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Alternative Funding Strategies and Financial Sustainability of Public Universities in Rivers State, Nigeria.

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Abstract
This study investigated alternative funding strategies and financial sustainability of public universities in Rivers State. Three objectives, three research questions and three null hypotheses guided the study. The study adopted correlational research design. The total population of the study consisted of 1,427 principal officers (Deans, Directors, HODs and Administrative staff) in the three public Universities in Rivers State (629 =RSU, 586 =Uniport, and 212 =IAUE). A sample of 396 principal officers (174=RSU, 163=Uniport & 59=IAUE) were drawn from population using the stratified random sampling technique. Two different self-structured questionnaires titled: "Alternative Funding Strategies Questionnaire" and "Financial Sustainability Questionnaire" which were on a 4-point rating scale of Strongly Agree, Agree, Disagree and Strongly Disagree were used as instruments for the study. The instruments were face and content validated by two experts from Measurement and Evaluation and the Department of Educational Management respectively in Rivers State University and tested for reliability using Cronbach Alpha statistics which yielded reliability indexes of 0.79, 0.74 and 0.73. Pearson Product Moment Correlation statistics was used in answering the research questions while the null hypotheses were tested using t-Transformation at 0.05 level of significance. The study found that a positive relationship between public-private partnership, commercialization of research and income sharing agreements and financial sustainability of public universities in Rivers State, which is statistically shown to be significant. Based on the findings, it was recommended among others that Universities should concentrate on managing public private partnership as a measure that conforms to growth and serenity since it enhances financial sustainability among universities.

Key Words: *Alternative Funding Strategies, Financial Sustainability, Public-Private Partnership, Commercialization of Research, Income Sharing Agreements*

Introduction

A university is one of the higher educational institutions engaged in teaching and research in various disciplines for the acquisition of knowledge, contributions to knowledge and the production of workforce and materials for personal and societal growth. Public universities in Rivers State rely heavily on the efficient availability and use of physical resources to create an atmosphere that is favourable to teaching and learning Nwuke, and Nwanguma, (2024). Universities are set up for dissemination of knowledge through research, teaching and learning (Akporche, 2019). All over the world, different countries make efforts to build universities to meet their intellectual and manpower needs. In Nigeria, the case is the same as universities are established to foster individual and societal development (Osuji & Nyebuchi, 2021). Universities produce human capital that is the beacon of economic development of a nation and are made up of staff and students. Every university needs funds to grow and run their day to day activities. Public universities in Rivers State, Nigeria, have traditionally relied on government funding to support their operations and development. However, over the years, this sole dependence has proven inadequate, leading to financial challenges that threaten the financial sustainability and quality of higher education. Diminishing public funds have precipitated a financial crisis, underscoring the imperative for alternative funding strategies to ensure the institutions' financial sustainability. Wagbara and Eseyin (2024), noted that reliance solely on fees may not be sustainable in the long term, highlighting the need for a balanced approach that includes both internal and external funding sources to enhance financial sustainability.

Financial sustainability is seen and described as the organization's ability to push annual budgets without constraints. According to Adebayo (2022), within the context of universities, financial sustainability implies that these institutions generate revenue that is greater than the costs of providing educational services. That is, the income generated by these universities is sort of what is required to cater for salaries, wages and allow areas of staff additionally to procuring educational materials and services (Nganga & Kibati, 2016). It also aims at ensuring that a learning institution is given a position to urge adequate income to enable the institution to discharge research activities without over relying on external source. Jaja, Sam-Kalagbor and Igoni (2023), reveals that internal sources of funding, particularly fees, have become more predominant than external methods in public universities in Rivers State. This shift underscores the importance of developing robust internal revenue streams to support university operations and development.

Nwuke, and Okwu, (2024) emphasized that innovative funding strategies is the exploration of public-private partnerships. Collaborations between educational institutions and private entities can yield mutually beneficial outcomes. Again, Ofor-Douglas (2024), emphasizes that innovative funding mechanisms are essential for the financial sustainability of Nigerian universities in the 21st century. There is a clear indication that Federal Government Allocation to education has not met the 26% benchmark as stipulated by UNESCO, this is practically inhibiting financial sustainability of public universities in Nigeria.

Eric 2024, Postulated;

Nigeria's Budgets for Education in the Last Five (5) Years, from 2019-2023

S/N	Year	Budget	Percent	Out of
1.	2019	6.20 Billion Naira	7.03	8.92 Trillion Naira
2.	2020	6.71 Billion Naira	6.7	10.33 Trillion Naira
3.	2021	742.5 Billion Naira	5.6	13.6 Trillion Naira
4.	2022	355.47 Billion Naira	4.1	875.93 Trillion Naira
5.	2023	923.79 Billion Naira	5.4	17.13 Trillion Naira

Finance is said to be the one work of any university, private or public and much more in education which is a social service, hence its importance in the school cannot be over emphasized (Cynthia, 2023). The present economic realities in Nigeria point to the fact that government can no longer fund university education alone. The inadequacy of government funding is evident in the deteriorating infrastructure and frequent industrial actions by university staff, primarily due to unpaid allowances and other financial grievances (Osuji & Major-Jack, 2024). Furthermore, the surge in student enrollment over recent decades has intensified the demand for resources in Nigerian public universities. For instance, enrollment figures escalated from 15,272 in 1970 to over 2 million by 2019 (Okai, 2020). This rapid growth has strained existing infrastructures and resources, making the traditional government funding model increasingly untenable. The Federal Government of Nigeria in her bid to provide supplementary support to public tertiary institutions established the Tertiary Education Trust Fund (TETFUND) in 2011. TETFUND was created as an intervention agency charged with the mandate to provide support for the rehabilitation, restoration and consolidation of tertiary education in Nigeria, with particular reference to universities, colleges of education and polytechnics (Kalagbor, Amie-Ogan & Sam-Kalagbor, 2023). While TETFUND has contributed to alleviating some financial constraints, the rapid expansion of the university system and increasing enrollment rates have outpaced the available resources, necessitating the exploration of additional funding avenues. The need to explore alternative funding strategies has become imperative to ensure these institutions can fulfill their educational mandates effectively and remain financially sustained.

Alternative funding strategies in universities refer to the various financial mechanisms institutions employ beyond traditional government allocations and tuition fees to sustain and enhance their operations. According to Osuji and Major-Jack (2024), alternative funding strategies in universities involve a multifaceted approach to revenue generation, ensuring financial stability and institutional growth in the face of declining government support and rising operational costs. It also implies a range of non-traditional mechanisms to raise additional funds for development aid of public universities other than the traditional method. Johnstone (2019), asserted that alternative funding strategies encompass diversified revenue sources such as endowments, grants, partnerships and entrepreneurial ventures that ensure financial sustainability in higher education. Similarly, Okebukola (2020), posits that these strategies involve innovative approaches such as cost-sharing, alumni donations, and industry collaborations, which reduce overreliance on government subventions while fostering institutional autonomy. In a broader perspective, Salmi (2017), argues that alternative funding strategies include public-private partnerships, research commercialization and income sharing agreements, all of which create a more robust financial model for universities. Additionally, Teferra (2018), highlights that many African universities increasingly explore income-generating activities such as consultancy services, online programs, and international collaborations to mitigate financial constraints. The essence of these strategies, as noted by Clark (2019), lies in their ability to enhance financial resilience, promote academic excellence and sustain the quality of teaching and research. The adoption of these strategies ensures that the additional funds generated are utilized efficiently, directly contributing to the institutions' financial sustainability. Creativity is increasingly marked by the capacity of an individual to produce, fashion out, construct, formulate and or invent something that is very novel in the society through effective imaginative thinking skills for the purpose of generating some thing new, in other words alternative, Osuji (2021).

The financial sustainability of universities is increasingly challenged by dwindling government allocations, rising operational costs, and growing student enrollment (Johnstone, 2020). To address these financial constraints, Public-Private Partnerships (PPPs) have emerged as a viable alternative funding strategy. PPPs involve collaborative engagements between universities and private sector entities to mobilize resources for infrastructure development, research funding and service delivery, thereby enhancing financial sustainability (Altbach & Salmi, 2019). Public-private partnership represents a collaborative approach to financing higher education initiatives. Typically, it involves private capital financing government projects and services up-front, and then drawing revenues from taxpayers and/or users for profit over the course of the public–private partnership contract. By joining forces with private entities, institutions can leverage additional resources, access expertise and expedite the execution of critical projects. Whether it's constructing new facilities, launching research programs or enhancing community outreach (Okurut, 2019). One of the key contributions of PPPs to financial sustainability is their role in infrastructure development. Many universities struggle with inadequate facilities due to limited government funding. Through PPPs, private sector investments enable the construction and maintenance of essential infrastructure, such as lecture halls, laboratories and student hostels, reducing financial pressure on universities (Mohammed & Yusuf, 2021). Additionally, PPPs provide opportunities for universities to engage in revenue-generating ventures, such as industry-sponsored research, consultancy services and technology commercialization (Clark, 2018). These income streams reduce universities' reliance on government subventions and tuition fees, fostering long-term financial stability. Furthermore, PPPs enhance financial sustainability by improving the quality and relevance of education. Private sector partners often bring expertise, innovation and funding for research collaborations, which improve the employability of graduates and attract more students to the institutions (Marginson, 2021). This, in turn, enhances tuition revenue and institutional reputation, reinforcing financial sustainability.

Commercialization of research is the process of developing ideas to a point where it is ready to be sold in the market place. Research commercialization allows technology created during research activities to be further developed into marketable products for the benefit of the public. The university research community has always been under various forms of outside pressure – political, economic and institutions that have had the potential to impact, for better or worse, the nature and direction of academic research (Pirabi, 2023). Universities can commercialize their research outcome through technology transfer, spin-off companies and licensing agreement. This can generate revenue and foster innovation and entrepreneurship with the university community, support research activities, infrastructure development and academic programmes in the university. Research commercialization involves transforming academic research outputs into marketable products, technologies, patents and services that generate revenue for universities (Etzkowitz, 2020). By leveraging research findings for economic and societal impact, universities can diversify their income streams and reduce dependence on traditional funding sources. A significant contribution of research commercialization to financial sustainability is the generation of intellectual property (IP) revenue. According to Khademia and Ismaila (2023), university research may be a crucial source of great technological innovations that have commercial value. This value tends to great benefits that will satisfy the society and the nation's economy at a very large scale. Nwuke and Nwanguma (2024) opined that Public universities in Rivers State, Nigeria, serve as vital institutions for the cultivation of knowledge, intellectual growth, and regional development. These higher education establishments are the cornerstones of academic excellence, where students receive the education and skills necessary to contribute to society. Universities that actively engage in patenting, licensing and spin-off companies create additional income streams that support research activities and institutional growth (Geuna & Rossi, 2018). For example, leading research universities worldwide, such as Stanford and MIT, have successfully commercialized research, generating billions of dollars in revenue from technology transfer and innovation (Mowery, Nelson & Sampat, 2021). This model not only strengthens financial sustainability but also enhances the global competitiveness of universities. Furthermore, research commercialization fosters partnerships with industries, government agencies and venture capitalists, attracting external funding and investment in university research and development (R&D) (Perkmann, Tartari, McKelvey, Autio, Broström, D'Este & Hughes, 2019). These collaborations enable universities to undertake groundbreaking research while securing financial support for infrastructure development, laboratory equipment and faculty development. In addition, universities that promote entrepreneurship through business incubators and technology parks create employment opportunities and contribute to economic development, further reinforcing their financial stability (Rothaermel, Agung & Jiang. 2018).

Income Sharing Agreements (ISAs) are a relatively new financial model that is revolutionizing the way students pay for their education. Kabiru (2020), asserted that this innovative funding model allows students to pay for their education after they graduate and start earning a certain income. ISAs are not debt instruments, instead, they are agreements between students and investors, where the investors agree to pay for the student's future income. ISAs are financial arrangements in which students receive funding for their education in exchange for a fixed percentage of their future earnings over a set period, rather than paying tuition upfront (Barr, 2019). This model offers a sustainable revenue stream for universities while making higher education more accessible to students. ISAs are gaining popularity as an alternative to student's loans, as they offer more flexibility and potentially lower costs for students. How do ISAs work? ISAs work by providing students with up front funding for their education which they then pay back through a percentage of their future income. The percentage is typically a fixed amount, such as 5% or 10%, and is capped at a certain amount or period of time. For example, a student might agree to pay 5% of their income for 10 years, or until they have paid back a certain amount. ISAs often have income thresholds, so that students only start paying back when they reach a certain level of income. One of the primary ways ISAs contribute to financial sustainability is by reducing universities' reliance on government funding and traditional tuition fees. Through ISAs, universities can attract private investors, alumni, and financial institutions to provide upfront capital for students' education, which is later repaid based on graduates' income levels (Chapman & Lounkaew, 2021). This approach ensures a steady flow of funds back to the institution, mitigating financial risks associated with student loan defaults and tuition non-payment. Additionally, ISAs align the financial interests of universities with student success, as institutions have a vested interest in producing graduates who secure well-paying jobs (Palacios, 2020). This incentivizes universities to invest in high-quality education, career support services, and industry partnerships to enhance graduate employability, which ultimately increases ISA repayment rates (Maldonado & Dearden, 2019). Moreover, ISAs promote financial inclusivity by enabling students from low-income backgrounds to access higher education without the burden of student loan debt, potentially increasing enrollment and revenue for universities in the long run (Cameron, Taber & Turner, 2022). ISAs present a promising alternative funding strategy that enhances the financial sustainability of universities by securing long-term revenue from graduates' earnings. By aligning institutional incentives with student success and expanding access to education, ISAs contribute to a more financially resilient higher education system.

Statement of the Problem

Public universities in Nigeria are facing inadequate funding except those in Rivers State because of the support of the State Government in their activities. Government collections to them have continued to dwindle year after year, while students' enrolment increase rapidly. Evidences have revealed that inadequate funding of public universities in Nigeria seems to be among the factors fueling annual ASUU strikes in Nigeria. Additional, observations revealed that part of the reason given Nigeria set back in terms of technological advancement is the lopsided attitude of the government towards funding of universities in the country. This situation is really a big challenge to our institutions.

Rivers State Government is trying to support the state universities in terms of funding but that is not enough to cater for all the university's programmes. Moreso, UNECSO recommended that for us to achieve our aim in educational systems, 26% of annual budget of any nation or state should be channeled to education, but this is not applicable in universities in Nigeria and Rivers State in particular. Onuoha (2013), added that the federal government through the National University Commission (NUC) has continuously directed all federal universities to explore ways of generating revenues through innovative funding such that the management would not have to look up to the government for solving all their financial problems. The World Bank (2000) reiterated that financing problem of education would have been ameliorated if the various sources that could contribute to education had been tapped particular public contribution to education. Thus, this study seeks to proffer alternative funding strategies and financial sustainability of public universities in Rivers State.

Purpose of the Study

The purpose of the study was to examine alternative funding strategies and financial sustainability of public universities in Rivers State. Specially, the study sought to;

1. determine the relationship between public-private partnership and financial sustainability of public universities in Rivers State.
2. investigate the relationship between commercialization of research and financial sustainability of public universities in Rivers State.
3. find out the relationship between income sharing agreements and financial sustainability of public universities in Rivers State.

Research Questions

1. What is the relationship between public-private partnership and financial sustainability of public universities in Rivers State?
2. What is the relationship between commercialization of research and financial sustainability of public universities in Rivers State?
3. What is the relationship between income sharing agreements and financial sustainability of public universities in Rivers State?

Hypotheses

1. There is no significant relationship between public-private partnership and financial sustainability of public universities in Rivers State.

3. There is no significant relationship between commercialization of research and financial sustainability of public universities in Rivers State.

6. There is no significant relationship between income sharing agreements and financial sustainability of public universities in Rivers State.

Methodology

This study adopted correlational research design. The population of this study consisted of 1,427 principal officers (Deans, Directors, HODs and Administrative staff) in the three public Universities in Rivers State (629 =RSU, 586 =Uniport, and 212 =IAUE). A sample of 396 principal officers (174=RSU, 163=Uniport & 59=IAUE) were drawn from population using the stratified random sampling technique. The respondents consists of the principal officers (Deans, Directors, HODs and Administrative staff) in the three public Universities in Rivers State. Two different questionnaires titled: "Alternative Funding Strategies Questionnaire (AFSQ)" and "Financial Sustainability Questionnaire (FSQ)" which were on a 4-point rating scale of Strongly Agree, Agree, Disagree and Strongly Disagree were used for data collection. The instruments were face and content validated by two experts in Measurement and Evaluation and the Department of Educational Management. The instruments were tested for reliability using Cronbach Alpha statistics which yielded reliability indexes of 0.79, 0.74 and 0.73. Pearson Product Moment Correlation statistics was used to answer the research questions. The relationship value of 0.1 – 0.4 was counted as "low correlation", 0.5 denote "moderate correlation" while 0.6 – 0.9 denote "high correlation". The hypotheses were tested using t-Transformation at 0.05 level of significance with a critical t-value of ±1.96. Analyzed data therefore with t-Transformed value above the t-critical value of ±1.96 was rejected and below was accepted.

Results

Research Question One: What is the relationship between public-private partnership and financial sustainability of public universities in Rivers State?

Hypothesis One: There is no significant relationship between public-private partnership and financial sustainability of public universities in Rivers State.

Table 1: Summary of Pearson Product Moment Correlation on the Relationship Between Public-Private Partnership and Financial Sustainability of Public Universities in Rivers State.

Variable	Parameter	Public-Private Partnership	Financial Sustainability
Public-Private Partnership	Pearson Correlation	1	.274**
	Sig. (2-tailed)		.000
	N	396	396
Financial Sustainability	Pearson Correlation	.274**	1
	Sig. (2-tailed)	.000	
	N	396	396

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

Table 1 produced a point biserial correlation coefficient, 'r_{pbi}' of .274. The result indicated that there is a low positive relationship between public-private partnership and financial sustainability of public universities in Rivers State. To test the hypothesis, the result showed that the low positive relationship between public-private partnership and financial sustainability of public universities in Rivers State is statistically significant (r_{pb} (396) = .274, $p <$ .0.05). Therefore, the null hypothesis is rejected and thus, there is a significant relationship between public-private partnership and financial sustainability of public universities in Rivers State.

Research Question Two: What is the relationship between commercialization of research and financial sustainability of public universities in Rivers State?

Hypothesis Two: There is no significant relationship between commercialization of research and financial sustainability of public universities in Rivers State.

Table 2: Summary of Pearson Product Moment Correlation on the Relationship Between Commercialization of Research and Financial Sustainability of Public Universities in Rivers State.

Variable	Parameter	Commercialization of Research	Financial Sustainability
Commercialization of Research	Pearson Correlation	1	.102**
	Sig. (2-tailed)		.048
	N	396	396
Financial Sustainability	Pearson Correlation	.102**	1
	Sig. (2-tailed)	.048	
	N	396	396

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

Table 2 produced a point biserial correlation coefficient, 'r_{pbi}' of .102. The result indicates that there is a low positive relationship between commercialization of research and financial sustainability of public universities in Rivers State. To test the hypothesis, the result showed that the low positive relationship between commercialization of research and financial sustainability of public universities is statistically significant (r_{pb} (396) = .102, p < .05). Therefore, the null hypothesis is rejected and thus, there is a significant relationship between commercialization of research and financial sustainability of public universities in Rivers State.

Research Question Three: What is the relationship between income sharing agreements and financial sustainability of public universities in Rivers State?

Hypothesis Three: There is no significant relationship between income sharing agreements and financial sustainability of public universities in Rivers State.

Table 3: Summary of Pearson Product Moment Correlation on the Relationship Between Income Sharing Agreements and Financial Sustainability of Public Universities in Rivers State.

Variable	Parameter	Income Sharing Agreements	Financial Sustainability
Income Sharing Agreements	Pearson Correlation	1	.477**
	Sig. (2-tailed)		.108
	N	396	396
Financial Sustainability	Pearson Correlation	.477**	1
	Sig. (2-tailed)	.108	
	N	396	396

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

Table 3 produced a point biserial correlation coefficient, 'r_{pbi}' of .477. The result indicates that there is a low positive relationship between income sharing agreements and financial sustainability of public universities in Rivers State. To test the hypothesis, the result showed that the low positive relationship income sharing agreements and financial sustainability of public universities is statistically significant (r_{pb} (396) = .477, p < .0.05). Therefore, the null hypothesis is rejected and thus, there is a significant relationship between income sharing agreements and financial sustainability of public universities in Rivers State.

Discussion of Findings

Results from Table 1 produced a point biserial correlation coefficient, 'r_{pbi}' of .274. The result indicates that there is a low positive relationship between public-private partnership and financial sustainability of public universities in Rivers State. To test the hypothesis, the result showed that the low positive relationship between public-private partnership and financial sustainability of public universities in Rivers State is statistically significant (r_{pb} (396) = .274, p < .0.05). Therefore, the null hypothesis is rejected and thus, there is a significant relationship between public-private partnership and financial sustainability of public universities in Rivers State. In agreement with this finding, Okurut (2019), who opined that Public private partnership (PPP) involves collaboration between a government agency and a private sector company, for providing a public asset or service in which the private party bears the significant risk. Also in tandem, Clark (2018), who asserted that PPPs provide opportunities for universities to engage in revenue-generating ventures, such as industry-sponsored research, consultancy services and technology commercialization. These income streams reduce universities' reliance on government subventions and tuition fees, fostering long-term financial stability.

Results from Table 2 produced a point biserial correlation coefficient, 'r_{pbi}' of .035. The result indicates that there is a very low relationship between university alumni donations and financial sustainability of public universities in Rivers State. To test the hypothesis, the result showed that the relationship between university alumni donations and financial sustainability of public universities is statistically significant (r_{pb} (396) = .035, p < .05). Therefore, the null hypothesis is rejected. Thus, there is a significant relationship between university alumni donations and financial sustainability of public universities in Rivers State. These findings corroborates with Pirabi (2023), who opined that commercialization of research is the process of developing ideas to a point where it is ready to be sold in the market place. Research commercialization allows technology created during research activities to be further developed into marketable products for the benefit of the public. Also in support Etzkowitz (2020), who stated that research commercialization involves transforming academic research outputs into marketable products, technologies, patents and services that generate revenue for universities. By leveraging research findings for economic and societal impact, universities can diversify their income streams and reduce dependence on traditional funding sources.

Results from Table 3 produced a point biserial correlation coefficient, 'r_{pbi}' of .477. The result indicates that there is a low positive relationship between income sharing agreements and financial sustainability of public universities in Rivers State. To test the hypothesis, the result showed that the low positive relationship income sharing agreements and financial sustainability of public universities is statistically significant (r_{pb} (396) = .477, p < .0.05). Therefore, the null hypothesis is rejected and thus, there is a significant relationship between income sharing agreements and financial sustainability of public universities in Rivers State. These findings corroborates with Cameron, Taber and Turner (2022), who opined that ISAs promote financial inclusivity by enabling students from low-income backgrounds to access higher education without the burden of student loan debt, potentially increasing enrollment and revenue for universities in the long run. Also in support, Palacios (2020), asserted that ISAs align the financial interests of universities with student success, as institutions have a vested interest in producing graduates who secure well-paying jobs.

Conclusion

Based on the findings of this study, it was concluded that there is a positive relationship between public-private partnership, commercialization of research and income sharing agreements and financial sustainability of public universities in Rivers State, which is statistically shown to be significant. Alternative funding and financial sustainability are posed to have a positive impact on higher institutions bearing in mind of the fact that alternative funding and financial sustainability culminates in the generation of novel ideas that lead to the proper funding, maintenance and sustainability of public universities.

Recommendations

Based on the findings, the following recommendations were made:

1. Universities should concentrate on managing public private partnership as a measure that conforms to growth and serenity since it enhances financial sustainability among universities.
2. Universities should implement regulations that encourages commercialization of research as to enhance their financial sustainability.
3. Collaboration with international entities can bring in income sharing agreements, global best practices, funding, and knowledge exchange, enriching the financial sustainability among universities.

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