Institutional Support Systems and Their Mediating Role on the Relationship between Academic Brain Drain and University Performance

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Abstract

This study is highly relevant as it examines the pressing issue of academic brain drain in Nigeria's higher education system and the role of Institutional Support Systems (ISS) in mitigating its impact on university performance. Using a cross-sectional survey design, data were gathered from 450 academic staff across four leading federal universities: University of Ilorin, University of Ibadan, Ahmadu Bello University, Zaria, and Nnamdi Azikiwe University, Awka. Path analysis structural equation modelling (PA-SEM), conducted with STATA 15, reveals that while brain drain negatively affects institutional performance, it also drives universities to enhance their support structures. The study finds that ISS components, particularly welfare packages and work-life balance initiatives, serve as strong mediators in buffering the adverse effects of brain drain. These mechanisms promote staff retention, research output, and academic quality despite talent loss. By highlighting the dual impact of brain drain—both its challenges and its potential to stimulate institutional reform- the study offers valuable insights for university administrators and policymakers. It concludes that proactive investment in targeted support systems is essential for sustaining performance in Nigerian universities and navigating the ongoing challenge of academic migration.

Keywords: Academic Brain Drain, University Performance, Staff Retention, ISS**,** WLB

JEL classification: D02, M53, J61, 015

Introduction

Academic brain drain has emerged as a major concern for higher education systems worldwide, particularly in developing countries like Nigeria. This phenomenon refers to the mass emigration of highly skilled professionals, especially academics, seeking better working conditions, higher salaries, and more favourable career prospects abroad. In Nigeria, the

outflow of experienced university lecturers and researchers has intensified over recent years, significantly weakening the academic workforce and limiting the capacity of institutions to deliver quality education, conduct innovative research, and foster national development. Empirical evidence underscores the alarming magnitude of this trend (Sajuyigbe et al. 2024). Between 2019 and 2024, an estimated 75,000 Nigerian professionals, including thousands of university academics, emigrated to more advanced countries in search of improved employment opportunities (Ofangbonmu & Ofeimu, 2024; Peter et al., 2021; Braimah et al., 2024; Ekpali, 2024). According to Charles (2022), the persistent exodus has drastically depleted the academic workforce, with staffing levels in many institutions falling below 50% of required capacity. Supporting this, the Academic Staff Union of Universities (ASUU) reported that nearly 70% of early-career lecturers had left the country since early 2022 (Ofangbonmu & Ofeimu, 2024).

Further highlighting the severity of the issue, Salami and Obafemi (2021) documented that several of Nigeria's leading universities have lost between 50% and 75% of their academic staff, many of whom held professorial or senior academic roles. At the University of Lagos (UNILAG) alone, approximately 1,800 academic staff, including professors and both senior and junior lecturers, resigned between 2020 and April 2025 to pursue careers abroad (Pamela & Osamiro, 2025). The performance and global competitiveness of universities depend heavily on the competence, commitment, and availability of academic staff. When experienced scholars leave, institutions often suffer declines in research output, postgraduate supervision, curriculum innovation, and international collaboration (Ogunode & Atobauka, 2021). These challenges directly threaten the core missions of higher education, teaching, research, and community engagement. Moreover, academic brain drain poses a strategic threat to national development, given the pivotal role universities play in producing skilled human capital and advancing socio-economic progress (Omobowale & Adebayo,

2020). However, it is important to note that the impact of academic brain drain may vary across institutions, depending on their structure, resources, and strategic resilience.

Emerging research underscores the vital role that institutional support systems play in mitigating the adverse effects of academic talent loss. Key supports, such as welfare packages, research funding, professional development programs, academic freedom, and work-life balance initiatives, serve as protective mechanisms that improve job satisfaction and enhance staff retention. Salami and Obafemi (2021) note that offering comprehensive welfare benefits, including competitive salaries, health insurance, housing, and retirement plans, significantly boosts financial security and employee morale, making academics less likely to seek opportunities abroad. Ogunode and Atobauka (2021) note that access to local research funding enables scholars to undertake innovative work and make meaningful contributions to the academic community, countering the perception that career growth is only achievable internationally (Sajuyigbe et al., 2024). Ayo and Ajayi (2022) emphasize the value of continuous learning through workshops, sabbaticals, and training programs, which build academic capacity and signal institutional investment in staff development, a key factor in motivation and retention (Egwu, 2019). Ekpali (2024) highlights academic freedom as essential for fostering innovation and attracting scholars who value intellectual autonomy. Conversely, restrictions on academic expression drive many to leave. Additionally, Ezeh, and Ojo (2021) stress that work-life balance measures, such as flexible scheduling, childcare support, and mental health services, are critical to staff well-being, especially for younger academics. These initiatives reduce burnout and increase job satisfaction, making domestic institutions more competitive with foreign alternatives (Sajuyigbe et al., 2024). Together, these institutional supports not only help retain existing faculty but also attract new talent and enhance morale, productivity, and long-term institutional performance, even amid persistent human capital challenges

Despite this potential, empirical evidence on the mediating role of institutional support systems in the relationship between brain drain and University Performance remains limited, particularly within public universities in emerging economies like Nigeria (Ayo & Ajayi, 2022). This research makes several significant contributions to the literature. First, it is among the few studies to examine the mediating role of institutional support systems, including welfare packages, research funding, professional development programs, and work-life balance initiatives, in the relationship between brain drain and university performance. While previous research has largely focused on the direct impact of brain drain on university performance (Pamela & Osamiro, 2025), this study expands the scope by introducing institutional support systems mediation into the analysis. Second, much of the existing literature has concentrated on the private universities, often overlooking the unique challenges and dynamics of public universities (Ofangbonmu & Ofeimu, 2024). This study addresses a critical gap by focusing on public universities within the context of an emerging economy. Despite growing concerns about academic brain drain, there remains limited understanding of the contextual factors that shape its impact on university performance, especially in politically unstable and resource-constrained environments like Nigeria. To bridge this gap, the study examines the mediating role of institutional support systems. It specifically investigates how the implementation of key support mechanisms, such as competitive welfare packages, sufficient research funding, professional development opportunities, academic freedom, and work-life balance initiatives, can effectively counteract brain drain by addressing the underlying push factors driving academics abroad. These systems enhance job satisfaction, foster career growth, and improve working conditions, thereby making domestic universities more appealing to academic professionals. As a result, institutions benefit from greater staff retention, increased research output, improved teaching quality, and overall institutional performance. Thus, strategic investment in robust support

structures is essential for sustaining academic excellence and advancing national development objectives.

Overall, this study contributes both theoretically and empirically to the literature on human resource management. Theoretically, the study extends employee retention and motivation theories by contextualizing them within resource-constrained environments like Nigeria. It introduces institutional support systems as a mediating variable, offering a systems-based perspective on talent retention in higher education. The research also highlights the influence of political and institutional contexts on HRM effectiveness. Empirically, the study provides data from a developing country, quantifies the impact of institutional support on brain drain and university performance, and identifies key push-pull factors affecting academic retention. It offers practical insights for HR managers and validates a conceptual model that can guide future research and policy development in HRM.

Theoretical Framework

This novel study is grounded in Systems Theory in Management**,** Organizational Support Theory (OST)**,** and Social Exchange Theory (SET), together offering a robust conceptual framework for understanding how institutional support systems mediate the impact of academic brain drain on university performance in Nigeria. Specifically, Systems Theory conceptualizes universities as interdependent structures (Nwagwu, 2020), where institutional support mechanisms help sustain performance despite human capital loss (Pamela & Osamiro, 2025). OST emphasizes that when academic staff perceive strong organizational support, they develop greater loyalty and reduced intentions to emigrate (Ofangbonmu & Ofeimu, 2024). Meanwhile, SET underscores the principle of reciprocity, when universities invest in the welfare and development of their academics, staff are more likely to remain committed and contribute to institutional success (Ogunode & Atobauka, 2021). Together, these

theories guide the study's conceptual framework by showing how institutional support systems can mediate and improve university performance amidst brain drain challenges.

Systems Theory in Management

Systems Theory, initially developed by Ludwig von Bertalanffy in the 1940s and 1950s, has its roots in biology and engineering (Akindele, 2021). The theory conceptualizes an organization as an open, dynamic, and interdependent system composed of various subsystems, such as departments, personnel, and processes, that work collectively to achieve shared goals. A core principle of the theory is that changes in one part of the system inevitably impact the whole, with inputs, processes, and outputs interconnected through feedback loops and control mechanisms. According to Aluko (2020), every component within an organization is linked and exerts influence on the others. In the context of a university, inputs (e.g., human resources such as academic staff) are transformed through processes (e.g., teaching, research, innovation) into outputs (e.g., graduates, publications, research breakthroughs). Feedback mechanisms then allow the system to adapt and improve in response to internal dynamics or external pressures (Ayo & Ajayi, 2022).

Aghahowa (2021) further applies Systems Theory to the higher education sector, describing a university as a living system made up of interconnected units, including academic staff, students, administrators, and funding structures. In this system, academic staff serve as a critical input, and their contributions largely determine the quality of outputs and the overall performance of the institution. When the needs of these staff members, such as promotion opportunities, research support, and job security, are not met, the feedback loop becomes negative, resulting in dissatisfaction and eventual academic brain drain.

Academic brain drain is a significant disruption to the system, representing the loss of essential human capital. As skilled academics leave, the institution's capacity for teaching, mentoring, research, and innovation is diminished, weakening its systemic functionality. As

Ayo and Ajayi (2022) observe, such losses destabilize the university's equilibrium, leading to decreased teaching quality, reduced research outputs, fewer grants, and declining reputation. This demonstrates how a failing subsystem, such as human resource management, can adversely affect overall university performance. Systems Theory posits that strong institutional support systems, including competitive welfare packages, adequate research funding, professional development opportunities, academic freedom, and work-life balance initiatives, are vital for system optimization. These mechanisms enhance academic staff morale, increase productivity, and sustain high performance.

Moreover, the theory underscores that the interactions among subsystems are crucial to the health of the whole system. Institutional support acts as a buffer between academic brain drain and institutional performance. When robust, such support structures can absorb shocks, retain talent, and promote resilience by improving motivation and succession planning. In conclusion, Systems Theory in Management provides a strategic framework for understanding the complex relationship between institutional support systems, academic brain drain, and university performance. It highlights the importance of designing integrated, adaptive, and feedback-responsive structures to ensure that all components of a university function harmoniously in pursuit of sustainable excellence.

Organizational Support Theory (OST)

Organizational Support Theory (OST), developed by Eisenberger et al. (1986), is grounded in Social Exchange Theory. It posits that employees develop general perceptions about the extent to which their organization values their contributions and cares about their well-being, a concept known as Perceived Organizational Support (POS). According to Charles (2022), when employees feel supported, recognized, and treated fairly, they tend to reciprocate through increased commitment, job satisfaction, loyalty, and enhanced performance. Conversely, Pamela and Osamiro (2025) assert that when organizational support is lacking or

inconsistent, it leads to diminished morale, disengagement, and ultimately, employee exit, manifesting as turnover or brain drain. Within the university context, particularly in Nigeria, OST offers a useful framework for understanding the impact of institutional support systems. These include mechanisms such as research funding, welfare packages, career advancement opportunities, academic freedom, and responsive administrative policies (Ogunode & Atobauka, 2021).

These systems serve as tangible manifestations of organizational support and function as mediating variables in the relationship between academic brain drain, where staff leave for better professional opportunities, and university performance, measured by research productivity, teaching quality, innovation capacity, and institutional reputation (Sajuyigbe et al., 2024). Empirical evidence supports this connection. Salami and Obafemi (2021) highlight that a well-structured support system enhances POS, fosters a sense of belonging among academic staff, discourages exit intentions, and promotes sustainable institutional performance. Similarly, Oyewole (2019) contends that weak or inconsistent support systems cultivate feelings of neglect among staff, leading to reduced organizational commitment and increased likelihood of migration. In contrast, strong support structures encourage reciprocal commitment, whereby academic personnel feel valued and are more likely to remain within the institution and contribute meaningfully to its objectives.

In conclusion, Organizational Support Theory provides a strategic lens through which to examine how institutional support systems mediate the interplay between academic brain drain and university performance in Nigeria. To address the persistent challenge of brain drain and to enhance performance outcomes, Nigerian universities must implement institutional policies that strengthen perceived support, promote engagement, and cultivate a stable and productive academic environment.

Social Exchange Theory (SET)

Social Exchange Theory (SET) originated in the disciplines of sociology and social psychology, with seminal contributions from George Homans (1958), Peter Blau (1964), and Richard Emerson (1976). The theory posits that social behavior results from an exchange process through which individuals seek to maximize benefits and minimize costs in relationships (Okeke et al., 2016). In organizational and academic contexts, SET serves as a valuable framework for understanding the dynamics between institutions and their staff (Akporehe, 2023). Within the university system, institutional support mechanisms, such as welfare programs, career development opportunities, equitable remuneration, academic freedom, research funding, and responsive administration, represent the "rewards" offered by the institution. According to SET, when academic staff perceive these supports as adequate and fair, they are more likely to reciprocate with heightened commitment, productivity, loyalty, and a reduced intention to leave the institution (Abubakar & Musa, 2020). In this regard, institutional support functions as a mediating factor that shapes employee attitudes and behaviours, influencing key outcomes such as retention and performance.

Conversely, inadequate support, marked by poor salaries, insufficient funding, limited research infrastructure, and unfavourable working conditions, generates negative perceptions of the exchange relationship. This dissatisfaction fuels academic brain drain within Nigerian universities, as highlighted by Pamela and Osamiro (2025). Similarly, Ofangbonmu and Ofeimu (2024) observe that high-performing academics often migrate to institutions or countries that provide better support, recognition, and resources. When institutional support systems are robust and perceived as equitable, they contribute to talent retention and foster a positive and reciprocal relationship between universities and their staff. This, in turn, promotes alignment between personal and institutional goals, enhancing teaching quality, research output, and overall institutional competitiveness (Omobowale & Adebayo, 2020).

SET therefore offers a compelling lens for understanding how institutional support systems mediate the link between academic brain drain and university performance in Nigeria. It highlights the necessity of fostering mutually beneficial relationships through consistent support, recognition, and opportunity. By strengthening these support systems, Nigerian universities can mitigate brain drain and promote long-term institutional effectiveness and sustainability.

Empirical Review and Hypotheses Development

Brain Drain and University Performance

The concept of brain drain can be traced back to the 1950s, when the term was first coined by the British Royal Society to describe the outflow of scientists and technicians from the United Kingdom to countries such as the United States and Canada. According to Young (2023), brain drain refers to the emigration or loss of highly skilled, educated, and talented individuals, such as scientists, academics, medical professionals, and engineers, from one country, institution, or region to another, often in pursuit of better opportunities, improved working conditions, and enhanced quality of life. Existing studies have established a strong relationship between brain drain and university performance, particularly in emerging economies. For instance, Olayemi and Ogunbanjo (2022) examined the effect of brain drain on the quality of higher education in West Africa. Their findings revealed that the loss of top academic talent leads to a decline in curriculum quality, limited mentoring opportunities, and reduced institutional innovation, thereby weakening key university performance indicators.

Similarly, Aluko (2020) explored the impacts of academic staff emigration on Nigeria's university system. The study empirically linked brain drain to institutional underperformance, highlighting its effects on the supervision capacity for graduate students and the erosion of research culture. In Burundi, Kwizera et al. (2020) identified brain drain as a major contributor to low academic performance. In the same vein, Ogunbodede (2020)

affirmed that brain drain directly contributes to a shrinking academic workforce, rising student-to-lecturer ratios, and poor educational outcomes. Eze and Nwagwu (2020) also reported that brain drain significantly affects academic performance, while Popogbe and Adeosun (2022) emphasized its association with weakened intellectual capital and deteriorating lecturer-to-student ratios.

Furthermore, Eyong (2023) noted that brain drain leads to a reduction in curriculum quality, and Akporehe (2023) linked it to declining mentoring opportunities for students. Mallo et al. (2023) reinforced this perspective by identifying brain drain as a key determinant of diminished institutional innovation. Additionally, Pamela and Osamiro (2025) confirmed that brain drain contributes to a reduced capacity for graduate student supervision and a weakening of the research culture. Collectively, these studies underscore that brain drain is a critical factor responsible for academic staff shortages in vital disciplines, poor student-to-teacher ratios, reduced research output, declining global rankings, and an overall weakening of universities' ability to deliver quality education.

Mediating Effect of Institutional Support Systems

Institutional Support Systems (ISS) refer to the frameworks, structures, and resources provided by universities and government bodies to support faculty and academic activities. These include research grants, professional development programs, adequate infrastructure, welfare packages, and staff retention policies (Olayemi & Ogunbanjo, 2022). According to Ojo, and Oladipo (2018), ISS functions as a buffer or enabler that can either mitigate or exacerbate the negative relationship between brain drain and university performance. Ogunode, and Abubakar (2021) argue that strong ISS can help retain academic talent by enhancing job satisfaction, providing career growth opportunities, and boosting motivation. Similarly, Nwagwu (2020) notes that ISS improves the research and working environment, thereby reducing the likelihood of academics seeking opportunities abroad. Eze and Nwagwu

(2020) emphasize that ISS are essential for sustaining teaching, research, and community service, even in the face of migration pressures. In line with this, Tijani and Bello (2018) empirically linked staff welfare to academic productivity and the overall quality of university education. The study identified poor salaries, inadequate benefits, and poor working conditions as key push factors for academic brain drain. It concluded that improving welfare packages could significantly enhance talent retention and institutional efficiency. Ofangbonmu, and Ofeimu (2024) further observe that the lack of research grants is a major driver of academic emigration, while access to well-funded research promotes innovation, global recognition, and improved university rankings. Omobowale, and Adebayo (2020) support this view, postulating that institutions with consistent external funding perform better academically. The same study highlights that increased budgetary allocations to research are essential for reducing brain drain and enhancing institutional rankings. Pamela, and Osamiro (2025) also find that adequate research funding indirectly influences both academic migration and university performance, indicating its mediating role in talent retention and institutional success.

In terms of professional development, Obasi and Olayinka (2021) demonstrate that opportunities such as training, mentoring, and structured career growth have a positive, albeit indirect, influence on staff retention and university performance. Similarly, Ibidapo-Obe (2022) affirms that the institutionalization of professional development programs is associated with improved retention and enhanced academic output. Egwu (2019) concurs, emphasizing that well-structured development initiatives significantly support talent retention and contribute to institutional success. Academic freedom, defined as the ability of scholars to teach, research, and publish without undue interference, is also critically linked to academic retention and university performance (Ezeh, C., & Ojo, 2021). Ayo, and Ajayi (2022) assert that academic freedom fosters creativity, innovation, and diversity of thought,

which are essential for rigorous research and critical engagement. Institutions that safeguard academic freedom are more likely to attract and retain top scholars, thus improving performance.

Existing research also underscores the importance of work-life balance in reducing emigration tendencies and improving university outcomes (Sajuyigbe et al., 2024; Isaac, 2024). Egwu (2019) argues that a balanced lifestyle improves job satisfaction, reduces turnover, and enhances productivity, factors that contribute to a healthier academic environment and sustained institutional performance. Flexible work arrangements, family support services, leave policies, and stress-reduction strategies all play a role in improving staff retention and overall efficiency. In conclusion, strengthening Institutional Support Systems in Nigerian universities is vital to mitigating the adverse effects of academic brain drain and enhancing university performance. Prioritizing welfare, funding, development, academic freedom, and work-life balance will significantly improve staff satisfaction, retention, and institutional outcomes.

Conceptual Framework for the Study

Figure 1: Conceptual Model

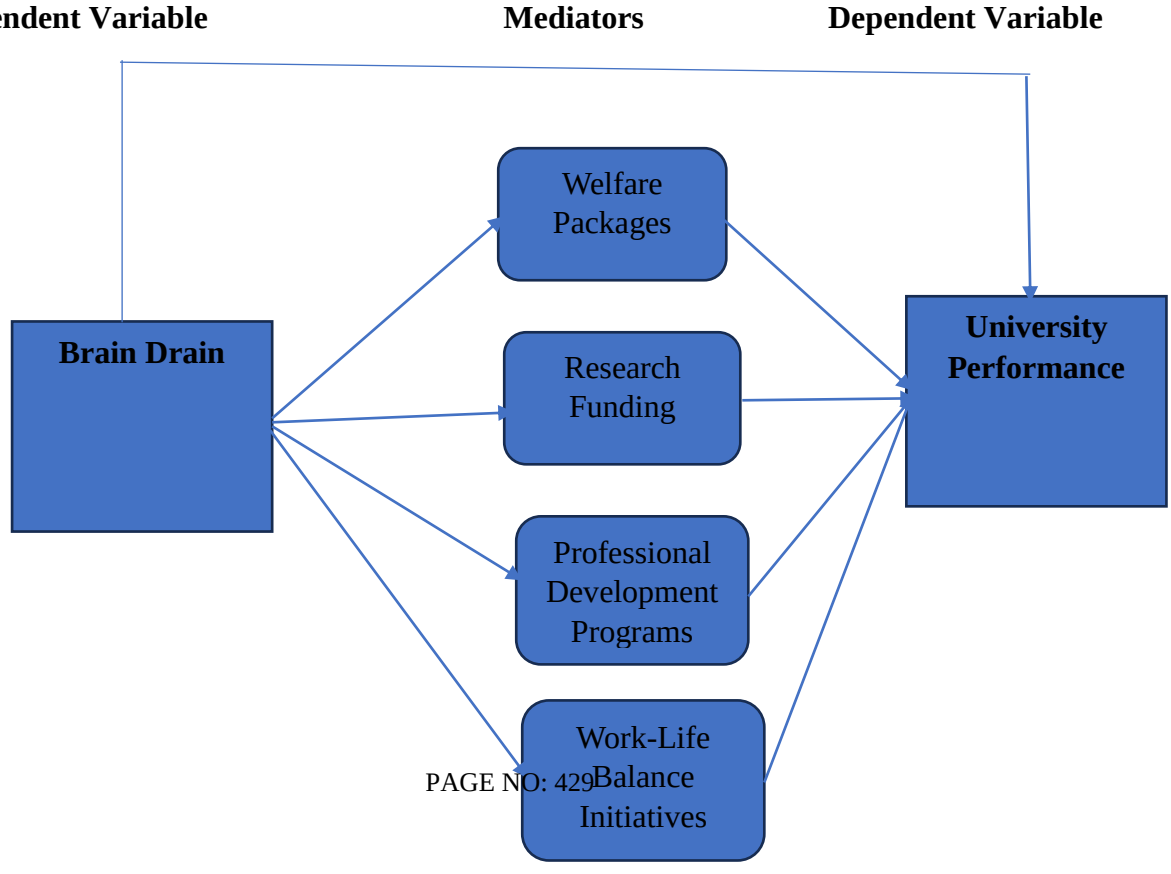

Figure 1 illustrates the conceptual model developed to predict university performance, with a particular focus on the influence of brain drain. The model incorporates key dimensions of Institutional Support Systems (ISS), including welfare packages, research funding, professional development programs, and work-life balance initiatives, as mediating variables in the relationship between brain drain and university performance. This framework establishes the foundation for hypothesizing how brain drain adversely affects university outcomes and how robust support mechanisms can mitigate these effects. In the university context, brain drain presents significant challenges by reducing research productivity, weakening the quality of teaching, and disrupting postgraduate supervision. These consequences contribute to declining academic standards, lower international rankings, and institutional instability, ultimately impairing the university's capacity to fulfill its mission. Conversely, the implementation of comprehensive institutional support systems has been shown to significantly enhance university performance. These systems promote staff retention, boost research output, improve teaching quality, and strengthen postgraduate supervision. They also enhance institutional reputation, improve global competitiveness, elevate staff morale, and foster innovation. Such outcomes contribute to the creation of a stable, high-performing academic environment that supports long-term growth and sustainability.

This model underscores the strategic importance of ISS in mitigating the negative effects of brain drain. It suggests that by fostering a supportive and well-resourced academic ecosystem, universities can not only retain talent but also enhance institutional effectiveness and competitiveness. Strengthening ISS is therefore critical for improving university

performance, achieving national and global development goals, and restoring the credibility of higher education institutions in Nigeria. Accordingly, the conceptual framework posits that brain drain is likely to have a direct negative effect on university performance, while the dimensions of institutional support are expected to play indirect mediating roles in buffering or altering this relationship.

Hypotheses of the Research

Drawing from the literature review and the conceptual framework (see Figure 1), the following hypotheses are proposed:

H1: Brain drain has a significant association with Welfare packages.
H2: Brain drain has a significant relationship with research funding.
H3: Brain drain has a significant association with Professional development programs.
H4: Brain drain has a significant influence on Work-life balance initiatives.
H5: Brain drain has a significant effect on university performance.
H6: Welfare packages significantly mediate the relationship between brain drain and university performance.
H7: Research funding significantly mediates the relationship between brain drain and university performance.
H8: Professional development programs significantly mediate the relationship between brain drain and university performance.
H9: Work-life balance initiatives significantly mediate the relationship between brain drain and university performance.

Methodology

Research Design: This study adopted a cross-sectional survey design to explore respondents' perspectives on the mediating role of institutional support systems in the relationship between brain drain and university performance

Sampling Technique and Sample Size: A purposive sampling technique was employed to select four federal universities: the University of Ilorin, the University of Ibadan, Ahmadu Bello University, Zaria, and Nnamdi Azikiwe University, Awka. These institutions were

chosen based on their long-standing reputation, robust infrastructure, well-established human resource policies, and strong academic prestige. They offer attractive working environments characterized by well-equipped offices, libraries, and research facilities; clearly defined promotion pathways linked to performance; greater access to competitive funding and research grants; and professional recognition and stability. These factors collectively reduce the likelihood of staff migration to private or foreign institutions (Charles, 2022). It is assumed that the institutional support systems implemented to minimize staff migration to foreign institutions and enhance university performance will be identified and examined. A structured questionnaire was administered to all academic staff of the selected universities through their respective ASUU WhatsApp groups. Consequently, a total of 450 completed questionnaires were received and analyzed. Of the respondents, 62% were male and 38% female, with a mean age of 46 years. Regarding educational qualifications, 73% of respondents held a doctorate (Ph.D.) as their highest qualification, 23% held a master's degree (M.Sc.), and 4% held a bachelor's degree (B.Sc.). This indicates that over 70% of the academic staff possess a Ph.D., which contributes positively to the quality of education delivered to students. In terms of work experience, 5% of respondents had served in the university system for 5 to 10 years, 30% for about 19 years, while 65% had over 30 years of experience. On average, most respondents had more than 20 years of university experience. This extensive experience suggests a deep understanding of institutional structures and administrative systems, which likely influences their coping strategies.

Measurements: To test the study hypotheses, a quantitative research design was employed using a structured questionnaire. The study focused on six key constructs: (1) welfare packages, (2) research funding, (3) professional development programs, (4) work-life balance initiatives, (5) brain drain, and (6) university performance. Each construct was measured

using a 5-item scale, with responses rated on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Welfare Packages Scale: This 5-item scale was adapted from Ofangbonmu, and Ofeimu (2024). Sample items include: "My university provides adequate health insurance and medical support," "The salary structure and allowances meet my basic living needs," and "Pension and retirement benefits are clearly defined and satisfactory." The scale demonstrated high internal consistency, with a Cronbach's alpha of 0.891.

Research Funding Scale: Also derived from Obasi and Olayinka (2021), this 5-item scale assessed the adequacy and accessibility of research funding. Sample items include: "My university provides sufficient funding to support my research activities," and "Access to research grants is transparent and competitive." The reported Cronbach's alpha was 0.837.

Professional Development Programs Scale: This scale, sourced from Eze and Nwagwu (2020), measured institutional support for academic growth. Sample items include: "My university provides opportunities for training and capacity building," and "I am regularly sponsored for academic conferences, workshops, or seminars." The scale achieved a Cronbach's alpha of 0.829.

Work-Life Balance Initiatives Scale: Adapted from Sajuyigbe et al. (2024), this 5-item scale examined institutional practices promoting work-life balance. Sample items include: "The university supports flexible work schedules for academic staff," and "There is psychological or wellness support for work-related stress." The reliability coefficient for the scale was 0.821.

Brain Drain Scale: This 5-item scale, derived from Tijani and Bello (2018), evaluated the extent and drivers of brain drain among academic staff. Sample statements include: "I have considered relocating abroad due to better academic opportunities," and "The poor working

environment increases my desire to seek jobs overseas." The scale recorded a Cronbach's alpha of 0.819.

University Performance Scale: Based on Pamela, and Osamiro (2025), this scale measured perceived institutional performance. Sample items include: "My university is recognized nationally for academic excellence," and "Research output in the university has improved in recent years." The scale's reliability was confirmed with a Cronbach's alpha of 0.807

Reliability and Validity of Instruments: Factor loadings, Average Variance Extracted (AVE), Composite Reliability (CR), Cronbach's Alpha, and Variance Inflation Factor (VIF) were used to assess the reliability and validity of the measurement scales (see Table 1). Structural Equation Modelling (SEM) with path analysis was employed to analyse the data.

Table 1: Evaluation of the measurement model

Scale Item	Loading	AVE	Composite Reliability	Cronbach's Alpha	VIF
Welfare Packages					
WP1	0.802	0.839	0.829	0.841	1,793
WP2	0.807				1,801
WP3	0.826				1,873
WP4	0.833				1,899
WP5	0.818				1,917
WP6	0.812				1,987
Research Funding					
RF1	0.803	0.852	0.878	0.851	2,110
RF2	0.809				1,733
RF3	0.821				1,894
RF4	0.808				2,101
RF5	0.829				1,971
RF6	0.831				1,802
Professional Development Programs					
PDP 1	0.811	0.833	0.829	0.816	1,812
PDP 2	0.819				1,977
PDP 3	0.832				2,001
PDP 4	0.818				2,008
PDP 5	0.803				2,205
PDP 6	0.807				2,178
Work-Life Balance					

Initiatives					
WLB1	0.822	0.842	0.841	0.835	2,005
WLB2	0.823				2,210
WLB3	0.827				2,198
WLB4	0.839				1,832
WLB5	0.818				1,491
WLB6	0.831				1,778
Brain Drain		0.839	0.818	0.832	
BD1	0.801				2,009
BD2	0.816				1,999
BD3	0.801				2,012
BD4	0.813				1,772
BD5	0.808				1,888
BD6	0.821				2,010
University Performance					
UP1	0.817	0.829	0.831	0.839	2,009
UP2	0.823				1,902
UP3	0.816				1,972
UP4	0.809				1,909
UP5	0.814				2,001

The measurement model demonstrates strong reliability and validity. All factor loadings exceed 0.70, AVE values are above 0.50, and both Composite Reliability and Cronbach's Alpha values surpass the 0.80 threshold, confirming internal consistency and convergent validity. VIF values are below 3.3, indicating no multicollinearity issues. The constructs used, welfare packages, research funding, professional development programs, work-life balance, brain drain, and university performance, are statistically sound and appropriate for analysis. This supports the validity of the model and allows for reliable structural equation modelling. The findings can guide university administrators in designing effective institutional support strategies to mitigate brain drain and enhance performance.

Ethical Considerations: The study upheld key ethical standards, including obtaining informed consent, ensuring confidentiality and anonymity, and allowing voluntary participation. It posed no harm to participants and maintained data integrity.

Results and Discussion

Table 2: Path Analysis (Direct Effect)

Path	Coef.	T-value	p-value	Hypothesis	Remark
WP <-BD	0.4821	8.062	0.000	**H_1**	Supported
RF <-BD	0.2759	3.992	0.000	**H_2**	Supported
PDP <-BD	0.3723	5.62	0.000	**H_3**	Supported
WLB <-BD	0.4091	7.902	0.000	**H_4**	Supported
UP <-BD	-0.4899	-8.998	0.000	**H_5**	Supported

Note: WP = Welfare packages, BD = Brain drain, PDP = Professional development programs, RF= Research funding, WLB = Work life balance Technological agility, UP = University performance

Table 2 presents the path analysis results, which show that brain drain (BD) has a significant and positive influence on all institutional support system (ISS) components, welfare packages (WP), research funding (RF), professional development programs (PDP), and work-life balance (WLB), as well as a significant negative effect on university performance (UP).

Specifically, brain drain strongly influences the improvement of welfare packages ($\beta = 0.4821$, $p < 0.001$), suggesting that when skilled academics leave in large numbers, university administrators and policymakers respond by enhancing welfare provisions. These enhancements may include salary increases, improved healthcare and housing benefits, and research-related allowances. Supporting this view, Egwu (2019) notes that the Academic Staff Union of Universities (ASUU) often highlights brain drain in its negotiations, arguing that poor welfare is a key driver, leading to occasional government concessions.

Similarly, brain drain significantly affects research funding ($\beta = 0.2759$, $p < 0.001$), professional development programs ($\beta = 0.3723$, $p < 0.001$), and work-life balance initiatives ($\beta = 0.4091$, $p < 0.001$). These findings imply that universities facing talent loss invest more in research opportunities, career growth, and supportive work environments to retain staff and attract new talent. Among the ISS components, welfare packages and work-life balance are most strongly influenced by brain drain, underscoring the importance of competitive compensation and improved working conditions in retaining academic staff. Moreover, brain

drain has a significant direct negative effect on university performance (β = -0.4899, $p < 0.001$), indicating that continued staff loss can lead to a decline in research output, innovation, and student satisfaction. This emphasizes the need for proactive strategies to address the root causes of brain drain. Overall, the significant path coefficients from BD to ISS components and UP confirm all five hypotheses (H1–H5), reinforcing the validity of the conceptual model. The findings highlight the importance of comprehensive institutional support systems as both a reaction to and a buffer against the adverse effects of academic staff migration in Nigerian universities. This study is consistent with the findings of Ojo and Oladipo (2018), who assert that institutional support systems (ISS) act as either a buffer or enabler that can mitigate or worsen the negative impact of brain drain on university performance. Similarly, Ogunode and Abubakar (2021) contend that robust ISS contribute to retaining academic talent by enhancing job satisfaction, creating opportunities for career advancement, and increasing motivation. Nwagwu (2021) also highlights that ISS improve both the research climate and work environment, thereby decreasing the likelihood of academics seeking employment abroad. Likewise, Eze and Nwagwu (2020) stress that ISS are vital for maintaining teaching, research, and community engagement despite the pressures of academic migration. Furthermore, Tijani and Bello (2018) provide empirical evidence linking staff welfare to academic productivity and the overall quality of university education.

Table 3: Results of Path Analysis Structural Equation Modelling (Indirect Effcet)

Path	Coef.	T-value	p-value	Hypothesis	Remark
UP <-WP <-BD	0.690	12.809	0.000	**H_6**	Partially supported
UP <-RF <-BD	0.490	5.809	0.000	**H_7**	Partially supported
UP <-PDP <-BD	0.576	9.097	0.000	**H_8**	Partially supported
UP <-WLB <-BD	0.687	12.782	0.000	**H_9**	Partially supported

Note: WP = Welfare packages, BD = Brain drain, PDP = Professional development programs, RF= Research funding, WLB = Work life balance Technological agility, UP = University performance

Table 3 presents the indirect effects of brain drain (BD) on university performance (UP) through key institutional support system (ISS) components: welfare packages (WP), research funding (RF), professional development programs (PDP), and work-life balance (WLB). The results show that all indirect paths are positive and statistically significant ($p < 0.001$), indicating that these ISS components mediate the relationship between brain drain and university performance. Specifically, brain drain indirectly enhances university performance through improved welfare packages (Coef = 0.690, T = 12.809), suggesting that when institutions respond to staff departures by increasing salaries, healthcare, housing, and other benefits, staff morale and productivity improve, positively impacting performance. This underscores the importance of prioritizing welfare improvements in retention strategies.

Similarly, research funding (Coef = 0.490, T = 5.809) emerges as a critical channel, showing that investment in research infrastructure and grants, often in response to brain drain, enables academics to conduct quality research and attract external funding, thus boosting institutional performance and competitiveness. The study also confirms that brain drain stimulates greater emphasis on professional development programs (Coef = 0.576, T = 9.097), which in turn enhances performance. Training, mentoring, and career growth opportunities contribute to staff retention and strengthen academic capacity, indicating that professional development should be a key part of human resource strategies. Lastly, brain drain indirectly improves performance through better work-life balance (Coef = 0.687, T = 12.782). Initiatives such as flexible work arrangements, supportive leave policies, and manageable workloads help retain staff and enhance institutional effectiveness. Notably, the influence of work-life balance is nearly as strong as that of welfare packages.

These findings demonstrate that institutional support systems act as effective mediating buffers between brain drain and university performance. Even in the face of talent loss, universities can sustain or enhance performance by strengthening internal support

structures. Therefore, comprehensive investment in staff welfare, research, development, and well-being is essential for mitigating the adverse effects of brain drain.

Conclusion

The findings from both the direct and indirect path analyses reveal that brain drain has a significant impact on institutional support systems and university performance. While brain drain exerts a direct negative effect on university performance, it simultaneously prompts institutions to enhance support systems, such as welfare packages, research funding, professional development programs, and work-life balance, which in turn mediate and mitigate its adverse effects. The strongest influences were observed in the areas of welfare and work-life balance, suggesting that competitive compensation and improved working conditions are vital to staff retention and institutional sustainability. Furthermore, the positive indirect effects of brain drain through ISS components highlight the potential of strategic internal reforms to buffer performance decline. Ultimately, the study underscores the importance of a comprehensive and proactive institutional response. By strengthening support structures, universities can not only reduce academic staff attrition but also maintain or improve performance in the face of ongoing migration challenges. These insights validate the conceptual model and offer a practical framework for policy interventions aimed at addressing the consequences of brain drain in the Nigerian university system.

Theoretical Implication

This study makes a significant theoretical contribution by integrating Systems Theory in Management, Organizational Support Theory (OST), and Social Exchange Theory (SET) to develop a comprehensive conceptual framework that explains how institutional support systems mediate the impact of academic brain drain on university performance in Nigeria. Grounded in Systems Theory, the study conceptualizes the university as an interconnected

and dynamic system in which the departure of academic staff due to brain drain disrupts internal equilibrium, negatively affecting teaching, research, and innovation outcomes. The theory highlights that strong institutional support mechanisms, such as competitive welfare, research funding, and career development, act as corrective feedback loops that stabilize the system and enhance its functionality. This reinforces the view that improving these subsystems can restore performance even amidst human capital loss.

Through Organizational Support Theory, the study underscores the importance of perceived organizational support (POS) in shaping academic staff attitudes and behaviours. When universities offer tangible support, such as professional development, responsive leadership, and fair policies, staff are more likely to remain loyal and committed, reducing the intention to emigrate. The theory supports the mediating role of institutional support systems in enhancing performance by fostering a sense of value and belonging among academic personnel. Incorporating Social Exchange Theory, the study further explains that institutional support fosters a reciprocal relationship between universities and their staff. When academic staff perceive the exchange as fair and beneficial, they respond with increased commitment, productivity, and long-term retention. Conversely, perceived imbalance in this exchange, driven by poor support or recognition, contributes to academic migration.

Together, these theories provide a robust, multidimensional lens for understanding the mechanisms through which institutional support systems can buffer the negative effects of brain drain. The findings theoretically validate the mediating role of welfare, research funding, professional development, and work-life balance as critical institutional levers for sustaining university performance. In conclusion, this study advances theoretical knowledge by bridging systems thinking with social and organizational behavior theories. It offers a holistic model that not only explains the complex interplay between brain drain and

university performance but also guides future empirical research and theory-building in higher education management, especially in resource-constrained contexts like Nigeria.

Practical Implications

The findings of this study have several important practical implications for university administrators, policymakers, and stakeholders in Nigeria's higher education sector. To begin with, university leaders must actively invest in institutional support systems, such as welfare packages, research funding, professional development programs, and work-life balance initiatives—to enhance staff satisfaction and reduce brain drain. Retention strategies should include competitive salaries, comprehensive healthcare, housing support, and retirement benefits as core policy components. Addressing these welfare concerns can significantly lower the risk of academic migration and foster greater institutional commitment. Moreover, expanding access to research grants, laboratory facilities, and publication support is essential for retaining research-driven faculty and boosting institutional output and reputation. Equally vital are continuous professional development opportunities, such as training, mentoring, sabbaticals, and transparent promotion pathways, that contribute to staff engagement and career progression.

To support staff well-being, universities should implement flexible work arrangements, supportive leave policies, and reasonable workloads. These steps help prevent burnout and cultivate a healthier academic environment. Additionally, establishing robust feedback mechanisms that empower staff to voice concerns and participate in governance processes will promote trust, transparency, and responsiveness. At the national level, government agencies and regulatory bodies must adopt a holistic, system-wide approach to addressing academic brain drain. This includes increasing funding, improving infrastructure, and offering incentives that empower institutions to adopt sustainable retention strategies. In conclusion, tackling academic brain drain in Nigeria requires coordinated institutional and

policy actions. Prioritizing comprehensive support for academic staff will improve retention, enhance performance, and ensure global competitiveness in higher education.

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