

The Role of Government Funding in Advancing Tertiary Education in Africa

Amali, Anthony-Mary Chukwudozie ¹, Ibe, Onyekachukwu E ²

¹ PhD, School of General Studies, Federal Polytechnic, Ugep, Cross River State-Nigeria

E-mail: anthonymary58@gmail.com

ORCID: <https://orcid.org/0009-0003-7022-0682>

² Post Graduate School, Paul University, Awka Nigeria, Department of Economics, Faculty of social Science.

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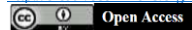
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ABSTRACT

Government financing remains a central determinant of the scale, quality and inclusiveness of tertiary education systems in Africa. This study reviews how public funding influences institutional capacity, student access, research performance, staff development, digital transformation and accountability across African higher education. A structured narrative review and qualitative evidence-synthesis approach was used. Evidence from the original manuscript was integrated with authoritative policy and analytical publications from the African Union, UNESCO, the World Bank, Nigeria's Tertiary Education Trust Fund (TETFund) and South Africa's National Student Financial Aid Scheme (NSFAS). The review shows that government support operates through multiple channels, including recurrent budget allocations, capital grants, earmarked education taxes, research funds, scholarships and student-aid schemes. Public investment has enabled massification, rehabilitation of physical infrastructure, postgraduate development, expansion of research capacity and improved access for disadvantaged students. However, the effectiveness of funding is frequently constrained by rapid enrollment growth, delayed disbursement, weak procurement, limited accountability, insufficient research financing and inequities between institutions and student groups. The evidence further indicates that increased expenditure alone is insufficient; funding formulas, governance quality and alignment with national skills and innovation priorities determine whether resources translate into educational outcomes. The study concludes that African governments should protect predictable public funding while diversifying revenue, strengthening performance and equity criteria, improving transparency, and using public-private and regional partnerships as complements rather than substitutes for state responsibility. Such reforms are essential for achieving SDG 4 and the African Union's ambitions for a knowledge-driven continent.

1. Introduction

Tertiary education is a strategic component of national development because universities, polytechnics, colleges and other post-secondary institutions produce advanced skills, generate research, support professional formation and contribute to innovation. In Africa, these functions are especially important because countries face simultaneous pressures from rapid population growth, youth unemployment, technological change, climate risks and the need to diversify economies. Higher education therefore has a dual mandate: it must expand access for a growing population while also improving the quality and relevance of teaching and research.

The scale of this challenge is considerable. Sub-Saharan Africa has historically recorded the lowest tertiary enrollment ratio among world regions, while demand continues to rise as more young people complete secondary education. A World Bank regional note reported a gross tertiary enrollment ratio of about 9.4% for Sub-Saharan Africa, far below the global average reported for the same period, and emphasized the tension between expansion, financing and quality (World Bank, 2020). UNESCO (2024) similarly identifies low participation, skills mismatch and unequal representation as persistent challenges even as Africa's youth population creates strong demand for higher education.

Government funding is central to how systems respond to these pressures. Public resources finance staff salaries, laboratories, libraries, classrooms, digital systems, student accommodation, research

grants, scholarships, quality assurance and institutional administration. Public investment can also shape institutional behaviour through funding formulas, performance contracts and targeted initiatives. In this sense, financing is not simply an accounting issue; it is a policy instrument through which governments signal priorities for access, equity, science, technology, workforce development and national innovation.

The importance of higher education to economic transformation has been emphasized for decades. Teferra and Altbach (2004) highlighted the structural difficulties facing African higher education, including limited resources, rapid expansion and institutional capacity constraints. The World Bank (2009) argued that knowledge-intensive growth in Sub-Saharan Africa requires stronger post-secondary skills and research systems capable of supporting technological absorption and productivity. Darvas et al. (2017) later showed that the promise of higher education depends not only on aggregate expansion but also on whether access and public subsidies are distributed equitably.

Continental policy frameworks reinforce these priorities. The African Union's Agenda 2063 and education, science and technology initiatives envision African universities as engines of research, innovation, regional integration and human-capital development. The African Union has also promoted initiatives such as the Pan-African University and ICT-enabled higher education to strengthen intra-African collaboration and widen access. These goals are consistent with Sustainable Development Goal 4, which emphasizes inclusive and equitable quality education and lifelong learning opportunities.

Public funding models across Africa vary substantially. Conventional line-item budgets remain common, but countries increasingly combine direct institutional subsidies with earmarked taxes, student loans and bursaries, competitive research grants, and performance-based allocations. Nigeria's Tertiary Education Trust Fund (TETFund), for example, provides supplementary support to public tertiary institutions for infrastructure, instructional resources, staff development and research through an earmarked education-tax mechanism (TETFund, 2026). South Africa's NSFAS provides financial aid to students from poor and working-class families and illustrates the role of targeted student finance in improving access (NSFAS, 2022).

Despite these mechanisms, financing problems remain persistent. Expansion in enrollment can outpace growth in physical capacity and staffing. Public budgets may be vulnerable to macroeconomic shocks, competing priorities and delayed releases. Weak procurement and governance can reduce the educational value obtained from each unit of expenditure. Research funding is often fragmented or dependent on external donors, while students from low-income households may still face substantial indirect costs even where tuition is subsidized.

Recent financing analysis also emphasizes efficiency and equity rather than expenditure alone. Education Finance Watch for Africa notes that government spending remains the largest source of education finance, but many systems remain below international financing benchmarks and household contributions can create unequal burdens (World Bank & UNESCO, 2024). This implies that policy debates should move beyond the question of whether governments spend more to the question of how funds are allocated, targeted, monitored and linked to outcomes.

Against this background, this study reviews the role of government funding in advancing tertiary education in Africa. It asks four questions: (1) through what mechanisms do African governments finance tertiary education? (2) how does public funding affect access, infrastructure, staffing and research capacity? (3) what governance and equity problems limit the impact of funding? and (4) what financing reforms can improve sustainability, accountability and developmental relevance? The study uses an IMRAD-compatible structured evidence review to synthesize academic and institutional evidence and derive policy implications.

2. Materials and Methods

2.1 Research Design

The study used a structured narrative review and qualitative evidence-synthesis design. This approach was selected because the objective was to compare financing mechanisms, institutional effects and policy experiences across diverse African higher-education systems rather than to estimate a single pooled statistical effect. Accordingly, the study should not be interpreted as a statistical meta-analysis.

2.2 Evidence Sources and Search Scope

The evidence base combined peer-reviewed studies and policy sources cited in the original manuscript with supplementary authoritative materials from the African Union, UNESCO, the World

Bank, TETFund and NSFAS. Priority was given to sources addressing tertiary-education financing, access and equity, research capacity, institutional governance, infrastructure, student support and system expansion in African countries. Foundational studies were retained where they remained conceptually important, while recent institutional reports were used to update the policy context through 2026.

2.3 Inclusion Criteria

Sources were included when they met at least one of the following criteria: (a) they examined public expenditure or financing mechanisms for tertiary education in an African context; (b) they linked funding to institutional outputs such as enrollment, infrastructure, staffing, research or graduation; (c) they documented a major national or regional funding instrument; or (d) they provided policy evidence on equity, efficiency, governance or sustainability in higher education. Sources focused entirely on primary or secondary education without transferable financing relevance were excluded from the core synthesis.

2.4 Analytical Procedure

The evidence was organized through thematic content analysis. The main analytical categories were: funding mechanisms, system expansion and access, infrastructure and staff capacity, research and innovation, student equity and financial aid, governance and accountability, and funding diversification. Findings from different countries were compared to identify recurring patterns and distinctive policy instruments. Because the underlying sources use different indicators and methodologies, the synthesis emphasizes convergent patterns and policy lessons rather than direct numerical ranking of countries.

2.5 Methodological Limitations

The review has three principal limitations. First, it is not an exhaustive systematic review with a registered protocol and therefore does not claim complete coverage of all African countries or publications. Second, cross-country indicators are not always directly comparable because accounting definitions, institutional classifications and reporting periods differ. Third, observed associations between funding and outcomes may be influenced by governance, institutional autonomy, economic conditions and pre-existing capacity. These limitations support a cautious interpretation of financing as a necessary but not sufficient condition for higher-education advancement.

3. Results

3.1 Main Government Funding Mechanisms

The evidence shows that African governments finance tertiary education through a mixed set of instruments. Direct recurrent allocations remain the foundation of most public systems, covering salaries, utilities and routine operations. Capital grants support classrooms, laboratories, libraries, hostels and ICT facilities. Earmarked taxes, such as the mechanism supporting TETFund in Nigeria, provide supplementary resources outside conventional annual appropriations. Competitive research grants target knowledge production, while bursaries, scholarships and student-loan schemes seek to reduce financial barriers to participation. Increasingly, public-private partnerships are used to complement public resources for infrastructure, digital services and innovation.

Funding mechanism	Primary purpose	Illustrative example	Main implication
Direct budget allocations	Core operating costs, salaries and recurrent expenditure	Most public tertiary systems	Provides predictability when releases are timely; vulnerable to fiscal shocks
Capital grants	Infrastructure, laboratories, ICT and rehabilitation	National ministries and public investment programmes	Can expand capacity but requires strong procurement and maintenance
Earmarked education taxes	Supplementary institutional and research support	Nigeria – TETFund	Creates a dedicated funding stream linked to tax collection
Student aid / bursaries	Access and equity for low-income students	South Africa – NSFAS; other national loan/bursary schemes	Reduces direct financial barriers but requires sustainable targeting and administration



Competitive research funds	Research, postgraduate training and innovation	National research councils; institutional grant schemes	Can improve research output and specialization when funding is sustained
Public-private partnerships	Infrastructure, technology and industry collaboration	Growing across multiple countries	Useful as a complement, not a replacement, for core public funding

3.2 Funding, Expansion and Access

Public funding is closely connected to the ability of tertiary systems to absorb growing numbers of students. Where recurrent and capital funding fail to keep pace with enrollment, institutions experience overcrowded classrooms, pressure on laboratories and libraries, rising student-to-staff ratios and deterioration of facilities. The World Bank (2020) highlighted the low participation rate in Sub-Saharan Africa alongside strong growth pressures, demonstrating that expansion cannot be sustained through admissions policy alone. Governments must finance both places for students and the institutional capacity required to support them.

Access is also shaped by the design of student finance. Tuition subsidies can expand participation but may disproportionately benefit students who are already academically and economically advantaged if admission systems are highly selective. Targeted bursaries, loans and grants are therefore important for rural students, women, persons with disabilities and low-income households. Darvas et al. (2017) showed that equity must be treated as a core policy objective in tertiary expansion rather than as an automatic result of increased enrollment.

3.3 Infrastructure, Staffing and Teaching Capacity

Funding affects the physical and human resources through which education is delivered. Capital expenditure supports lecture halls, laboratories, workshops, libraries, student accommodation, connectivity and learning-management systems. In Nigeria, TETFund's formal mandate includes supplementary support for physical infrastructure, instructional materials and the rehabilitation and consolidation of public tertiary education (TETFund, 2026). Such targeted funding can partially offset the limitations of conventional annual budgets, particularly for capital-intensive projects.

Staffing is equally important. Universities and colleges require competitive compensation, opportunities for postgraduate training, research time and professional development to recruit and retain qualified academic personnel. Underfunded systems may experience vacancies, high workloads and brain drain, while better-supported systems can build postgraduate pipelines and research careers. However, salary spending alone does not ensure quality; staff development, performance expectations and institutional leadership influence how human-resource expenditure translates into teaching and research outcomes.

3.4 Research, Innovation and Knowledge Production

Government research funding has a strategic role because universities in many African countries cannot rely on tuition income or private philanthropy to finance laboratories, fieldwork, postgraduate research and scholarly dissemination at adequate scale. The World Bank (2009) argued that stronger tertiary and research systems are necessary for technology absorption and knowledge-intensive growth. Dedicated public research funds can also help align university research with national priorities in health, agriculture, energy, digital transformation and manufacturing.

The effectiveness of research funding depends on continuity, peer-review quality, grant administration and links to postgraduate training. Where domestic funding is weak, researchers may become dependent on international grants whose thematic priorities do not always align with local development needs. A sustainable research ecosystem therefore requires public baseline support, competitive funding, regional collaboration and stronger university-industry linkages.

3.5 Equity and Student Financial Support

Student-aid systems are among the clearest examples of public funding being used to pursue equity. NSFAS states that its mandate is to provide financial aid to students from poor and working-class families in South Africa (NSFAS, 2022). Similar principles underpin scholarship and loan programmes elsewhere in Africa. When well targeted, such programmes can reduce the direct cost

barrier to tertiary participation and improve retention among students who might otherwise leave higher education for financial reasons.

Nevertheless, aid design matters. Delays in payments, administrative errors, narrow eligibility rules and inadequate coverage of living costs can reduce the effectiveness of student support. Equity-oriented financing should therefore consider the full cost of attendance—including transport, accommodation, digital connectivity and learning materials—while maintaining mechanisms that are fiscally sustainable.

3.6 Governance, Accountability and Efficiency

Across the reviewed literature, one of the strongest recurring themes is that the amount of funding cannot be separated from the quality of governance. Weak procurement, politicized project selection, poor financial controls and delayed reporting can reduce the educational benefit of public expenditure. Conversely, transparent allocation rules, audited accounts, competitive procurement and public reporting strengthen trust and make it easier to connect expenditure with institutional results.

Efficiency is particularly important in fiscally constrained settings. The World Bank and UNESCO (2024) emphasize that greater spending does not automatically generate stronger education outcomes. In tertiary education, this means governments should track not only budget inputs but also completion rates, research productivity, infrastructure utilization, student equity, graduate outcomes and maintenance of publicly financed assets.

3.7 Cross-Cutting Findings

Policy domain	Observed contribution of public funding	Persistent constraint
Access and massification	More student places and lower financial barriers	Rapid enrollment can outpace facilities and staffing
Infrastructure	Improved classrooms, laboratories, ICT and accommodation	Capital projects require maintenance and procurement controls
Academic workforce	Recruitment, retention and postgraduate development	Brain drain and workload pressures persist where funding is unstable
Research and innovation	Grants can increase research capacity and relevance	Fragmented and donor-dependent funding may distort priorities
Equity	Bursaries and loans can widen participation	Indirect costs and administrative delays can still exclude students
Governance	Transparent allocation can improve value for money	Weak accountability reduces the impact of otherwise adequate funding

4. Discussion

The evidence confirms that government funding remains the backbone of tertiary education in Africa, but its impact is mediated by institutional and policy design. Public finance enables systems to expand, maintain staff, develop infrastructure and support research. However, the same level of expenditure can produce different outcomes depending on whether allocations are predictable, transparent, strategically targeted and matched with strong institutional management.

A central policy tension is the relationship between massification and quality. Expanding enrollment is essential in a continent with a young and growing population, yet massification without parallel investment in academic staff, laboratories, student services and digital capacity can dilute educational quality. Governments therefore need medium-term financing frameworks that connect enrollment targets to the full recurrent and capital costs of expansion. This approach is preferable to admitting larger cohorts first and attempting to finance infrastructure later.

The findings also show that equity requires deliberate financing design. General institutional subsidies are important, but they do not guarantee that poor or marginalized students can afford tertiary education. Targeted student aid, rural and gender-sensitive bursaries, disability support and need-based grants can help correct unequal access. At the same time, student-aid systems must be administratively reliable and fiscally sustainable so that support is predictable from admission through graduation.

Research financing should be treated as a distinct strategic function rather than a residual budget item. African universities are expected to contribute to innovation and national problem solving, but

these roles require laboratories, data infrastructure, postgraduate scholarships and competitive grants. Dedicated research funds, including TETFund's research interventions and national research councils, can strengthen domestic capacity. Regional platforms and African Union initiatives can further reduce fragmentation by supporting shared facilities and cross-border research networks.

The review also suggests that diversification should complement rather than replace state responsibility. Public-private partnerships, alumni giving, consulting, commercialization and international grants can enlarge the resource base, but overreliance on these sources may widen inequalities between institutions. Universities in large cities or commercially attractive disciplines are usually better positioned to generate external income than smaller or rural institutions. A strong public funding floor is therefore necessary to preserve system-wide equity and national strategic capacity.

Finally, accountability is not merely a financial-control issue; it is part of educational effectiveness. Performance-based elements can be useful when they reward completion, research quality, equity and socially relevant outcomes, but simplistic formulas may disadvantage institutions serving poorer regions or students with greater support needs. Funding systems should combine baseline allocations with transparent performance and equity adjustments rather than relying exclusively on historical budgets or narrow output measures.

5. Policy Implications and Recommendations

- Protect predictable public funding: Governments should adopt medium-term tertiary-education financing frameworks that reduce abrupt budget volatility and align resources with enrollment and quality targets.
- Link expansion to capacity: New student places should be financed together with staffing, laboratories, libraries, digital infrastructure, student services and maintenance costs.
- Strengthen equity-based student finance: Scholarships, bursaries and loan schemes should prioritize economically disadvantaged students and account for the full cost of participation, not tuition alone.
- Expand domestic research funding: Competitive national research grants and postgraduate support should be scaled to reduce excessive dependence on external donors and to strengthen locally relevant research.
- Improve allocation formulas: Funding models should combine baseline institutional support with transparent performance, equity and strategic-priority components.
- Increase accountability and value-for-money monitoring: Public reporting should connect expenditure to measurable outputs such as completion, research, equity, infrastructure use and graduate outcomes.
- Use PPPs selectively: Public-private partnerships should be deployed for infrastructure, technology and innovation where they offer demonstrable value, while core academic functions remain adequately publicly funded.
- Strengthen regional cooperation: African Union and regional networks should support shared research facilities, mobility, digital learning and cross-border centres of excellence to reduce duplication and improve scale.

6. Conclusion

Government funding remains indispensable to the advancement of tertiary education in Africa. It shapes how many students can enter and complete higher education, the quality of teaching environments, the ability of institutions to recruit and retain staff, and the capacity of universities to produce research and innovation. The review shows that public investment has the greatest developmental impact when it is predictable, equitable, strategically targeted and supported by strong governance. Earmarked funds such as TETFund, targeted student-finance systems such as NSFAS, competitive research grants and well-designed capital programmes illustrate different ways in which governments can pursue these objectives. Yet financing challenges will intensify as enrollment demand grows. African countries therefore need sustainable mixed funding systems in which public finance provides the core foundation, student support protects equity, research funding advances national priorities, and partnerships add resources without shifting public responsibility onto households. Such a financing architecture is essential if tertiary education is to contribute fully to SDG 4, Agenda 2063 and Africa's long-term transition toward more productive, innovative and knowledge-based economies.

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