permission has been granted is **May 2024 to August 2024**.

4. Yours sincerely,

Dr. Mussa I. Mgwatu

**DIRECTOR OF RESEARCH AND PUBLICATION**

DIRECTOR OF RESEARCH  
UNIVERSITY OF DAR-ES-SALAAM  
P.O. Box 35031  
Dar es Salaam

c.c. Deputy Vice Chancellor - Research  
c.c. **Mr. Mgejwa John Samson Magara**



UNITED REPUBLIC OF TANZANIA  
MINISTRY OF EDUCATION, SCIENCE AND  
TECHNOLOGY



UNIVERSITY OF DAR ES SALAAM  
DIRECTORATE OF RESEARCH AND  
PUBLICATION

*In replying please quote:*

Ref. No. AB.269/319/01

22<sup>nd</sup> May, 2024

Director  
Estate Department  
University of Dar es Salaam.

**RE: INTRODUCTORY LETTER**

Kindly refer to the subject mentioned above.

2. This is to introduce **Mr. Mgejwa John Samson Magara** who is a researcher of Moi University. **Mr. Mgejwa John Samson Magara** is at the moment conducting data collection as part of his studies. The title of his research is '**Performance of Income Generation Projects on Financing Budget Deficits: A case of selected public universities in Tanzania**'.

3. This is to request you to grant the above-mentioned researcher any help that may enable him to achieve his study objectives. The period for which this permission has been granted is **May 2024 to August 2024**.

4. Yours sincerely,

DIRECTOR OF RESEARCH  
UNIVERSITY OF DAR-ES-SALAAM  
P.O. Box 35091

Dr. Mussa I. Mgwatu

**DIRECTOR OF RESEARCH AND PUBLICATION**

c.c. Deputy Vice Chancellor - Research  
c.c. **Mr. Mgejwa John Samson Magara**



UNITED REPUBLIC OF TANZANIA  
MINISTRY OF EDUCATION, SCIENCE AND  
TECHNOLOGY



**SOKOINE UNIVERSITY OF AGRICULTURE  
OFFICE OF THE DEPUTY VICECHANCELLOR  
(ACADEMIC RESEARCH AND CONSULTANCY)**

P.O Box 3000, CHUO KIKUU, MOROGORO, TANZANIA.  
Phone: +255 (023) 2640006/7/8/9, Direct Line: +255 (023)  
2640023, Fax: +255 (023) 2640016, E-mail: [dycadminfin@sua.ac.tz](mailto:dycadminfin@sua.ac.tz),  
Website: <https://www.sua.ac.tz>

Please refer to:

**Our ref: SUA/DPRTC/R/14Z/VOLUM II/133**

**Date: 6<sup>th</sup> June, 2024**

The Vice Chancellor,  
Moi University,  
P.O.BOX 3900,  
Eldoret, KENYA.

**RE: REQUEST FOR DATA COLLECTION**

This is to acknowledge receipt of your letter with reference No.EDU/DPhilLERE/4837/23 dated 21<sup>st</sup> May, 2024.

Please be informed that Mr. John S. M. Mgejwa who is a bonifide student of Moi University, Kenya has been granted permission to collect data at the Sokoine University of Agriculture for his research work with the title "**Performance of Income Generation Projects on Financing Budget Deficits: A case of Selected Public Universities in Tanzania.**"

The period for which this permission has been granted is from 10<sup>th</sup> to 28<sup>th</sup> June 2024.

Should some of the areas where he will be interested to collect data be restricted, He is advised to contact the Office of the Deputy Vice Chancellor (Academic, Research and Consultancy) for assistance.

Yours sincerely,

DEPUTY VICE CHANCELLOR  
(ACADEMIC, RESEARCH & CONSULTANCY)  
SOKOINE UNIVERSITY OF AGRICULTURE  
P. O. BOX 3000, MOROGORO TANZANIA

*J. Kabote*  
Prof. Juma S. Kabote

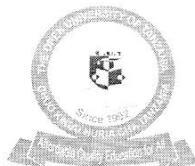
**FOR: DEPUTY VICE-CHANCELLOR  
(ACADEMIC RESEARCH AND CONSULTANCY)**

c.c. The Vice-Chancellor  
The Deputy Vice Chancellor (PFA)  
Mr. John S. M. Mgejwa

**THE OPEN UNIVERSITY OF TANZANIA**  
**OFFICE OF THE DEPUTY VICE CHANCELOR, ACADEMIC, RESEARCH AND**  
**CONSULTANCY**

*Directorate of Research, Publication and Innovation*

P.O. Box 23409  
 Dar Es Salaam  
<http://www.out.ac.tz>



Tel : +255 -22 2668992/2668445  
 Fax : +255 22 266230  
 ext.  
 Email: [drpi@out.ac.tz](mailto:drpi@out.ac.tz)

Ref. No. OUT/DRPI/RC/26/2024

Date: 5<sup>th</sup> June, 2024

The Open University of Tanzania,  
 P.O. Box 23409,  
**DAR ES SALAAM**

Dear Sir/ Madam,

**RE: RESEARCH CLEARANCE AND DATA COLLECTION**

This letter is written to allow **Mr. Mgejwa John Samson Magara** – **EDU/DPHILERE/4837/23**, a student from Moi University, School of Education, Department of Educational Management & Policy Studies to collect data at The Open University of Tanzania as a fulfilment for the PhD studies. He will be collecting data which will enable him to complete his research on “*Performance of Income Generation Projects on Financing Budget Deficits: A Case of Selected Public Universities in Tanzania*”. He will be collecting data from 5<sup>th</sup> June 2024 to 31<sup>st</sup> August, 2024.

It is my hope that **Mr. Mgejwa John Samson Magara** will be accorded the necessary cooperation in relevant faculties and departments.

Yours Sincerely,

THE OPEN UNIVERSITY OF TANZANIA

*Dr. Harrieth Mtae*  
 Dr. Harrieth Mtae

Director of Research Publication and Innovation

For: VICE CHANCELLOR



cc DVC – ARC  
 DVC – PFA  
 DVC – LTRS  
 DFASS  
 DFBM  
 DFLAW  
 DFSTES  
 DFED  
 DIEMT



**MOI UNIVERSITY**  
Office of the Dean School of Education

Tel. Eldoret (053) 43001-8/43620  
Fax No. (053) 43047

P.O. Box 3900  
Eldoret, Kenya

**REF: EDU/DPhilERE/4837/23**

**DATE: 18<sup>th</sup> December, 2023**

**TO WHOM IT MAY CONCERN**

Dear Sir/Madam,

**RE: RESEARCH PERMIT IN RESPECT OF MGEJWA JOHN SAMSON**  
**MAGARA – EDU/DPHILERE/4837/23**

The above named is a 2<sup>nd</sup> year PhD Student at Moi University, School of Education, Department of Educational Management & Policy Studies.

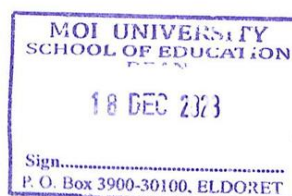
It is required of his PhD studies to conduct a research project and produce a research report. His research topic is entitled:

**“Performance of Income Generation Projects on Financing Budget Deficits: A Case of Selected Public Universities in Tanzania.”**

Any assistance given to enable him conduct research successfully will be highly appreciated.

Yours faithfully,

**PROF. ANNE S. KISILU**  
**DEAN, SCHOOL OF EDUCATION**



**Appendix IX: The Lawshe Table for Minimum Values of Content Validity Ratio**

No. of Panelists	Min Value
5	0.99
6	0.99
7	0.99
8	0.75
9	0.78
10	0.62
11	0.59
12	0.56
13	0.54
14	0.51
15	0.49
20	0.42
25	0.37
30	0.33
35	0.31
40	0.29

**Appendix X: Morgan's Table for Sample Size**

<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

### **Appendix XI: Data Preparation and Coding**

This part dealt with the preparation and coding of data before conducting actual data analysis using different statistical analysis techniques. The data were converted into an appropriate format through coding for easy analysis. Raw data for demographic information were coded as follows: gender was coded as (0) for Females and (1) for males. Furthermore, age was coded as (1) for age class interval 18-35, (2) for age class interval 36-53, and (3) for age class interval 54 and above. Respondents' education level was coded as follows: diploma was coded as (1), Bachelor's degree was coded as (2), Master's degree was coded as (3), and PhD was coded as (4). Also, the university's age of operation was coded as follows: 16-25 years of operation was coded as (1) while 26 years of operation and above was coded as (2). Finally, the size of the university in terms of number of students was coded as follows: 1,000-5,000 students was coded as (1), 6,000-10,000 students was coded as (2) and 11,000 and above was coded as (3). The 5-point Likert Scale were coded as follows: Strongly Disagree was coded as (1), Disagree was coded as (2), Neutral was coded as (3), Agree was coded as (4) and Strongly Agree was coded as (5).

#### **Checking for the Accuracy of the Data**

The researcher checked the SPSS data file to examine if some data were entered incorrectly. After cross-checking, it was found that there were some data that the researcher had entered incorrectly. Therefore, the action was taken by re-entering some of the data correctly.

#### **Case Screening**

After verifying the accuracy of data entry, the researcher conducted case screening. This process was important because it allowed the researcher to identify missing data,

unengaged respondents, and outliers. The following are more details on what were encountered after conducting case screening.

### **Assessment for the Missing Data**

Missing data are data missed during data entry. The missing data can be caused by researchers overlooking or respondents who did not answer items effectively. To identify missing data, the researcher formulated a frequency distribution table showing several missing data and their percentages. This was done for each item that had missing data. It was found that there were 12 missing data at the item level. To solve this, the mean substitution method was used to fill the existing gaps in all 12 cases. The mean values were calculated to all items, and then the corresponding mean values were extracted to fill the missing cases. Table 4.6 shows the summary of the missing data and the substituted mean.

**Table 4.6: Missing Data**

<b>Missing Data</b>	<b>F (%)</b>	<b>Substituted Mean Values</b>
IV-Relevance Item 2	2(0.7%)	2.40
IV-Effectiveness Item 2	2(0.7%)	2.80
IV-Effectiveness Item 5	2(0.7%)	3.40
IV-Sustainability Item 4	1(0.35)	2.80
DV-Budget Deficit Financing Item 1 & 4	2(0.7%)	2.80; 3.60

**Source: Survey Data (2025)**

### **Unengaged Responses**

During the study, four (4) respondents were identified as unengaged. These respondents consistently rated most items with scores of 3 or 4, respectively. These respondents were considered passive, they were not objectively answering the items. The standard deviation of their responses was less than 0.25, which is a commonly used rule of thumb to identify unengaged respondents. To avoid biases and ensure the integrity of the data, the responses from these two individuals were removed from the dataset.

### **Assessment for Univariate Outliers**

Determining univariate outliers in the data set was very important in this study. According to their definition, outliers are extreme low or high values within the data set. If they are not treated well, they can affect the analysis. In the current study, the standard deviation for all independent variables (effectiveness, relevance and sustainability) was calculated. The values below -3 and above +3 were termed to be outliers. In this study, the best way for solving the issue of outliers was to remove or delete them from the data set, but before doing this, the deletion waited for multivariate outliers' assessment. After evaluation by using a standard score, it was found that about

38 cases were suspected to be outliers, so further assessment was done for individual cases. It was found that two (2) cases qualified to be outliers. The deletion of these outliers waited for the assessment of multivariate outliers.

### **Assessment for Multivariate Outliers**

After the assessment of univariate outliers, an assessment of multivariate outliers followed. Multivariate outliers are outliers that exhibit unusual and influential correlations between the independent variables, the cumulative distribution for Chi-square and Mahalanobis Distance and the degree of freedom ( $CDF.CHISQ(MAH\_1,3)$ ) were used to calculate the probabilities. The rule of thumb is that a value with a p-value  $<0.001$  shows that the value is a multivariate outlier. After the output for probabilities, it was found that all the probabilities were greater than 0.001 ( $p>0.001$ ). This means there were no outliers based on the probabilities extracted after the analysis.

## Appendix XII: Factors Extracted

**Table 4.11: Factors extracted after EFA for Relevance, Effectiveness and Sustainability of IGPs**

Item Statement	Code	Factor Loading
The adopted IGPs in public universities to finance budget deficits have great economic impact because they have managed to reduce budget deficit in my university	IVSustainability2	.784
The current contribution done by adopted IGPs on financing budget deficit in my university lasts for long as their contribution is sustainable	IV Sustainability1	.703
Since the adopted IGPs at my university are sustainable, they have greatly improved the provision of quality education. This is a result of its high contribution in solving budget deficits	IVSustainability4	.677
The current adopted IGPs are designed to finance budget deficit in my university over a long term that is why for now they are doing better in solving budget deficits	IVSustainability6	.585
The current adopted IGPs in my university have impacted the lives of the university community because of its great contribution on reducing budget deficits in academic year	IVSustainability3	.571
<b>Eigen Value</b>		4.098
<b>Percentage of Variance</b>		31.520
<b>Cumulative Percentage of Variance</b>		31.520
Item Statements on Relevance of IGPs	Code	Factor Loading
The adopted IGPs supports the budget deficit financing because they are designed to solve budget deficits	IVRelevance1	.763
The human resources operating the adopted IGPs is relevant and it has helped to achieve the goal of IGPs in financing budget deficits in public universities	IVRelevance4	.726
The context in which the adopted IGPs are operating is relevant to the aim of IGPs of financing budget deficits in public universities, it makes IGPs to generate more revenue	IVRelevance3	.724
The current adopted IGPs is relevant because its operating cost is low, this has brought the room for more revenue generation that has helped to reduce the budget deficits in public universities	IVRelevance6	.661
<b>Eigen Value</b>		1.483
<b>Percentage of Variance</b>		11.404
<b>Cumulative Percentage of Variance</b>		42.924
Item statements on Effectives of IGPs	Code	Factor Loading
The current adopted IGPs are effective because they strongly finance the budget deficit, this in long run supports implementation of academic activities	IVEffectiveness3	.738
The current adopted IGPs are objective focused and they facilitate the achievement of the goal of financing budget deficits because they produce revenue as they were designed for	IVEffectiveness1	.711
The cost for operating the current adopted IGPs is minimal, this has helped to serve more revenue that have been used to solve budget deficit	IVEffectiveness2	.654
The current adopted IGPs are effective in financing budget deficit in public universities because they were formulated basing on the factors causing budget deficits in public universities	IVEffectiveness6	.646
<b>Eigen Value</b>		1.420
<b>Percentage of Variance</b>		10.922
<b>Cumulative Percentage of Variance</b>		53.845

**Source: Survey Data (2025)**

**Appendix XIII: Table 4.13: Reliability Coefficients for All Factors during Pilot Study**

<b>Items for Relevance</b>	<b>Cronbach's Alpha if Item Deleted</b>
-The adopted IGPs supports the budget deficit financing because there are designed to solve budget deficits	.724
-The design of the adopted IGPs supports the aim of solving budget deficits in public universities	.716
-The context in which the adopted IGPs are operating is relevant to the aim of IGPs of financing budget deficits in public universities, it makes IGPs to generate more revenue	.761
-The human resources operating the adopted IGPs is relevant and it has helped to achieve the goal of IGPs in financing budget deficits in public universities	.754
-The current adopted IGPs are relevant to the goal of financing budget deficits because it generates income that is enough to meet the main goal	.809
-The current adopted IGPs are relevant because its operating cost is low, this has brought the room for more revenue generation that has helped to reduce the budget deficits in public universities	.690
<b>Overall Reliability (Cronbach Alpha)</b>	<b>.779</b>
<b>Items for Sustainability</b>	<b>Cronbach's Alpha if Item Deleted</b>
-The current contribution done by adopted IGPs on financing budget deficit in my university lasts for long as their contribution is sustainable	.724
-The adopted IGPs in public universities to finance budget deficits have great economic impact because they have managed to reduce budget deficit in my university	.713
-The current adopted IGPs in my university have impacted the lives of the university community because of its great contribution on reducing budget deficits in academic year	.728
-Since the adopted IGPs at my university are sustainable, they have greatly improved the provision of quality education. This is a result of its high contribution in solving budget deficits	.710
-The current adopted IGPs have facilitated the improvement of welfare of the university community particularly the academic staff because the problem of budget deficit that tend to challenge their internal payments has been solved	.733
-The current adopted IGPs are designed to finance budget deficit in my university over a long term that is why for- now they are doing better in solving budget deficits	.732
<b>Overall Reliability (Cronbach Alpha)</b>	<b>.758</b>
<b>Items for Effectiveness</b>	<b>Cronbach's Alpha if Item Deleted</b>
-The current adopted IGPs are objective focused and they facilitate the achievement of the goal of financing budget deficits because they produce revenue as they were designed for	.690
-The cost for operating the current adopted IGPs is minimal, this has helped to serve more revenue that have been used to solve budget deficit	.690
-The current adopted IGPs are effective because they strongly finance the budget deficit, this in long run supports implementation of academic activities	.702
-There is engagement of stakeholders in the current adopted IGPs, this engagement makes IGPs effective that is why they are currently solving the budget deficits in public universities in Tanzania	.695
-The current adopted IGPs are progressing smoothly according to the plan as they were established basing on financing budget deficit plan, this is a reason why they highly solving budget deficits in public universities	.702
-The current adopted IGPs are effective in financing budget deficit in public universities because they were formulated basing on the factors causing budget deficits in public universities	.689
<b>Overall Reliability (Cronbach Alpha)</b>	<b>.732</b>

**Source: Pilot Study Data (2025)**

**Appendix XIV: Plagiarism Awareness Certificate**