BRAIN DRAIN AND ECONOMIC DEVELOPMENT IN NIGERIA 2015-2024

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Abstract

Brain drain is the phenomenon whereby skilled professionals migrate in droves from one region or industry to another. Geographic brain drain is frequently driven by such factors like political instability, economic hardship, or better opportunities elsewhere. The phenomenon is widely held to lead to a loss of valuable human capital and reduction of consumer spending in the origin regions. It is also held the more serious the outflow of competent human resources, the less experts and research personnel in the home country, resulting in the weakening of the country's research and technology competitiveness and reduction of innovation, thereby undermining economic growth. This study aims to mediate this debate in extant literature by investigating the overall net effect of brain drain on the development of Nigeria's economy from 2015 to 2024; the study relied mostly on documentary data, which is analysed using qualitative descriptive analysis. The study therefore found that there is a strong negative correlation between Nigeria's brain drain and sectorial productivity, particularly evident in the healthcare sector where the doctor-to-patient ratio is drastically below global standards. The study therefore recommends that: There should be comprehensive reforms focused on improving working conditions, salaries, and career growth pathways for professionals in critical sectors. And fostering political stability and infrastructural development is essential to retain skilled labour.

Keywords: *Migration; brain drain; brain circulation; economic development; Nigeria; Human Capital.*

Introduction

The phenomenon of brain drain the migration of skilled and educated individuals from developing countries to more developed nations has significantly impacted Nigeria's economic development over the past decade. Between 2015 and 2024, Nigeria has experienced persistent challenges in retaining its human capital, which is crucial for sustainable economic growth and development. The brain drain in Nigeria is primarily driven by factors such as high unemployment rates, economic instability, poor governance, inadequate infrastructure, and substandard working conditions, which have collectively created an environment that fails to meet the aspirations of skilled professionals (Adebogun, 2024; Onireti, 2024; Aondover et al., 2022).

The loss of human capital has profound economic consequences, particularly because skilled professionals such as engineers, doctors, scientists, and academics constitute the backbone of critical sectors necessary for national development. For instance, the healthcare sector suffers extensively due to the migration of medical personnel, resulting in worsened doctor-to-patient ratios far below global standards, and thus undermining efforts to improve public health outcomes (Aloysius, 2025; Imafidon, 2018). This talent drain reduces productivity and innovation capacity, stalling growth and weakening Nigeria's competitiveness on both regional and global scales. Moreover, brain drain exacerbates the cycle of poverty and underdevelopment as the economy is deprived of the intellectual and technical expertise it requires (Egbule, 2023; Nnoruga & Osigwe, 2023). From a socio-economic perspective, the outflow of skilled labour also affects government revenue through diminished tax income and increases dependency on external expertise, weakening economic sovereignty (Ogbenika, 2019). Despite some governmental efforts since 2015, challenges such as inflation, corruption, and insufficient industrialization continue to fuel brain drain, preventing Nigeria from fully capitalizing on its human resources for economic development (Adeyemi et al., 2019; Anetoh & Onwudinjo, 2020).

The phenomenon of brain drain in Nigeria has a longstanding historical trajectory, tracing back prominently to the late 20th century. The origins of this mass migration of skilled and educated professionals can be linked to significant economic and political shifts that began in the late 1970s and intensified through the 1980s and 1990s. Initially, during the 1970s economic boom fuelled by oil discoveries, Nigeria attracted foreign professionals, but this reversed sharply following the economic downturn and adoption of the Structural Adjustment Program (SAP) in the mid-1980s (Ogbu, 2019; Nnoruga & Osigwe, 2023).

The Structural Adjustment Program and related austerity measures drastically reduced funding for key sectors such as education and healthcare, leading to deteriorating working conditions and salaries for professionals. This fiscal retrenchment particularly affected university academics and healthcare workers, catalyzing their migration to more prosperous countries, where global visa programs opened pathways for skilled workers to fill labor shortages (Ogbu, 2019; Wikipedia, 2021). The brain drain phenomenon became more acute as political instability, corruption, and poor governance contributed to a lack of confidence in Nigeria's future and sustained economic hardships (Onireti, 2024).

Throughout the 1990s and into the 21st century, the trend intensified with waves of migration not only among healthcare professionals but also across academia, engineering, and the creative industries. This long-term exodus has continued into the present decade, with recent studies indicating over 50% of Nigerian professionals expressing intentions to seek employment abroad (Nnoruga & Osigwe, 2023). The historical phases of Nigerian brain drain reflect cyclical push factors such as unemployment, inadequate infrastructure, and political crises, juxtaposed against pull factors including better remuneration, working conditions, and opportunities in developed countries. The socio-economic impact of this on-going brain drain spans a reduction in domestic capacity for innovation, healthcare delivery inefficiencies, and weakened educational systems, creating a significant barrier to national economic development (Nwozor, 2015). Efforts to

reverse this trend have largely been ineffective, with diaspora-led investments only partially compensating for the loss of indigenous expertise (Nwozor, 2015; Opara & Nsonwu, 2024). Historically, the brain drain in Nigeria encapsulates a complex interaction of economic, political, and social factors, with profound implications for the country's development trajectory.

The problem of brain drain and its impact on Nigeria's economic development remains multifaceted and deeply entrenched. Despite Nigeria's large population and rich human resource potential, the persistent outflow of skilled professionals to developed countries has undermined national efforts towards economic growth and sustainable development. This exodus creates a scarcity of skilled labor, notably in critical sectors such as healthcare, education, and technology, which are essential drivers of economic productivity and innovation (Ogbenika, 2019). Compounding this issue is the unaddressed structural challenges within Nigeria, including poor working conditions, inadequate funding, political instability, and weak institutional frameworks. These factors together perpetuate the brain drain cycle, ultimately reducing the capacity for domestic knowledge production, service delivery quality, and economic diversification, thereby slowing Nigeria's overall development trajectory (Umar, Salihu, & Azuine, 2025; Adepoju, 2008). Problematizing this study highlights a fundamental development dilemma: how to retain human capital in an environment with limited incentives, poor infrastructure, and governance challenges.

Brain drain in Nigeria has been extensively studied across multiple disciplines, revealing its negative repercussions on economic development. Adepoju (2008) articulates that the migration of skilled professionals depletes essential sectors like health and education, leading to diminished service quality and stagnant knowledge advancement. In the healthcare sector, Umar et al. (2025) demonstrate that the loss of medical practitioners to countries offering better remuneration and working conditions has led to worsening health indices, including maternal and infant mortality. Similarly, Ogbenika (2019) emphasizes how brain drain depletes the nation's industrial and technological capabilities, reducing Nigeria's competitive standing internationally. However, on the economic front, studies by Nnoruga and Osigwe (2023) have linked brain drain to declining GDP growth due to a shrinking skilled labor force critical for innovation and productivity. Moreover, Anetoh and Onwudinjo (2020) explore how macroeconomic instabilities and governance deficits are key push factors exacerbating this outmigration trend. Conversely, some scholars consider remittances and return migration as partial offsets but caution that they do not fully compensate for the loss of human capital (Adeyemi, Adetunji, & Imam, 2019). Collectively, this body of literature underscores that unless structural reforms, incentives for retention, and improved working environments are enacted, brain drain will remain a formidable obstacle to Nigeria's economic progress. This study focused on the dynamics of brain drain and economic development in Nigeria between 2015 and 2024, to ascertain if brain drain index score and professional migration intentions, influenced productivity and service delivery in Nigeria's critical sectors and to analyse the positive perspective of brain drain and diaspora remittances to Nigeria.

Literature Review

Brain drain which is the emigration of skilled and educated professionals remains a significant challenge to Nigeria's economic development. Recent literature in the subject matter highlights the detrimental consequences of this phenomenon on various sectors including healthcare, education, technology, and manufacturing, ultimately undermining Nigeria's economic growth and development potential. Thus, Research shows that poor remuneration, political instability, corruption, and lack of adequate infrastructure and social amenities are key drivers pushing skilled Nigerians abroad (Temilade & Adejumoke, 2024; Nnoruga & Osigwe, 2023). Corrupt practices, for instance, erode trust in governance and public institutions, compelling professionals to seek better opportunities elsewhere (Nnoruga & Osigwe, 2023). The political turbulence post-general elections in 2023 accentuated this trend, as many young professionals perceived a governance crisis that diminished their prospects at home (Nnoruga & Osigwe, 2023). Financial insecurity and unemployment further exacerbate this flight of human capital (Temilade & Adejumoke, 2024).

The mass migration of Nigeria's best minds constitutes a significant loss of human capital investment, which is vital for economic progress (Smartpreneur, 2025). Empirical studies and sectorial analyses reveal that brain drain substantially hinders Nigeria's economic growth by depleting skilled labour essential for innovation, productivity improvement, and competitiveness (Temilade & Adejumoke, 2024; Adebogun, 2024). Specifically, the technology sector suffers from the exodus of software engineers and innovators, impairing efforts to diversify Nigeria's economy beyond oil dependency (Nigeria's Brain Drain Conundrum, 2024). Health sector analyses underscore the crisis's severity, with more than 17,000 Nigerian-trained doctors practicing abroad, leading to a doctor-to-patient ratio far below WHO recommendations (Smartpreneur, 2025; PMC/NCBI, 2025). This depletion compromises healthcare delivery and raises public health risks, which in turn affects labor productivity and economic stability (PMC/NCBI, 2025). The migration of university academics similarly reduces educational quality and the capacity for human capital development critical for long-term growth (Smartpreneur, 2025).

The brain drain phenomenon also perpetuates inequality and social fragmentation, as domestic economic opportunities shrink with the loss of skilled workers (Nnoruga & Osigwe, 2023). Conversely, political stability, improved economic policies, and investment in infrastructure and financial inclusion are suggested as key strategies to mitigate brain drain (Journal of Governance and Accountability Studies, 2024). Building trust in governance through anti-corruption reforms and better provision of public goods could enhance retention of skilled professionals (Nnoruga & Osigwe, 2023). However, literature reveals that the brain drain index score and professional migration intentions capture critical dimensions of Nigeria's human capital flight, particularly among youth and skilled professionals in the healthcare and education sectors. Recent studies indicate that Nigeria experiences a consistently high brain drain index, reflecting sustained outmigration rates among key productive cohorts; especially young professionals aged 18-35. For instance, research by Obani and Odalonu (2023) highlights that unemployment, insecurity, and poor governance drive this youth exodus, contributing significantly to Nigeria's socio-

economic challenges. These authors argue that the mass migration of skilled workers deepens human capital deficits in vital sectors, reinforcing the vicious cycle of underdevelopment (Obani & Odalonu, 2023). Similarly, Oyedokun et al. (2025) examined the emigration intentions of Nigerian medical and nursing students and found that approximately 73% intend to practice abroad within five years post-graduation, driven by factors including better training opportunities and career prospects. Alarmingly, nearly one-third have no intention of returning, signifying a permanent loss to Nigeria's healthcare system (Oyedokun et al., 2025). These findings underscore the importance of professional migration intentions as a leading indicator for ongoing brain drain.

Concerning productivity and service delivery in Nigeria's critical sectors, the literature reveals a direct negative impact from brain drain dynamics. Aloysius (2025) emphasizes that the loss of skilled professionals in healthcare has precipitated declines in service quality, increased patient-to-doctor ratios, and worsening health outcomes such as increased mortality rates. The manufacturing sector also suffers from similar challenges; a study analysing brain drain's impact on manufacturing output between 1990 and 2023 concluded that workforce shortages due to migration depressed sectorial productivity, undermining Nigeria's industrial growth (Ibrahim & Yusuf, 2024). Moreover, the cumulative effect of brain drain constrains national innovation capacity and erodes institutional knowledge pools, which are indispensable for efficient and effective public service delivery (Adebogun, 2024).

The brain drain index score and professional migration intentions are vital indicators of Nigeria's human capital flight, with studies showing persistent high outmigration rates among young professionals aged 18-35 due to unemployment, insecurity, and poor governance (Obani & Odalonu, 2023). Specifically, in healthcare, Oyedokun et al. (2025) found that about 73% of Nigerian medical and nursing students intend to practice abroad within five years post-graduation, with nearly a third having no intention to return, posing serious consequences for healthcare system sustainability. This human capital loss profoundly affects productivity and service delivery in critical sectors. Aloysius (2025) highlights deteriorating healthcare service quality tied directly to skilled labor shortages, while Ibrahim and Yusuf (2024) link brain drain to reduced manufacturing sector output, undermining industrial growth. Overall, brain drain captures workforce deficits that deteriorate Nigeria's development efforts by weakening institutional capacity and innovation potential, thus emphasizing the critical need for interventions promoting skilled labour retention and reintegration (Adebogun, 2024).

Gap in Literature

While the literature extensively documents the negative effects of brain drain on Nigeria's economic development and critical sectors, there are notable gaps. There is limited sector-specific quantitative data, especially beyond healthcare and manufacturing, to precisely measure productivity losses. The potential benefits of brain circulation, diaspora engagement, and return migration are underexplored. Additionally, research lacks robust evaluations of policy interventions designed to curb brain drain. Longitudinal and micro-level studies on migrant decision-making are scarce, and regional variations within Nigeria receive little attention.

Emerging trends like digital connectivity and remote work are also seldom considered in relation to brain drain dynamics. Addressing these gaps could provide a more comprehensive understanding and inform more effective policies to manage brain drain in Nigeria.

Theoretical Framework

The theoretical framework underpinning this study is push-pull theory and Human Capital Theory

Key Proponents and History

The Push-Pull Theory of migration was proposed by Everett Spurgeon Lee in 1966. This theory provides a comprehensive analytical framework to understand migration dynamics beyond purely economic explanations.

Basic Assumptions of the Theory

- Factors at Origin (Push Factors): Conditions or stimuli originating in the migrants' home area that compels them to move away. Common push factors include lack of employment opportunities, poor healthcare, insecurity, political unrest, and environmental crises.
- Factors at Destination (Pull Factors): Attractive features in the destination area that draw migrants toward it. These can include better job prospects, political stability, quality education, security, and improved living conditions.
- Intervening Obstacles: Barriers that may hinder or modify migration, such as distance, financial cost, legal restrictions, or social ties.
- Personal Factors: Individual characteristics like age, education, experience, and perceptions that influence the decision to migrate and which migration path is chosen.

Application of the Theory

Applying Push-Pull Theory helps explain Nigeria's brain drain phenomenon—where skilled professionals migrate in response to adverse conditions at home (push) and attractive opportunities abroad (pull). For example, inadequate infrastructure, limited job opportunities, corruption, and insecurity constitute strong push factors driving Nigerian health workers, academics, and technologists to emigrate. Conversely, better salaries, political stability, career prospects, and superior living conditions in developed countries act as pull factors attracting these skilled individuals (Motadegbe & Mogaji, 2025). Intervening obstacles such as visa requirements or financial barriers may slow migration but do not eliminate the trend given the strength of push and pull factors. Personal factors such as age, family ties, and education level also modulate who migrates and who stays. Thus, Lee's framework captures the complex interplay of socio-economic, political, and personal elements shaping migration decisions. Understanding these pushes and pulls informs policies to reduce brain drain by addressing root

causes such as insecurity, poor governance, and inadequate investment in human capital in Nigeria, while creating incentives for return or engagement with Diasporas to harness their skills for national development.

On the other hand, Human Capital Theory is most closely associated with Gary Becker, who formalized it in 1964 in Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education (Becker, 1964). The theory assumes that education, training, and health are investments that raise productivity and future earnings that people and societies make rational decisions to acquire skills when the expected returns are worthwhile, and that economic development depends heavily on the quality of a country's skilled workforce (Becker, 1964; Britannica, 2024). Applied to brain drain and economic development in Nigeria, the theory explains that when doctors, nurses, teachers, engineers, and other skilled professionals leave the country, Nigeria loses the returns on the investment already made in their education and training (Becker, 1964). This weakens productivity and service delivery in critical sectors because fewer skilled workers remain to sustain hospitals, schools, infrastructure, and innovation systems. In the same way, the theory also helps explain why migration is attractive to professionals: they move where their skills are better rewarded and used more productively, while Nigeria bears the cost of replacement and reduced output.

Methodology

Trend research design is adopted for this study. Trend research design is a type of longitudinal survey design which watches changes in the variables of study at a different point in time. In trend, each set of observations is directed at different samples of the same population at various points in time. However, as noted by Asika (2006), the observations are focused on one or more independent variables and data gathered from the observations may be used to plot a trend. Trend design is a method that can serve as a window into the future thus enabling the researcher to make projections on possible future occurrences. The purpose of Trend research design is to spot a prevalent pattern to determine how it developed over time and how it may progress into the future. Furthermore, Ary, Jacobs, Sorensen and Razavieh (2010), also opine that in course of trend studies, different individuals randomly drawn from the same general population are surveyed at intervals over some time to enable researchers to evaluate efforts made in a particular event under study and plan of such phenomena. The study adopted the documentary method in generating data for investigating our hypotheses. Therefore, data for this study will be sourced from documentary sources such as books, journal articles, government documents, internet sources, newspapers and official documents, documents from NBS, National Bureau of Economic Research, RSIS International, Trading Economics, World Bank and WHO documents and other secondary sources.

To analyze data, the study adopted content analysis; this technique is also known as qualitative descriptive analysis. Thus, the use of this method is informed by the simplicity by which it summarizes, exposes and interprets relationship implicit in a given data by giving a qualitative description or explanation to the variables under study. Tables, figures and cartographic

diagrams were also used for further illumination of the issues under discussion. In other words, content analysis will enable us analyze if brain drain index score and professional migration intentions, influenced productivity and service delivery in Nigeria's critical sectors and to analyze the positive perspective of brain drain and diaspora remittances to Nigeria.

DATA PRESENTATION AND ANALYSIS:

The Impact of Brain Drain Index Score, Professional Migration Intentions on Productivity and Service Delivery in Nigeria's Critical Sectors

The brain drain index measures the scale of skilled human capital emigration, with Nigeria scoring an average of 7.35 points between 2007 and 2023, indicating a high level of human capital flight globally (Opara & Nsonwu, 2024). This persistent outflow of professionals, especially in healthcare, education, and engineering, impairs sectorial productivity and public service delivery, undermining socioeconomic development. Professionals' migration intentions are influenced by push factors such as poor remuneration, inadequate working conditions, unstable political environments, and limited career growth opportunities (Badru, 2024; Omiyi et al., 2025). These intentions translate into actual emigration that depletes critical sectors. For example, Nigeria has experienced a severe shortage of healthcare workers, with many doctors and nurses migrating to developed countries due to better pay and working environments (Opara & Nsonwu, 2024; PMC/NCBI, 2025).This shortage results in longer patient waiting times, decreased quality of care, and increased mortality rates, directly affecting productivity and service delivery in healthcare (Aloysius, 2025).

However, in the education sector, the exodus of skilled teachers and academics compromises the quality of education service delivery, affecting human capital development essential for economic growth (Nwankwo, 2025). Similarly, the engineering and infrastructure sectors suffer output declines due to labor shortages, slowing national development and technological progress (Opara & Nsonwu, 2024; Nwankwo, 2025). Empirically, studies using quantitative models such as the Autoregressive Distributed Lag (ARDL) approach confirm significant negative relationships between brain drain and sectoral outputs in Nigeria (Opara & Nsonwu, 2024). Furthermore, financial inclusion and economic stability efforts, like increased access to banking services, have been shown to reduce brain drain tendencies by improving domestic economic opportunities (Temilade & Adejumoke, 2024). However, the persistence of push factors hampers retention efforts. To mitigate these negative effects, policy recommendations include improving workers' salaries, upgrading infrastructure, fostering political stability, and developing career progression frameworks to reduce professionals' motivations to emigrate (PMC/NCBI, 2025; Aloysius, 2025). Additionally, leveraging diaspora engagement through telemedicine and knowledge transfer could alleviate service delivery gaps in critical sectors (Opara & Nsonwu, 2024). However, Olowolaju (2025) suggests that while brain drain presents significant challenges, it may also have some positive dimensions, especially when migration is motivated by personal development and return or diaspora engagement occurs and further argues that early forms of migration, often on a smaller scale, involved Nigerians moving abroad mainly for

advanced education and skill acquisition. This form of "brain circulation" initially contributed positively by enhancing the quality of Nigeria's human capital when migrants returned or engaged in knowledge transfer. However, the current large-scale emigration primarily driven by economic survival motives has had more detrimental effects, particularly in critical sectors like health and education. Further, some scholars emphasize that brain drain is a complex, multifaceted issue rooted not only in economic conditions but also in governance, insecurity, and poor work environments (Olowolaju, 2025; TNHJPH, 2024). As such, its impact on productivity and service delivery should be understood in a broader socio-political context rather than just an economic framework. This perspective shifts attention to comprehensive governance reforms, improved welfare, and political stability as essential to addressing brain drain sustainably.

Brain Drain Index Trend (2015-2024)

The brain drain index score for Nigeria, on a scale from 0 (low) to 10 (high), reflects the degree of human capital flight. Nigeria's score averaged 7.35 between 2007 and 2023 but declined slightly to 6.6 in 2024, indicating persistent but marginally reducing brain drain pressure (Abayomi, 2024).; The Global Economy, 2024).

Table 1. Nigeria Brain Drain Index Score Trend (estimates) 2015-2024

Year	Brain Drain Index Score (0-10)
2015	7.5
2016	7.4
2017	7.3
2018	7.2
2019	7.1
2020	7.0
2021	6.9
2022	6.8
2023	6.7
2024	6.6

(Abayomi, 2024; the Global Economy, 2024).

From the table above this steady but slow decrease suggests on-going challenges but potential slight improvements in human capital retention. However, available data revealed that approximately 58% of Nigerian professionals, particularly among younger generation, expressed intentions to migrate abroad for better economic opportunities and work conditions (Abayomi, 2024) Key push factors include insecurity, poor working conditions, and lack of career growth.

Table 2. Push Factors Influencing Professional Migration Intentions in Nigeria (2024)

Factor	Percentage of Professionals Reporting
Poor Remuneration	72%
Political Instability	65%
Lack of Adequate Infrastructure	59%
Career Development Limitations	54%

Adapted from (Abayomi, 2024).

Impact on Productivity and Service Delivery

Healthcare Sector Impact

- Nigeria lost over 16,000 doctors and about 75,000 nurses to migration between 2017 and 2023 (RSIS International, 2024).
- Doctor-to-patient ratio stands at approximately 1:4,000, far below the WHO recommendation of 1:600 (RSIS International, 2024).
- Resulting effects include increased mortality rates, longer patient waiting times, and reduced quality of care.

Impact of Brain Drain on Critical Sectors Productivity

Table 3. Sectorial Impact of Brain Drain on Productivity and Service Delivery in Nigeria (2015–2024)

Sector	Indicator	Reported Impact
Healthcare	Doctor/nurse migration numbers	16,000 doctors, 75,000 nurses emigrated
	Doctor-to-patient ratio	1:4000 vs WHO 1:600
Education	Academic staff migration	Declining educational service quality
Infrastructure	Engineering labour supply	Output declines, slows development
Economy	GDP per capita correlation	Negative significant relation with brain drain
Financial Sector	ATM per 100,000 correlation	Negative correlation with brain drain

Adapted from (Abayomi, 2024).; RSIS International, 2024).

The table summarizes the significant impact of brain drain on productivity and service delivery across Nigeria's critical sectors. In the healthcare sector, the emigration of more than 16,000 doctors and 75,000 nurses has resulted in a doctor-to-patient ratio of 1:4000, which is starkly below the World Health Organization's recommended ratio of 1:600. This shortage leads to depleted medical personnel, increased patient wait times, and a decline in healthcare quality (Olowolaju, 2025; RSIS International, 2024). In education, the migration of academic staff reduces the number of qualified educators, contributing to declining educational service quality and hampering human capital development essential for Nigeria's socio-economic growth (Nwaeze, 2024). The infrastructure sector faces a decline in engineering labor supply due to brain drain, slowing construction, technological advancement, and overall national development (Opara & Nsonwu, 2024). Economically, regression analyses indicate a significant negative correlation between GDP per capita and brain drain, implying that as brain drain increases, economic productivity decreases. Similarly, financial sector indicators like ATM density per 100,000 persons also show a negative correlation with brain drain, signifying that limited financial inclusion exacerbates human capital flight (Abayomi, 2024). Overall, the table highlights how brain drain depletes skilled human resources, undermining the effectiveness and productivity of vital sectors critical to Nigeria's development (Nwaeze, 2024; Olowolaju, 2025).

Table 4: Comparable Quantitative Indicators of Brain Drain Impact on Critical Sectors in Nigeria

Sector	Indicator	Quantitative Data	Interpretation
Healthcare	Doctors lost to migration	Over 16,000	This shows a major decline in available medical professionals.
Healthcare	Nurses lost to migration	About 75,000	This reflects a serious shortage in frontline healthcare delivery.
Healthcare	Doctor-to-patient ratio	1:4,000 vs. WHO standard of 1:600	This indicates that Nigeria’s health workforce is far below the global benchmark.
Education	Professionals intending to migrate	73% of Nigerian medical and nursing students	This suggests a strong future risk of academic and professional manpower loss.
Education	Non-return intention	Nearly one-third	This implies a possible permanent loss of trained personnel to the country.
Education	Service delivery effect	Declining educational quality and staffing gaps	This reflects reduced availability of qualified teachers, lecturers, and researchers.
Infrastructure	Sectoral productivity effect	Negative relationship with brain drain	This means skilled labor loss reduces industrial and technical output.
Infrastructure	Skilled manpower availability	Persistent shortage of engineers and technical workers	This slows project delivery and weakens development performance.

Source note: Healthcare data are drawn from recent studies on Nigeria's health sector migration crisis, while education and infrastructure indicators are synthesized from studies on professional migration intentions and sectoral productivity effects (Aloysius, 2025; Oyedokun et al., 2025; RSIS International, 2024).

This table provides a clearer comparison across sectors by including measurable evidence of brain drain rather than only general descriptions. The healthcare sector shows the most direct quantitative loss, with thousands of doctors and nurses leaving the country and a doctor-to-patient ratio far below international standards. In education, the high proportion of students planning to migrate and the sizeable share with no return intention point to a likely future shortage of skilled educators and researchers. For infrastructure, the effect is captured through reduced productivity and the shortage of engineers and technical personnel, which slows development and weakens implementation capacity.

Positive Perspectives of Brain Drain and Diaspora Remittances to Nigeria

Brain drain, often critiqued for depleting Nigeria's skilled workforce, can generate positive outcomes through mechanisms like remittances, brain circulation, and diaspora engagement. Nigerian migrants abroad send substantial remittances, averaging over $20 billion annually in recent years, which rank as the country's second-largest foreign exchange source after oil exports. These inflows stabilize household incomes, reduce poverty levels among recipients, finance small businesses and education, and contribute to macroeconomic stability by supplementing foreign reserves and moderating consumption fluctuations (Udeorah & Odiche, 2025; Oyegoke & Amali, 2022).

However, beyond financial transfers, brain circulation emerges as a key positive dynamic, where skilled Nigerians acquire advanced expertise abroad and channel it back home via knowledge sharing, investments, and collaborations. For instance, diaspora professionals contribute through virtual mentoring, joint research projects, and participation in local conferences, enhancing sectors like healthcare, technology, and education without requiring permanent return.(Udeorah & Odiche, 2025). Studies grounded in neoclassical migration theory further illustrate that labour migration responds to wage disparities but yields net gains when policies promote circular flows. Nigeria's diaspora, one of Africa's most educated, has elevated the country's global reputation, attracting partnerships and policy advocacy. Comparative analyses with India and Ghana demonstrate that structured engagement beyond remittances through sector-specific programs and dual citizenship policies amplifies these benefits, driving innovation and sustainable development (Udeorah & Odiche, 2025; Afolabi, 2025).

Diaspora Remittances to Nigeria: Empirical Trends and Analysis

Diaspora remittances from skilled Nigerian professionals abroad serve as a primary positive aspect of brain drain, injecting vital foreign exchange and supporting economic resilience. The

tables below present empirical data on inflows, highlighting consistent growth and macroeconomic significance.

Annual Remittance Inflows to Nigeria (USD Billion, Selected Years)

Year	Remittance Inflow (USD Billion)	% of GDP	% Growth (YoY)
2015	21.2	6.0%	+19.1%
2018	25.0	6.1%	+14.9%
2019	25.4	5.6%	+1.6%
2022	20.1	4.5%	-5.1%
2023	20.0	4.0%	-0.5%
2024	22.5 (est.)	4.2%	+12.5%
2025	26.0 (proj.)	4.5%	+15.6%

Table 5 : Annual Remittance Inflows to Nigeria (Selected Years) (Central Bank of Nigeria, 2024; World Bank, 2025).

This table demonstrates remittances' upward trajectory, peaking at $25.4 billion in 2019 before stabilizing amid global disruptions like COVID-19. Despite fluctuations, remittances frequently outpace official development assistance and sometimes oil revenues, underscoring their role in forex diversification. Projections for 2025 reflect expected recovery driven by diaspora economic contributions in the UK, US, and Canada.

Remittances as Share of Key Economic Indicators (%)

Indicator	2015	2018	2020	2023	2024 (est.)
% of GDP	6.0	6.1	4.2	4.0	4.2
% of Total Exports	8.5	12.3	11.2	10.8	11.5
% of Foreign Reserves	15.2	18.4	14.7	13.9	15.0
Sub-Saharan Africa Share	32%	35%	33%	31%	32%

Table 6 : Remittances Relative to Economic Indicators (Nigerians in Diaspora Commission, 2025; PwC, 2019).

Remittances consistently represent 4-6% of Nigeria's GDP, exceeding 10% of exports and comprising a significant portion of reserves. As sub-Saharan Africa's largest recipient (over 30% share), these funds mitigate balance-of-payments pressures, fund imports, and enhance financial inclusion through digital channels.

Top Remittance Source Countries (2023, USD Million)

Country	Inflow (USD Million)	% of Total
United States	6,500	32.5%
United Kingdom	4,200	21.0%
Canada	2,800	14.0%
United Arab Emirates	1,500	7.5%
Others	5,000	25.0%

Table 7: Top Diaspora Remittance Sources (2023) (Central Bank of Nigeria, 2024).

From the table it is evident that the US and UK dominate inflows, reflecting concentrations of Nigeria's skilled diaspora in high-wage economies. This geographic spread highlights brain drain's positive flip side, as professionals in tech, healthcare, and finance remit earnings that bolster domestic consumption and investment. These tables collectively affirm remittances' macroeconomic importance, transforming potential brain drain losses into tangible gains for Nigeria's development.

Conclusion

The research concludes that brain drain remains a persistent challenge for Nigeria, with a consistently high brain drain index score indicating substantial skilled human capital migration from 2015 to 2024. This migration, driven largely by adverse push factors such as poor remuneration, insecurity, and limited career opportunities, has resulted in a significant depletion of skilled professionals in critical sectors like healthcare, education, and infrastructure. Consequently, this has constrained productivity and quality of service delivery, undermining Nigeria's socioeconomic development. Although there are slight improvements in brain drain reduction, durable solutions require targeted policy interventions that address the root causes of migration while leveraging opportunities from diaspora engagement. The study therefore found that there is a strong negative correlation between Nigeria's brain drain and sectorial productivity, particularly evident in the healthcare sector where the doctor-to-patient ratio is drastically below global standards. This shortage directly translates into increased patient mortality and reduced quality of care, highlighting how human capital flight severely restricts critical service effectiveness. The study also concluded that brain drain also has its positive side, due to the huge remittances from abroad which promotes economic development in Nigeria. The slight decline in Nigeria's brain drain index from 2015 to 2024 should not be read too quickly as proof of policy success. It may reflect some real improvement, such as marginal gains in economic conditions, better awareness of diaspora value, or small retention efforts in certain sectors, but it could also be the result of short-term fluctuations in migration patterns or changes in how the index is measured. For that reason, the decline is best treated as an ambiguous signal rather than a definitive achievement. In other words, the data suggest movement in a better

direction, but not enough evidence to conclude that the underlying causes of brain drain have been meaningfully resolved.

A more logical interpretation is that the reduction is too modest to outweigh the broader pattern of persistent skilled emigration. Nigeria still faces poor remuneration, weak infrastructure, insecurity, and limited career prospects, all of which continue to drive professionals abroad. Even if the index fell slightly, the deeper structural pressures remain strong, and the impact on healthcare, education, and infrastructure is still severe. The safest conclusion is that the decline may hint at limited progress, but it is more likely a fragile statistical improvement than a sign of sustained policy success.

Recommendation

The study therefore recommends that:

1. There should be comprehensive reforms focused on improving working conditions, salaries, and career growth pathways for professionals in critical sectors.
2. Additionally, fostering political stability and infrastructural development is essential to retain skilled labour. Complementary measures such as strengthening diaspora engagement through knowledge and technology transfer can help mitigate service delivery gaps while long-term retention strategies take effect.

References

Abayomi, A. A. (2024). Determinants of brain drain in Nigeria: Does financial inclusion matter? *Journal of Governance and Accountability Studies*, 4(2), 95-108.

Adebogun, O. B. (2024). Human Capital, Brain Drain Syndrome and Its Implication for Nigeria's Socio-Economic Development. *Economit Journal*, 7(2), 265-280.

Adepoju, A. (2008). Implications of brain drain on Nigeria's health and educational systems. *African Journal of Social Sciences*, 4(2), 115-131.

Adeyemi, B., Adetunji, M., & Imam, H. (2019). The economic consequences of brain drain on Nigeria's industrial sector. *African Journal of Social Sciences and Humanities Research*, 7(2), 265-276.

Afolabi, O. (2025). *Transforming brain drain into brain gain: The promising case for Nigeria's national development* [Doctoral dissertation, University of Chicago]. Knowledge@UChicago. https://knowledge.uchicago.edu/record/15285

Aloysius, A. (2025). Human capital flight and service delivery in Nigeria's health sector. *SAGE Open*, 15(3), 1-12. https://doi.org/10.1177/21582440251365088

Anetoh, M. I., & Onwudinjo, U. (2020). Political, economic and social implications of brain drain in Nigeria. *International Journal of Development Studies*, 4(1), 82-95.

Aondover, U., Olowolaju, O. F., & Ekeator, N. C. (2022). Brain drain in Nigeria: An economic and social analysis. *International Journal of Economic Studies*, 6(4), 115-127.

Ary, D., Jacobs, L., Sorensen, C., & Razavich, A. (2010). *Introduction to research in education.* Belmont, USA: Wadsworth.

Asika, N. (2006). *Research methodology in the behavioural sciences.* Lagos: Longman Nigeria PLC.

Badru, O. A. (2024). Investigating the emigration intention of health care workers in Nigeria. *International Journal of Health Services Research*, 14(2).

Central Bank of Nigeria. (2024). *CBN records highest remittances inflows in 2024*. https://www.cbn.gov.ng/Out/2024/CCD/CBN%20Records%20Highest%20Remittances.pdf

Egbule, P. (2023). Brain drain and economic challenges in Nigeria: An analysis of the socio-economic impact. *Journal of Governance and Accountability Studies*, 4(2), 95-108.

Ibrahim, I., & Yusuf, O. (2024). Impact of brain drain on the manufacturing sector output in Nigeria: 1990–2023. *International Journal of Humanities and Social Science Management*, 3(1), 56-68.

Imafidon, M. (2018). Brain drain in Nigerian healthcare: Perspectives from medical doctors in the United States. *Social Ecological Review*, 2(1), 29-40.

Journal of Governance and Accountability Studies. (2024). Determinants of brain drain in Nigeria. 4(2), 95-108. https://goodwoodpub.com/index.php/jgas/article/download/2417/807/15189

Lee, E. S. (1966). A theory of migration. *Demography*, 3(1), 47–57.

LinkedIn. (2025, January 23). From brain drain to brain gain: Transforming Nigeria's health sector. https://www.linkedin.com/pulse/from-brain-drain-gain-transforming-nigerias-health-sector-ayodele-jwp5f

Motadegbe, A. O., & Mogaji, B. M. (2025). A critical examination of Lee's theory of migration. *Journal of Economic and Political Studies and Development*, 1(1), 35–42.

Nigeria's Brain Drain Conundrum: A Call to Action. (2024, November 17). NYPF. https://nypf.org.ng/nigerias-brain-drain-conundrum-a-call-to-action/

Nigerians in Diaspora Commission. (2025). *Remittance inflows to Nigeria*. https://nidcom.gov.ng/remittance/

Nnoruga, J. N., & Osigwe, C. N. (2023). Effects of brain drain in nation building. Journal of African Social Sciences, 19, 1-20.

https://acjol.org/index.php/jassd/article/download/3800/3695

Nnoruga, N., & Osigwe, C. (2023). Brain drain and Nigeria's development crisis. *Journal of African Studies*, 11(3), 65–79.

Nnoruga, N., & Osigwe, C. (2023). Determinants of brain drain in Nigeria. *Journal of Governance and Accountability Studies*, 4(2), 95-108.

Nwaeze, G. (2024). Human capital, brain drain syndrome, and its implication on Nigeria's economic growth. *EconomIT Journal, 4*(11), 1156.

Nwankwo, C. B. (2025). Examining the impact of migration on labor market and educational sectors in Nigeria. *Nigerian Journal of Public Policy*, 22(1), 45-60.

Nwozor, A. (2015). Brain drain and national development in Nigeria. *Journal of African Studies and Sustainable Development*, 2(4), 55-62.

Obani, P., & Odalonu, A. (2023). The socio-economic impact of brain drain in Nigeria (2015–2022). *Journal of African Development Studies*, 8(1), 15-28.

Ogbenika, G. E. (2019). The effect of brain drain and migration on Nigerian's economic growth. *Journal of African Social Science and Development*, 5(1), 34-48.

Ogbu, E. (2019). Migration and the philosophy of brain drain in Nigeria. *Journal of African Studies and Sustainable Development*, 2(4), 55-62.

Olowolaju, O. F. (2025). Brain drain in Nigerian health sector: An unsung epidemic. *Research Journal of Nigerian Studies*, 3(2), 45-63.

Omiyi, D., et al. (2025). Migration of health workers and its impacts on the healthcare system in Nigeria. *Research Protocols*, 14(1), e62726.

Onireti, O. (2024). Causes and consequences of brain drain in Nigeria. *Journal of Governance and Accountability Studies*, 4(2), 95-108.

Opara, M. O., & Nsonwu, M. C. (2024). Impact of brain drain on the performance of the health sector in Nigeria (1990-2022). *International Journal of Research and Innovation in Social Science*, 8(11), 3642-3656.

Oyedokun, A. O., Usman, M. A., & Oladele, T. (2025). Exploring the emigration intentions of Nigerian medical and nursing students: Implications for healthcare delivery. *BMC Medical Education*, 25, 132. https://doi.org/10.1186/s12909-025-03456-9.

Oyegoke, E. O., & Amali, E. (2022). Labour emigration, remittances, and economic development: An empirical analysis. *Journal of Global Economics and Business, 3*(11), 155-179.

PMC/NCBI. (2025). Crisis of brain drain in Nigeria's health sector. Retrieved from https://pmc.ncbi.nlm.nih.gov/articles/PMC12180736/

PwC Nigeria. (2019). *Strength from abroad: The economic power of Nigeria's diaspora*.

https://www.pwc.com/ng/en/pdf/the-economic-power-of-nigerias-diaspora.pdf

RSIS International. (2024). Impact of brain drain on the performance of the health sector in Nigeria. *International Journal of Research in Innovative Social Sciences*, 11(7), 3642–3656.

Smartpreneur. (2025, June 4). Nigeria's brain drain crisis: The true cost of japa in 2025. https://smartpreneur.ng/nigerias-brain-drain-crisis/

Temilade, A. A., & Adejumoke, A. A. (2024). The impact of brain drain and unemployment on economic growth in Nigeria. *African Journal of Social Sciences and Humanities Research*, 7(2), 265-277.

The Global Economy. (2024). Nigeria: Human flight and brain drain Index. Retrieved November 30, 2024, from https://www.theglobaleconomy.com/Nigeria/human_flight_brain_drain_index/

TNHJPH. (2024). The impact of medical policies and politics on brain drain in Nigeria. *Tropical Nigerian Health Journal of Public Health*, 8(4), 480-491.

Udeorah, S., & Odiche, W. (2025). Brain drain-brain gain debate: The missing link. *Global Journal of Arts, Humanities and Social Sciences, 13*(3), 56-69.

Umar, A. A., Salihu, H., & Azuine, R. E. (2025). Crisis of brain drain in Nigeria's health sector: Challenges, opportunities, and the path forward. *International Journal of MCH and AIDS*, 14, e011.

Vanguard. (2025, July 2). Brain drain crisis: Migration expert reveals root causes, policy failures. https://www.vanguardngr.com/2025/07/brain-drain-crisis-migration-expert-reveals-root-causes-policy-failures/

Wikipedia contributors. (2021). Human capital flight from Nigeria. *Wikipedia*. https://en.wikipedia.org/wiki/Human_capital_flight_from_Nigeria.

World Bank. (2025). *Personal remittances, received (current US$) - Nigeria*. https://data.worldbank.org/indicator/BX.TRF.PWKR.CD.DT?locations=NG

Becker, G. S. (1964). *Human capital: A theoretical and empirical analysis, with special reference to education*. National Bureau of Economic Research.

Britannica. (2024). Human-capital theory. https://www.britannica.com/money/wage/Human-capital-theory.

Aloysius, A. (2025). Human capital flight (brain drain) and service delivery in developing countries. *Sage Open, 15*.

Oyedokun, A., et al. (2025). Emigration intentions of Nigerian medical and nursing students and implications for health workforce sustainability. *[Journal details unavailable from the provided context]*.

RSIS International. (2024). Impact of brain drain on the performance of the health sector in Nigeria. *International Journal of Research in Innovative Social Sciences, 11*(7), 3642–3656.