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Governance, Higher Education Funding and Institutional Sustainability Among the AAHEFA Member Countries

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Abstract:
Background: *Higher education funding is central to expanding access to education and sustaining student financing institutions. However, as African governments continue to experience increasing fiscal constraints, the sustainability of higher education financing agencies has become critical in supporting equitable access to higher education and promoting long-term human capital development. The study focuses on the extent to which governance structures and funding mechanisms contribute to the operational and financial sustainability of higher education financing agencies within AAHEFA member countries.*
Materials and Methods: *Guided by a positivist research philosophy and a longitudinal panel design, the study employed secondary data from eleven member agencies of the Association of African Higher Education Financing Agencies over the period 2015–2024. To examine the combined influence of the explanatory variables, a panel random-effects regression model was estimated, with model selection guided by the Hausman specification test. Agency governance was measured using a composite governance index. Estimation was conducted using Stata version 16 with robust standard errors.*
Results: *The findings reveal that agency governance plays a significant mediating role in the relationship between agency institutional arrangements (AIA) and institutional sustainability among member agencies of the Association of African Higher Education Financing Agencies. Specifically, agency governance fully mediates the AIA–sustainability relationship, rendering the direct effect statistically insignificant ($\beta = 0.2942$, $p = 0.2660$), while governance remains independently significant ($\beta = 0.1839$, $p = 0.0330$). However, agency governance exhibits only a weak mediating effect in the relationship between budgetary allocation (BA) and institutional sustainability, suggesting that other contextual or structural factors may influence the linkage between funding allocation and sustainability outcomes.*
Conclusion: *The study concludes that institutional sustainability among member agencies of the Association of African Higher Education Financing Agencies is a system-level outcome shaped by higher education funding structures and governance capacity. The findings demonstrate that agency governance plays a critical role in enhancing institutional sustainability by fully mediating the relationship between agency institutional arrangements and sustainability outcomes, while also exerting an independently significant influence. However, the weak mediating effect observed in the relationship between budgetary allocation and sustainability suggests that funding alone may not guarantee long-term institutional resilience without effective governance mechanisms. The study therefore recommends the establishment of predictable and sustainable public funding frameworks for higher education financing agencies, strengthening governance systems through improved accountability, transparency, and institutional capacity. These measures are essential for promoting sustainable student financing systems and expanding equitable access to higher education across Africa.*
Key Word: *governance; Higher Education Funding; Institutional Sustainability; agencies of the Association of African Higher Education Financing Agencies.*

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I. Introduction

Higher education funding, governance, and institutional sustainability have attracted increasing scholarly and policy attention globally, particularly in developing economies where expanding access to tertiary education remains a major development priority. Higher education is widely recognized as a critical driver of economic growth, innovation, technological advancement, and human capital development [1]. In Africa, higher education is increasingly viewed as a strategic instrument for promoting industrialization, reducing inequality, and achieving sustainable development goals [3]. However, despite the growing demand for tertiary education, many African governments continue to experience severe fiscal constraints that limit their ability to adequately finance higher education institutions and student support programmes [2]. Global tertiary enrolment has surpassed 235 million students, significantly increasing pressure on governments and financing agencies to develop sustainable and equitable funding mechanisms capable of supporting institutional stability and educational access [1].

Higher education funding refers to the financial resources mobilized to support tertiary education institutions and student financing systems through government allocations, internally generated revenues, donor support, tuition contributions, and public–private partnerships [4]. According to Mokaya et al. [5], higher education financing agencies have increasingly become important institutional mechanisms for expanding access to education through student loans, scholarships, bursaries, and other financial assistance programmes. Johansson and Lundborg [6] further define higher education funding as the combination of public and non-public financial resources used to support educational access, institutional quality, and long-term sustainability of tertiary education systems. Similarly, Chumba [7] conceptualizes higher education funding as a multidimensional process involving state funding, loan recoveries, donor support, and internally generated income designed to sustain financing agencies and support equitable educational opportunities.

Recent empirical literature emphasizes that sustainable higher education funding is essential for maintaining competitiveness, improving educational quality, and achieving broader continental and global development targets such as the African Union Agenda 2063 and the Sustainable Development Goals [8,9]. According to Brown and Ikiriko [10], excessive dependence on exchequer support has resulted in recurrent underfunding, deteriorating infrastructure, staff shortages, and reduced institutional competitiveness across many African universities. Similarly, Johansson and Lundborg [6] argue that limited funding capacity undermines the ability of African higher education institutions to compete effectively in the global knowledge economy. Chumba [7] further observes that weak appropriation-in-aid systems and inefficient loan recovery mechanisms continue to reduce accountability and financial sustainability within student financing agencies.

In response to these challenges, many governments and educational stakeholders have increasingly adopted diversified financing approaches that combine government support with private sector participation, donor assistance, internally generated income, and public–private partnerships [11,12]. Mokaya et al. [5] measured higher education funding using government capitation and public allocations, while Johansson and Lundborg [6] incorporated tuition revenues, grants, and donor funding into their operationalization of higher education funding. Chumba [7] extended this conceptualization by including internally generated revenues and loan recoveries as important indicators of funding sustainability. In this study, higher education funding is measured using appropriation-in-aid (AIA), budgetary allocations, and public–private partnership programmes, which collectively capture both traditional and emerging funding streams relevant to African higher education financing agencies.

Governance constitutes another critical dimension influencing the sustainability of higher education financing institutions. Governance refers to the systems, structures, processes, and relationships through which organizations are directed, monitored, and controlled to ensure accountability, transparency, and effective stewardship of resources [13,14]. In the context of higher education financing agencies, governance encompasses board oversight, financial management practices, policy compliance mechanisms, accountability systems, and administrative procedures aimed at ensuring prudent management of public resources [15]. According to Angwaomaodoko [16], effective governance systems are essential for promoting institutional legitimacy, operational efficiency, stakeholder confidence, and long-term sustainability in public financing institutions.

Empirical literature further demonstrates that weak governance structures significantly undermine the performance and sustainability of higher education financing agencies across Africa. Babalola et al. [17] found that poor board composition, inadequate oversight systems, and weak accountability mechanisms contribute to inefficiency and financial mismanagement in public financing agencies. Similarly, Ayogu [18] argues that limited transparency, inadequate financial reporting, and ineffective audit structures reduce institutional accountability and weaken public confidence in higher education financing systems. Ha [19] and El-Deeb and Mohamed [20] identify board size, board diversity, frequency of meetings, and existence of audit committees as key indicators commonly used to evaluate governance effectiveness in public institutions. Ogunsola et al. [21] further emphasize that governance quality is strongly associated with compliance systems, financial management practices, and organizational accountability. Accordingly, this study operationalizes governance using board characteristics and financial management practices, including audit committee functionality and policy compliance mechanisms.

The study is anchored on several complementary theoretical perspectives that explain the relationship between higher education funding, governance, and institutional sustainability. Institutional Theory explains that organizations adopt structures and practices that conform to external political, regulatory, and societal expectations in order to gain legitimacy and ensure survival [22,23]. In the context of higher education financing agencies, institutional pressures from governments, donors, and regulatory bodies significantly shape governance systems and funding arrangements. Resource Dependence Theory further posits that organizations rely on external resources such as government allocations, donor support, and loan recoveries for survival and operational continuity [24]. Consequently, agencies must strategically manage funding relationships and diversify revenue streams to reduce vulnerability and enhance sustainability.

Principal–Agent Theory provides additional insights into governance and accountability challenges associated with delegated authority and management of public resources [25,26]. The theory argues that information asymmetry and conflicting interests between managers and stakeholders may create agency problems that undermine institutional efficiency and accountability. Strong governance systems therefore become necessary for ensuring transparency, monitoring, and effective oversight. Closely related to this, New Public Management theory advocates for efficiency, performance measurement, accountability, and result-oriented management practices in public institutions [27]. These principles are particularly relevant to higher education financing agencies because sustainable service delivery depends on prudent financial management and institutional performance. Sustainable financing theory complements these perspectives by emphasizing the need for equitable, resilient, and financially viable systems capable of supporting long-term institutional continuity. Together, these theories provide a comprehensive framework for examining how funding structures and governance systems influence institutional sustainability among higher education financing agencies.

The Association of African Higher Education Financing Agencies plays a critical role in promoting higher education financing and management across Africa [28]. Established in 2008 and headquartered in Dar es Salaam, AAHEFA facilitates collaboration, policy dialogue, and knowledge exchange among institutions responsible for financing higher education through loans, grants, and scholarship schemes. Initially formed by the Higher Education Students' Loans Board of Tanzania, the Higher Education Loans Board of Kenya, and the Development Bank of Rwanda, AAHEFA has expanded to include eleven member countries: Tanzania, Kenya, Rwanda, Uganda, Ghana, Malawi, Zambia, Lesotho, Namibia, Botswana, and South Africa [28]. Through financial support systems, these agencies facilitate educational access for students from disadvantaged backgrounds who would otherwise be excluded from tertiary education opportunities [29].

AAHEFA member agencies also undertake important administrative and financial responsibilities aimed at ensuring sustainability of student financing systems. These functions include loan disbursement, debt collection, loan recovery management, beneficiary tracking, and implementation of governance and accountability systems [30]. Mukhwana et al. [31] found that governance systems within these agencies are critical in ensuring transparency, fairness, and prudent use of public resources. Similarly, Nwosu et al. [32] argue that governance quality significantly determines the efficiency and sustainability of higher education financing systems across Africa.

Despite the important role played by AAHEFA member agencies, several structural and macroeconomic challenges continue to threaten their sustainability. Public expenditure constraints, rising enrolment pressure, inflation, unemployment, and economic instability have significantly weakened the financial sustainability of higher education financing systems in many African countries [2]. The COVID-19 pandemic further exacerbated these challenges by weakening national economies, reducing government revenues, and increasing financial pressure on students and households [33,34]. In many Sub-Saharan African countries, high youth unemployment rates continue to reduce graduates' repayment capacity and weaken revolving loan schemes [2].

Institutional sustainability refers to the ability of organizations to continue performing their core functions effectively and efficiently over time despite financial, economic, and environmental pressures [2]. UNESCO [34] and OECD [36] emphasize that sustainable institutions possess diversified funding systems, adaptive governance structures, prudent financial management practices, and resilience to external shocks. In the context of higher education financing agencies, sustainability denotes the ability to maintain solvency, ensure continuous loan disbursement, sustain recovery rates, and deliver services effectively despite fluctuations in government funding and macroeconomic instability [35].

AAHEFA member agencies operate in diverse economic and fiscal environments characterized by inflation, unemployment, donor dependency, and public debt burdens [8]. Persistent underfunding and high loan default rates have weakened revolving funds and reduced the number of students benefiting from financial assistance programmes [31]. According to the African Development Bank [37] and the World Bank [2], loan default rates exceeding 40% in some African countries have significantly constrained the sustainability of higher education financing systems. Weak enforcement systems, inadequate graduate tracking mechanisms, and the prevalence of informal labour markets further complicate loan recovery and increase financial strain on financing agencies [38].

Unlike developed economies, African higher education financing systems operate within constrained fiscal environments characterized by weaker administrative systems and less formalized labour markets [32]. Consequently, findings from developed countries may not adequately explain the sustainability challenges facing African financing agencies. Existing literature has also largely examined funding mechanisms, governance structures, and macroeconomic conditions independently, with limited empirical evidence on how these variables interact within a unified analytical framework to influence institutional sustainability. This fragmented evidence base limits the development of effective policy responses tailored to African higher education financing systems. Therefore, this study sought to address the following research question.

II. Material And Methods

Study Design: The study adopted a correlational descriptive longitudinal research design using a panel data approach. This design was appropriate as it enabled the examination of relationships among higher education funding, agency governance, macroeconomic conditions, and institutional sustainability across member agencies of the Association of African Higher Education Financing Agencies over time without manipulation of variables. The longitudinal panel framework allowed repeated observations of multiple agencies from 2015–2024, thereby facilitating analysis of both cross-sectional and time-series variations while controlling for unobserved heterogeneity [39,40]. The design further enabled the study to examine how changes in funding structures, governance quality, and macroeconomic conditions influenced institutional sustainability across AAHEFA member agencies within the study period.

Study Location: The study focused on national student financing agencies within member countries of the Association of African Higher Education Financing Agencies, specifically the eleven operational agencies mandated to mobilize, manage, and disburse higher education funds across Kenya, Uganda, Tanzania, Rwanda, Ghana, South Africa, Namibia, Malawi, Zambia, Botswana, and Lesotho. These agencies constituted the unit of analysis and provided a comprehensive representation of higher education financing systems within the AAHEFA region. Given the relatively small and policy-significant population, the study adopted a census approach with no sampling in order to maximize coverage and enhance external validity across AAHEFA settings. Owing to occasional gaps in agency-year reporting, the study utilized an unbalanced panel design in which agencies were retained for periods where sufficient information was available to compute the DEA-based Institutional Sustainability Score (SES) and the core explanatory variables, including higher education funding indicators and the governance index. This approach ensured broader country representation while maintaining comparability of variables required for empirical estimation.

Study Duration: The study covered a ten-year period from 2015 to 2024, allowing for the assessment of trends and relationships over time.

Data Sources and Collection: Secondary data were collected from annual audited financial reports, statistical bulletins of higher education financing agencies, Association of African Higher Education Financing Agencies secretariat submissions, and government repositories including ministries of education and finance, national budget estimates, and auditor-general reports. The data included appropriation-in-aid (AIA), government budgetary allocations, public–private partnership inflows, disbursements, administrative costs, governance attributes consolidated into the Agency Governance Index (AGI), and macroeconomic indicators such as unemployment rates, GDP per capita growth, inflation, and interest rates. Financial values were standardized through deflation, currency conversion into a common unit, and expression of indicators as ratios and percentages to facilitate cross-agency comparability and construction of the DEA-based Institutional Sustainability Score (SES). The AAHEFA reporting framework further enabled consistent retrieval of operational and governance data, including board characteristics, audit committee functionality, means-testing practices, financing inflows, staffing and operational cost proxies, and disbursement indicators. The resulting dataset was longitudinal and unbalanced, with agencies retained for years where complete records were available, thereby maximizing coverage while preserving data integrity for panel estimation and hypothesis testing.

Measurement of Variables: Higher education funding was proxied by appropriation in aid, budgetary allocation, and public private partnership programs. Agency governance was measured using the Agency Governance Index (AGI), while institutional sustainability was measured using the Sustainability Efficiency Score (SES), defined as the efficiency score obtained from an input-oriented variable-returns-to-scale (BCC) DEA model using total available funds, operating costs, and claims or arrears backlog as inputs, and funds disbursed, beneficiaries funded, and on-time disbursement rate as outputs.

Data Analysis: Data were analyzed using Stata version 16.1. Panel regression techniques were employed to examine the relationships among the study variables. Both fixed-effects and random-effects models were considered, with the Hausman test used to determine the most appropriate model specification.

Diagnostic Tests: To ensure robustness of the results, diagnostic tests including multicollinearity, heteroscedasticity, autocorrelation, stationarity, and cross-sectional dependence were conducted. Appropriate corrections, such as robust standard errors, were applied where necessary.

Statistical Significance: All statistical tests were conducted at a 5% level of significance ($p < 0.05$).

III. Result

This section presents the empirical findings of the study, beginning with descriptive statistics to provide an overview of the distribution and characteristics of the study variables across AAHEFA settings. This is followed by hypothesis testing using panel regression analysis.

Table 1: Descriptive Statistics of Study Variables (n=40)

Table 1 *Descriptive Statistics of the Variables.*

Variable	Obs	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis	CV
SES	110	0.1487	0.0442	0.07	0.40	0.375	1.6200	0.2971
AIA	110	0.0608	0.0721	0.00	0.36	2.150	6.4310	1.1861
BA	110	0.4528	0.0854	0.36	0.73	2.858	11.4310	0.1885
PPP	110	4.3428	3.0114	0.04	23.60	-0.888	-0.0560	0.6934
BS	110	10.7782	1.1705	8.09	12.69	-0.452	-1.404	0.1086
FMT	110	0.7291	0.1569	0.37	0.97	0.908	1.697	0.2151
AGI[1]	110	2.7877	0.3951	1.82	3.47	-1.808	11.730	0.1417
GDP	110	2.5629	0.3810	1.10	3.22	-1.222	1.758	0.1487

Source: Research Data (2025)

From the results in Table 1, the dependent variable, Institutional Sustainability Score (SES), records a relatively low mean value of 0.149 with limited dispersion (standard deviation = 0.044; CV = 0.297). This indicates that AAHEFA agencies operate at modest efficiency levels relative to the best-practice frontier, with moderate variation across agencies and over time. The distribution of SES is slightly skewed to the right (skewness = 0.375), meaning a few agencies perform slightly better than the majority, but most cluster around similar efficiency levels. The kurtosis value (1.620) suggests that extreme values are not prominent. Substantively, this implies that while agencies are fairly similar in performance, there remains room to improve sustainability outcomes.

Among the financing variables, appropriation-in-aid (AIA) exhibits a low mean value of 0.061 but a high coefficient of variation (CV = 1.186), indicating large differences across agencies. The distribution is strongly skewed to the right (skewness = 2.150), showing that only a few agencies receive relatively high AIA while most operate with very low levels. The high kurtosis (6.431) further suggests the presence of extreme values. This reflects limited financial autonomy and dependence on external or government funding.

In contrast, budgetary allocation (BA) records a higher mean of 0.453 with relatively low variability (CV = 0.189), indicating that government funding is the main and more stable source of financing. However, BA is also highly skewed to the right (skewness = 2.858), suggesting that some agencies receive much higher allocations than others. The high kurtosis (11.431) confirms that a few extreme values exist, pointing to possible inequalities in the distribution of public funds across countries.

Public–private partnerships (PPP) show considerable variation, with a mean of 4.34 and a relatively high CV (0.693). The distribution is skewed to the left (skewness = –0.888), indicating that more agencies operate at relatively higher levels of PPP engagement, although the wide range (0.04 to 23.6) highlights the presence of extreme cases. The kurtosis value (–0.056) suggests a fairly even spread of observations. This pattern indicates that PPP financing is unevenly adopted and may depend on country-specific conditions.

With respect to governance-related variables, board size (BS) shows low variability (CV = 0.109) and a fairly balanced distribution, indicating that governance structures are broadly similar across agencies. Financial means testing (FMT) shows moderate variability (CV = 0.215) and a slight right skew (0.908), suggesting that while most agencies apply moderate targeting mechanisms, a few demonstrate stronger allocation discipline. The Agency Governance Index (AGI) records low variability (CV = 0.142) but is strongly skewed to the left (skewness = –1.808), indicating that most agencies have relatively strong governance

[1] AGI is a composite governance index derived from the selected governance indicators; higher values indicate stronger governance quality.

systems, with only a few laggings behind. The high kurtosis (11.730) suggests that these lower-performing cases are quite distinct from the rest.

Trend Analysis

This section presents a graphical examination of trends in institutional sustainability and key explanatory variables over the period 2015–2024. Trend analysis complements descriptive statistics by illustrating temporal movements and co-movements in institutional sustainability, higher education funding components, agency governance across AAHEFA member agencies. To facilitate comparability across variables measured on different scales, all series are standardized (z-scores). These trends provide preliminary insights into the direction, volatility, and synchronicity of variables, offering an initial indication of potential relationships prior to diagnostic testing and inferential modelling.

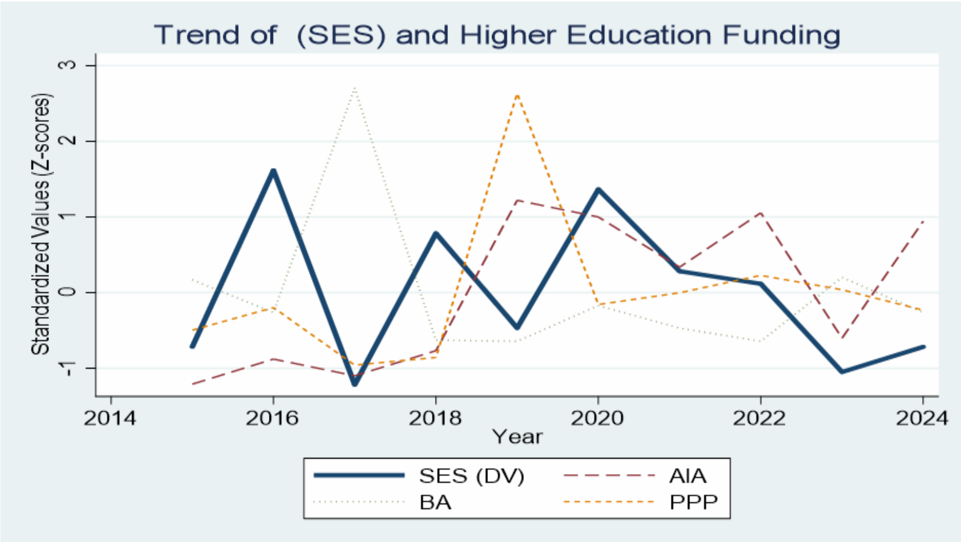

Figure 2 Trend of Institutional Sustainability (SES) and Higher Education Funding

Figure 2 illustrates the trend of institutional sustainability (SES) alongside higher education funding components. SES exhibits noticeable year-to-year fluctuations, with periods of improvement around 2016, 2019–2020, and relative declines around 2017 and 2023. These fluctuations suggest that agencies' efficiency in converting financial resources into sustainable outputs is not constant over time and may be influenced by changes in funding structure and external conditions.

Budgetary allocation displays comparatively smoother movements and shows closer co-movement with SES across several periods. This pattern suggests that government-based funding, being more predictable and stable, is more consistently aligned with institutional sustainability outcomes. In contrast, appropriation-in-aid demonstrates moderate volatility, with occasional peaks that coincide with improvements in SES, indicating that internally controlled funding may enhance sustainability when effectively managed.

Public–private partnerships, however, exhibit pronounced volatility, with sharp spikes and troughs that do not consistently align with SES movements. This lack of systematic co-movement suggests that PPP inflows may be episodic and less integrated into core operational frameworks, limiting their immediate contribution to sustainability. Therefore, the divergence observed between PPP and SES, relative to the closer alignment between BA and SES, provides preliminary support for the hypothesis that stable and routinised funding sources are more strongly associated with institutional sustainability than irregular or externally driven funding streams.

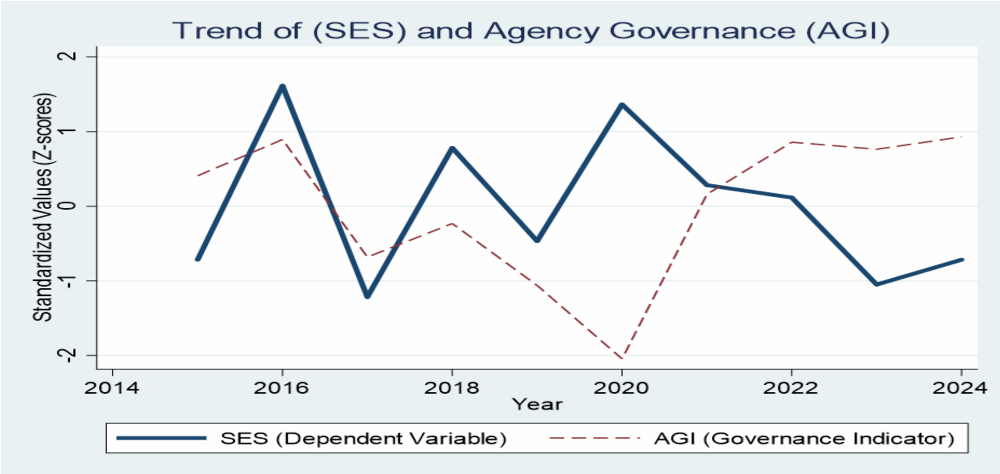

Figure 3 Trend of Institutional Sustainability (SES) and Agency Governance (AGI)

Figure 3 presents the trend relationship between institutional sustainability and the Agency Governance Index (AGI). While SES displays cyclical fluctuations over the study period, AGI follows a relatively smoother trajectory, with a notable decline around 2020 followed by gradual recovery. This suggests that governance structures tend to evolve more gradually compared to performance outcomes.

In several periods, improvements in governance appear to coincide with increases in SES, particularly between 2018–2019 and 2021–2022. This temporal alignment provides preliminary evidence that stronger governance may enhance the effectiveness with which financial resources are translated into sustainable outcomes. However, the relationship is not uniform across all years, as there are periods where improvements in governance do not immediately translate into higher sustainability scores. This divergence suggests the possibility of lag effects or interaction effects with other variables such as financing structure. It implies that governance may not directly influence sustainability in isolation but rather operates through institutional processes and decision-making mechanisms over time.

IV. Conclusion

This study concludes that higher education financing significantly determines institutional sustainability, but its effectiveness depends on the type and structure of funding. Empirical results show that appropriation-in-aid and budgetary allocation consistently and positively influence institutional sustainability, confirming that stable, predictable, and internally managed public funding enhances the efficiency of higher education financing agencies. In contrast, public–private partnership financing does not exert a statistically significant direct effect, demonstrating that externally driven and project-based funding mechanisms are not reliable drivers of institutional sustainability within AAHEFA agencies.

The study further concludes that agency governance is a decisive transmission mechanism through which funding influences institutional sustainability, particularly for appropriation-in-aid. The mediation results provide clear evidence that the impact of internally controlled funding operates through governance structures, including accountability systems and internal decision-making processes. Where governance is strong, funding translates into improved efficiency outcomes; where it is weak, the effect of funding is diminished. However, governance plays only a limited or non-significant mediating role in the case of budgetary allocation and PPP financing, indicating that the influence of governance varies depending on the level of managerial discretion associated with different funding sources.