

**Healthcare Expenditure and Life Expectancy in Nigeria:
Evaluating the Role of Budgetary Allocation**

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Abstract

This study examines the relationship between healthcare budgetary allocation and life expectancy in Nigeria over the period 2016 to 2024, a decade in which the country's health-financing commitments have consistently fallen short of both the 15 percent benchmark set by the 2001 Abuja Declaration and the minimum per-capita spending recommended by the World Health Organization. Using secondary time-series data drawn from the Budget Office of the Federation, the Debt Management Office, the National Bureau of Statistics, the World Bank and the United Nations, the study applies Spearman's rank-order correlation and ordinary least squares regression to test whether movements in the share of the federal budget allocated to health are systematically associated with movements in life expectancy at birth. The results show a positive but statistically insignificant relationship (Spearman's $\rho = 0.483$, $t = 1.461$, $p > 0.05$; OLS $R^2 = 0.128$, $p = 0.345$), a pattern that persists, and in fact weakens, once a one-year lag is introduced to allow for delayed policy effects. The study concludes that budgetary allocation, taken alone, is a necessary but insufficient condition for improving population health outcomes in Nigeria; the weak statistical link reflects deeper problems of implementation, absorptive capacity, corruption-related leakage and the continuing dominance of out-of-pocket spending in the country's health-financing mix. The paper recommends a shift in policy emphasis from the nominal size of the health vote to its timely release, transparent execution and translation into functional primary healthcare infrastructure, alongside a

credible, time-bound roadmap for closing the Abuja Declaration gap.

Keywords: healthcare expenditure, budgetary allocation, life expectancy, health financing, Abuja Declaration, Nigeria

JEL Classification: H51, I15, I18, O55

1. Introduction

Health is a goal and a means of development. Long and healthy life is one of the things people value for its own sake, so it is an end, and it is also a means because a healthier population is more productive, more likely to learn skills, and more likely to contribute to economic growth (Grossman, 1972; Bloom, Canning & Sevilla, 2004). Public expenditure on health is thus one of the more direct levers for governments to pull for increasing the wellbeing of citizens. This rationale is repeated in budget speeches, sectoral policy documents and international agreements in Nigeria, but the nation has one of the poorest health outcomes globally.

Life expectancy at birth is the most common overall measure of a population's health status, and it reflects the effects of nutrition, sanitation, disease burden, maternal and child health, and access to and quality of care. As a result, Nigeria has failed at this level. The life expectancy between the study period (2016 to 2024) did not increase significantly, ranging from a little above 52 years in 2016 to approximately 54.6 years in 2024 (World Bank, 2024; United Nations, 2024), which is placing the country at the bottom of the global rankings and significantly below the Sub-Saharan African regional average of about 62 years and the global average of about 73 years (National Bureau of Statistics, 2024; Eromonsele, 2025).

The underfunding of the health sector, compared to national and international standards, is a recurring explanation given for this performance. Nigeria joined the other members of the African Union in signing the Abuja Declaration in 2001 whereby they promised to invest at least 15 percent of their yearly government budgets in health care. That goal has yet to be achieved almost 25 years later. The federal health vote ranged between about 4 and 5 percent of total appropriation in the years 2016 to 2024, fluctuating slightly up and down, and then declined to 4.33 percent in the finally approved 2025 budget (Budget Office of the Federation, 2025; ICIR, 2025; Dataphyte, 2025). But things are not much better at the sub-national level: average per-capita health spending in a state was about US\$5.63 in 2022, well below the minimum of US\$86 per capita recommended by the World Health Organization to meet basic health-care needs (Nabena et al., 2024).

The impact of the problems is evident across the health system from the constant exodus of health workers popularly described as “japa”, to understaffed and poorly equipped primary healthcare centres, to out of pocket payments accounting for an estimated seven out of every ten naira spent on health to outcome indicators such as maternal mortality ratio of 512 per 100,000 live births which places Nigeria among the worst in the world (Guardian, 2025; Awoyemi, Makanju, Mpapalika & Ekpeyo, 2023). However, the direct link between the amount of government spending on health on paper and the length of the lives of Nigerians is not obvious. Funds tend to not be disbursed as needed, capital projects never see fruition, and funds that are allocated go to activities that fail to impact outcomes (Onabote, Ohwofasa & Ogunjumo, 2023). This study is not designed to assume this difference between allocation and

outcome, but to test it.

This paper zeros in on a well-known branch of the Nigeria fiscal policy literature that has focused on how aggregate government spending is correlated with composite human development indicators, and asks a single question: To what extent is the share of the federal budget dedicated to health correlated with life expectancy at birth (LEB) between 2016 and 2024, spanning the final years of President Muhammadu Buhari's first term, the whole of his second term, and the opening phase of President Bola Ahmed Tinubu's administration?

Nigeria's federal health budget has never been close to the 15 percent Abuja benchmark, with the highest point of 5.43 percent being reached in the 2020 budget before declining to 4.33 percent in the 2025 appropriation (Dataphyte, 2025). During the same period, life expectancy had made a minimal improvement and Nigeria was reported in a United Nations report to have the lowest life expectancy in the world by 2025 with 54.9 years (Eromonsele, 2025). This creates an empirical puzzle that needs to be tested: was the country's underperforming life expectancy due to poor budgetary allocations, or does the apparent disconnect suggest other factors, such as corruption, poor absorptive capacity, insecurity, shaky primary health care, or the shocks on household incomes from the currency and subsidy changes of 2023, are at play that cannot be addressed by increasing the health vote? Studies on the narrower health-expenditure question in Nigeria (e.g. Iyakwari, Awujola & Ogwuche, 2023; Onabote et al., 2023) are limited and generally rely on data up to 2021 and/or include health expenditures with other categories of government expenditures. The specific link between budgetary allocation in healthcare and life expectancy within the more recent, and fiscally unstable, period of 2016-2024 is therefore much needed and deserves an updated account which this study provides, based on a narrowly focused and statistically tested analysis.

Objectives of the Study

The broad objective of the study is to evaluate the role of budgetary allocation in shaping health outcomes, proxied by life expectancy, in Nigeria between 2016 and 2024. The specific objectives are to:

- i. examine the trend in Nigeria's healthcare budgetary allocation as a share of the federal budget from 2016 to 2024;
- ii. examine the trend in life expectancy at birth in Nigeria over the same period;
- iii. determine the strength and statistical significance of the relationship between healthcare budgetary allocation and life expectancy in Nigeria; and
- iv. proffer policy recommendations for strengthening the translation of healthcare spending into measurable gains in life expectancy.

The findings are relevant to the Federal Ministry of Health and Social Welfare, the Budget Office of the Federation, the health committees of the National Assembly, and development partners such as the World Health Organization and the World Bank, all of whom participate in the annual budgeting cycle for the health sector. By quantifying the strength of the budget-outcome link, the study supplies an evidence base that can inform whether advocacy should focus on raising allocations, improving spending efficiency, or both. It also extends the academic literature on fiscal policy and human development in Nigeria by isolating the health-specific component of that relationship with updated data and a more targeted econometric

treatment than composite HDI-based studies typically allow. Finally, it should interest civil society organisations campaigning for the fulfilment of the Abuja Declaration, giving their advocacy a firmer statistical footing that goes beyond documenting the funding shortfall to asking whether closing that shortfall would, on the evidence available, be sufficient by itself to move the needle on outcomes. The study covers Nigeria's federal healthcare budgetary allocation and life expectancy at birth from 2016 to 2024. Sub-national health budgets, disaggregated indicators such as infant and maternal mortality, and cross-country comparisons are drawn on for context but are not the primary units of statistical analysis.

2. Literature Review

2.1 Conceptual Review

2.1.1 Healthcare Expenditure

Healthcare expenditure is the sum of all public and private resources used to fund, deliver and use health services (World Health Organization, 2023). This study focuses on public healthcare expenditure, which refers to expenditure via government budgets, including recurrent expenditure (salaries and running costs), capital expenditure (infrastructure and equipment) and statutory transfer, such as the Basic Healthcare Provision Fund, in Nigeria. The budgetary allocation is a planning instrument that translates the projections of revenue into the sectoral spending commitments of government – it is intent, not outcome, as actual releases and eventual utilisation of budget funds often differ from the amounts appropriated (Nabena et al., 2024).

2.1.2 Life Expectancy

The World Health Organization definition of life expectancy at birth is the average number of years a newborn would live if all people that age lived according to the current age-specific death rates. It serves as an indicator proxy for the health situation of a population as it combines the impacts of nutrition, disease burden, sanitation, maternal and child health, and access to and quality of curative care (WHO, 2025). It is also one of the three components of the United Nations Development Programme's Human Development Index (along with education and income).

2.1.3 Health Financing in Nigeria

There are various sources of health financing in Nigeria, including tax-funded government budgets, the National Health Insurance Authority scheme, donor support, development partners, and, most importantly, direct out-of-pocket payments by households (Guardian, 2025). Such heavy out-of-pocket spending is a symptom and a cause of insufficient public funding: in a system where the government does not provide free or subsidised care at the point of use, households must pay out-of-pocket, with many becoming poor or being excluded from care altogether.

2.2 Theoretical Framework

2.2.1 The Public Health Perspective on Health Capital

The Michael Grossman (1972) model of the demand for health is the base of this study. It views health as a human capital in which individuals (and governments too) invest. In Grossman's model, health is both a consumption good, and an investment good, in that healthier individuals

work more days, work more productively when on the job, and live long enough to enjoy returns on their other investments such as their education. Health capital deteriorates with age and can be increased by investment, formal investment in health care is one of a number of inputs, others are nutrition, sanitation, education and the wider socio-economic environment. When applied at the national level, the model suggests that government health care spending is one component of a wider production function for the health of a nation's population, and so the linkage between government spending and a national-level health outcome (like life expectancy) does not have to be tight or direct. The marginal product of a further naira's investment in health is contingent on the level of all other factors: the current level of infrastructure; trained health resources; level of corruption; and the socio-economic conditions of the population that the health system is serving.

2.2.2 Human Capital Theory

Human capital theory (Schultz, 1961; Becker, 1964) also supports the study by positing that health is an investment that increases the productive capacity of the human capital, in addition to education. Bloom, Canning and Sevilla (2004) demonstrated empirically that health, measured by life expectancy, positively and significantly affects economic growth, via higher labour productivity, increased saving on the expectation of living longer, and increased incentives to invest in education. The theory suggests that, in principle, government expenditure on health should lead to increased productivity, which ultimately leads to increased tax revenues to continue health expenditure — a positive feedback that Nigeria's experiences over the study period indicate is yet to gain traction.

Combined, these frameworks warn against the false notion that Nigeria's overall life expectancy should rise in tandem with the proportion of its federal budget devoted to health. Rather, they focus on efficiency of allocation to actual service delivery, that is, how much of the budgeted naira are released, spent according to their allocation, and converted into functional primary health care facilities, available drugs and well-staffed health facilities. In situations where such a conversion process is weak, as the qualitative evidence on the Nigerian health sector indicates, a health budget share increase does not necessarily translate into a rise in life expectancy, nor does a constancy or reduction in the health budget share immediately translate into a deterioration of health outcomes over the relatively short, single-decade span this study addresses.

2.3 Empirical Review

The link between health expenditure and life expectancy has been a topic of interest to a number of Nigerian and cross-country studies, which have reached a similar overall conclusion to that stated above.

Iyakwari, Awujola and Ogwuche (2023) examined the impact of health expenditure on life expectancy in Nigeria between 1990 and 2021 under the framework of Autoregressive Distributed Lag and Error Correction Model. They have identified a negative long-run relationship between both health capital expenditure and health recurrent expenditure and life expectancy; the out-of-pocket health expenditure has shown a positive relationship. The short-run adjustment speed was fast (at 71 percent), suggesting that however much health spending occurs formally, it takes time before it is felt in the life expectancy outcomes, consistent with

the lagged specification tested later in this study. Using the ARDL bounds-testing technique, Onabote, Ohwofasa and Ogunjumo (2023) examined the relationship between the government sectoral expenditure and human development indicators for the period 1986–2021 and found little short- and long-term relationship between both variables, which they suggested was either due to insufficient expenditure or to corruption, removing funds from their intended social purpose.

Kurt (2015), using Turkish data and a Feder-Ram framework, concluded that there is a positive and statistically significant correlation between government health spending and health outcomes, such as life expectancy and infant mortality – indicating that, in the context of increased institutional capacity and administrative efficiency, health spending can be associated with measurable health gains. Using a system Generalised Method of Moments estimator, Aboubacar and Xu (2017) analysed Sub-Saharan Africa between 1995 and 2014, and discovered a positive and significant relationship between health expenditure and economic growth, suggesting that healthcare is a necessity in Sub-Saharan Africa and thus in principle should be a welfare-maximising good — if funds are invested where they are needed. In a time-series study of the government's health spending and health outcomes in Nigeria, Awoyemi, Makanju, Mpapalika and Ekpeyo (2023) found that continuing to low level public health expenditure has coincided with the lack of progress in health indicators, which they attributed to lack of skilled staff and modern facilities in public health facilities and the ongoing migration of health personnel. On a macro level, fiscal policy studies and fiscal policy-Health relationship in Nigeria have yielded mixed results across different periods, methods and fiscal variables analyzed. In the democratic era, Nigeria's HDI was found to be significantly affected by domestic debt, tax revenue but not significantly affected by total government expenditure by Imide and Imoughele (2019). However, Okere, Uzowuru and Mbaeri (2022) obtained positive and significant relationship between fiscal policy (both recurrent and capital expenditure) and human development in a study conducted using ARDL model on the data of 1986–2017. However, it was observed that although government expenditure was negatively related to GDP, it was still positively related to HDI, thus showing that development and growth do not necessarily go hand in hand and that a purely output-based analysis can fail to capture relationships revealed by a human-development-based analysis (Nuhu, 2020).

The weak sectoral-spending/outcome relationship reported by Onabote and colleagues is similar to an earlier and influential cross-country study by Filmer and Pritchett (1999), who found that public health spending accounts for only a small proportion of the cross-national variation in child and adult mortality, while income poverty and the education and general institutional setting of the mother explain a far greater share. This outcome is directly relevant to the empirical finding below that the budget-life expectancy correlation may be statistically not very strong even if the sign of the relationship is positive for Nigeria.

2.4 Gap in the Literature

The studies reviewed above generally concur that the link between government health expenditure and health outcomes in Nigeria is, at best, ambiguous; most of the studies either focus on the composite Human Development Index rather than life expectancy specifically; or include health expenditure with other categories of government spending, or end their series

around or before the year 2021. None specifically assesses the period 2016-2024 which saw the change of two administrations, the Covid-19 pandemic, the removal of the naira subsidy to petrol in 2023 and the subsequent devaluation of the naira; events that have plausible and possibly counteracting implications for fiscal capacity and population health outcomes. This study addresses this gap by focussing on the budgetary allocation for healthcare and life expectancy as an updated bivariate relationship, which is tested using both the correlation and regression methods and supplemented by a lagged specification that accounts for policy lags.

3. Methodology

3.1 Research Design

The research is an Ex Post Facto type of study with secondary time-series data. The design is suitable because: (1) the two variables of interest (budgetary allocation and life expectancy) are historical phenomena that have already occurred, and cannot be manipulated or assigned in an experimental way; and (2) the problem is to describe, measure and statistically test the association between the two variables after they have occurred.

3.2 Data Sources

The data used for the annual federal budget size and the corresponding allocation to the health sector came from the Budget Office of the Federation and was verified with reports from the Debt Management Office, BudgIT, International Centre for Investigative Reporting and Dataphyte's independent fact check of the Appropriation Act for 2025. Life expectancy at birth data were taken from World Bank World Development Indicators (WDI) data, and World Population Prospects (2024 revision) data was used rather than the single-year administrative country reports issued by the WHO because of its discontinuity in some years. All data are annual and span fiscal years 2016-2024 (9 paired observations).

3.3 Model Specification and Analytical Technique

Two complementary techniques are employed. First, Spearman's rank-order correlation coefficient is used to measure the strength and direction of the monotonic relationship between the two variables:

$$\rho = 1 - (6\sum d^2) \div [n(n^2 - 1)]$$

where d is the difference between the ranks of corresponding values of the two variables and n is the number of paired observations. This non-parametric technique suits the small sample size ($n = 9$) and does not require an assumption of linearity or normally distributed data.

Second, to quantify the magnitude of any relationship, a simple ordinary least squares (OLS) regression is estimated:

$$LE_t = \beta_0 + \beta_1 HBA_t + \epsilon_t$$

where LE_t is life expectancy at birth in year t , HBA_t is healthcare budgetary allocation as a percentage of the total federal budget in year t , β_0 is the intercept, β_1 is the slope coefficient capturing the marginal effect of budgetary allocation on life expectancy, and ϵ_t is the error term. A one-period lagged specification, $LE_t = \beta_0 + \beta_1 HBA_{t-1} + \epsilon_t$, is also estimated to allow for the possibility, suggested by the error-correction literature reviewed above, that health spending affects outcomes with a delay rather than contemporaneously.

The significance of both the correlation coefficient and the regression slope is tested at the 5

percent level using the t-statistic $t = \rho\sqrt{(n-2) \div \sqrt{(1-\rho^2)}}$, with $(n-2)$ degrees of freedom. The decision rule is to reject the null hypothesis of no relationship where the computed t-statistic exceeds the critical t-value, or equivalently where the associated p-value is below 0.05, and to retain the null hypothesis otherwise.

4. Data Presentation, Analysis and Discussion

4.1 Trend in Healthcare Budgetary Allocation, 2016–2024

Table 1 presents the health sector's share of Nigeria's total federal budget across the study period, alongside the corresponding naira amount allocated.

Table 1: Nigeria's Federal Health Budgetary Allocation, 2016–2024

Year	Total Budget (N'trillion)	Health Allocation (N'billion)	Health Share of Budget (%)
2016	6.06	259.11	4.23
2017	7.44	315.65	4.24
2018	9.12	418.28	4.59
2019	8.92	461.26	5.17
2020	10.81	586.96	5.43
2021	14.57	695.04	4.77
2022	18.14	826.91	4.56
2023	24.82	1,166.84	4.70
2024	27.50	1,382.56	5.03

Source: Budget Office of the Federation; Nabena et al. (2024); ICIR (2025).

Table 1 shows that Nigeria's health budgetary allocation, expressed as a share of total federal expenditure, has fluctuated within a narrow band of roughly 4.2 to 5.4 percent throughout the study period, never once approaching the 15 percent Abuja Declaration benchmark. The share rose steadily from 4.23 percent in 2016 to a peak of 5.43 percent in 2020, a period that coincided with the onset of the COVID-19 pandemic and the heightened global attention that pandemic drew to health financing. It then fell back over the following two years before recovering modestly to 5.03 percent in 2024. Independent verification of the subsequently approved 2025 Appropriation Act found the health share falling further still, to 4.33 percent (Dataphyte, 2025), suggesting that the improvement recorded toward the end of the study period was not sustained. In absolute naira terms, the allocation to health grew more than five-fold over the period, from N259.11 billion in 2016 to N1.38 trillion in 2024, but this growth in nominal terms occurred alongside comparable, and at times faster, growth in the overall size of the federal budget, alongside a naira that lost much of its value following the 2023 devaluation — meaning that the real purchasing power of the health vote likely grew far more modestly than the nominal figures suggest, and may in fact have fallen in some years.

4.2 Trend in Life Expectancy, 2016–2024

Table 2: Life Expectancy at Birth in Nigeria, 2016–2024

Year	Life Expectancy at Birth (years)	Annual Change (years)
2016	52.19	—
2017	52.40	+0.21
2018	52.67	+0.27
2019	53.01	+0.34
2020	53.07	+0.06
2021	53.46	+0.39
2022	54.08	+0.62
2023	54.46	+0.38
2024	54.64	+0.18

Source: World Bank, *World Development Indicators*; United Nations, *World Population Prospects (2024 revision)*.

Table 2 shows a slow, largely uninterrupted rise in life expectancy across the study period, from 52.19 years in 2016 to 54.64 years in 2024 — a cumulative gain of 2.45 years over nine years, or an average of roughly 0.27 years annually. Growth was not uniform: the smallest annual gain occurred in 2020, the year most affected by the COVID-19 pandemic, while the largest gain, 0.62 years, occurred in 2022. Despite this gradual improvement, Nigeria's life expectancy remains far below the Sub-Saharan African average and roughly nineteen years below the global average of about 73 years, and a 2025 United Nations assessment ranked Nigeria as having the lowest life expectancy of any country in the world (Eromonsele, 2025).

4.3 Correlation Analysis

Using the data in Tables 1 and 2, Spearman's rank-order correlation coefficient was computed to test hypothesis H0.

Table 3: Spearman Rank Correlation and Significance Test Results

Statistic	Value
Spearman's rho (ρ)	0.483
Number of paired observations (n)	9
Degrees of freedom (n – 2)	7
Computed t-statistic	1.461
Critical t-value (5% level, two-tailed)	2.365
Associated p-value	0.187
Decision	Retain H0 (relationship not statistically significant)

Source: Researcher's computation, 2025.

The Spearman coefficient of 0.483 indicates a positive but only moderate monotonic association between the health share of the federal budget and life expectancy: years in which the health allocation rose tended, on balance, to be followed by modest improvements in life expectancy, but the association is far from perfect. Because the computed t-statistic of 1.461 is smaller than the critical value of 2.365 at the 5 percent level of significance with 7 degrees of freedom, and because the associated p-value of 0.187 exceeds the conventional 0.05 threshold, the null hypothesis is retained: there is no statistically significant relationship between healthcare budgetary allocation and life expectancy in Nigeria over the 2016–2024 period.

4.4 Regression Analysis

To assess the magnitude of the relationship and to check the robustness of the correlation result, contemporaneous and one-year lagged OLS regressions were estimated.

Table 4: OLS Regression Results

Specification	Slope (β_1)	Intercept (β_0)	R ²	p-value
Contemporaneous (LEt on HBA _t)	0.786	49.598	0.128	0.345
One-year lag (LEt on HBA _{t-1})	0.516	51.045	0.067	0.537

Source: Researcher's computation, 2025.

The contemporaneous regression suggests that a one-percentage-point increase in the health share of the federal budget is associated, on average, with an increase of 0.786 years in life expectancy, but the relationship explains only 12.8 percent of the year-to-year variation in life expectancy ($R^2 = 0.128$) and is not statistically significant at conventional levels ($p = 0.345$). Introducing a one-year lag, to test whether health spending affects outcomes only after a delay, weakens rather than strengthens the relationship: the slope falls to 0.516, the explanatory power drops to 6.7 percent, and the p-value rises to 0.537. This outcome runs counter to the expectation, drawn from the error-correction literature (Iyakwari et al., 2023), that a lagged specification would better capture a genuine underlying effect, and instead reinforces the correlation result: within the single-decade window examined here, budgetary allocation on its own is not a statistically reliable predictor of life expectancy in Nigeria, whether the effect is assumed to be immediate or delayed.

4.5 Discussion of Findings

The results of the statistics do not contradict the main components of the existing Nigerian and cross-country literature. A similar statistically insignificant relationship between government sectoral expenditure and human development indicators, such as life expectancy, was found in both the short and long run by Onabote, Ohwofasa and Ogunjumo (2023) and Filmer and Pritchett (1999) found that public health spending accounts for a small fraction of the cross-country variation in mortality outcomes, much greater importance being attached to income poverty, female education and institutional quality. The current results confirm this trend in Nigeria's latest and most budgetary volatile decade.

There are several plausible reasons for the lack of a statistically discernable acceleration in life expectancy gains that might account for this. First, even at the peak, health spending in Nigeria

was still small, constituting only a small proportion of the total allocation of the Abuja Declaration, and much lower than the recommended minimum of US\$86 per capita by the World Health Organization, which means that the level of health spending expected to yield large size of marginal gains in the country is not yet reached (Nabena et al., 2024). Second, the qualitative evidence gathered indicates that there is a persistent mismatch between the amount of budget allocated and the amount actually released and utilized as intended in the health sector in Nigeria; new facilities are reportedly being constructed with insufficient staffing, drugs or equipment, thus implying that political priority has sometimes been given to physical construction of facilities than to keeping them functional (Nabena et al., 2024). Third, the study period was marked with two major macroeconomic shocks, the COVID-19 pandemic and the removal of the petrol subsidy and the naira devaluation in 2023, which decreased the real value of naira allocations, while at the same time deteriorating the non-budgetary determinants of health, such as income of households, food security and access to transport to reach health facilities. Fourth, and in line with Grossman (1972) framework detailed in Section 2.2, life expectancy depends on many factors beyond the level of formal government spending on health such as nutrition, sanitation, security and most importantly the continued dominance of out-of-pocket payments covering an estimated 70 percent of health expenditure in Nigeria (Guardian, 2025) which forms part of the federal budget but is not usually budgeted.

Together, these findings do not say that budgetary allocation doesn't matter for health outcomes; they say that, over the range that Nigeria has actually operated over the last ten years, the impact of the allocation has been too small and too variable to be statistically detected against the many other factors driving life expectancy over the last decade. This interpretation is consistent with the moderate (not significant), positive relationship found in Table 3: The direction of the relationship is as theory would predict, but the strength is not yet strong enough to be ruled out as due to chance.

5. Conclusion and Recommendations

5.1 Summary

This study aimed to assess the impact of budgetary allocation on life expectancy for Nigeria from 2016 to 2024. It found that the share of the federal budget allocated to health varied marginally between 4.2 and 5.4 per cent over this period without ever reaching the 15 per cent target stipulated by the Abuja Declaration, while life expectancy increased from 52.19 years in 2016 to 54.64 years in 2024. Spearman's rank correlation coefficient was positive but not statistically significant ($\rho = 0.483$, $p = 0.187$), and this was verified by both the contemporaneous OLS regression and the lagged OLS regression (in both cases, the slope was not statistically significant).

5.2 Conclusion

The results obtained from the analysis of data collected here are not sufficient to support the alternative hypothesis which posits that 'Healthcare budgetary allocation on its own has been a statistically significant contributor to life expectancy of Nigeria during the period under study 2016-2024', thus the null hypothesis is accepted. It is not a statement on the failure to care about health spending but rather a statement that the size of the allocation has been less

significant than the adequacy of the allocation relative to recognised benchmarks – and particularly the execution of the allocation. Nigeria's case is just one example of the many others in this study that demonstrates the statistical insignificance of budgetary allocation as one of several inputs into population health whenever it is set below recommended levels, and when it is not fully realized as services, its impact on an aggregate measure of health, like life expectancy, will be small, while its role as one of several critical inputs into better health remains very real and very pressing.

5.3 Recommendations

The study suggests the following as recommendations:

1. Federal Government should have a credible roadmap with time horizon to reduce over time the gap between current health allocations and the target of 15 per cent Abuja Declaration, instead of using the target as an aspirational target without a plan for implementation.
2. The Budget Office of the Federation and the committees of the National Assembly on the health sector need to establish a practice of openly and regularly monitoring budget performance, comparing budget appropriation with budget release and expenditure, to flag implementation issues beyond appropriation and address them.
3. There is a need for government to strengthen the current system of pooled, pre-payment financing (NHIA) and other similar schemes that currently account for only about 30 percent of health spending, because the majority of health spending is incurred out of household saving, which accentuates the shortcomings of the public allocation of health resources.
4. Oversight bodies, particularly the Basic Healthcare Provision Fund, must be strengthened to address anti-corruption and procurement issues, and health infrastructure projects must be built alongside the workforce, drugs and equipment needed to keep them functional, rather than delivered as separate capital projects.
5. There is also strong evidence that the determinants of life expectancy beyond the health budget should be supported in parallel with increased health spending, and not in competition with it, as additional investments in nutrition, water and sanitation, security and household income support are necessary to advance life expectancy in addition to higher health spending. Finally, Nigeria's statistical agencies and the Federal Ministry of Health and Social Welfare should make greater efforts to collect health and mortality data in more detail, more timely, and internally consistent, and to provide series at both state and cause level to allow future research to test the relationship with greater statistical power than a nine-observation time series at the national level can provide.

The limitations of this study and suggestions for future research are discussed in this section. The study is restricted in its use of a short time series of national data for the year ($n = 9$) and, although this is an appropriate number for the non-parametric technique used, it limits the statistical power and the scope to detect a relationship that may be present but is too subtle to show with a time series of this length. The analysis also considers aggregate life expectancy and not disaggregate indicators like infant, child or maternal mortality which could be more readily and more quickly responsive to health spending than an aggregate measure that reflects the health status of the entire population across all age groups. In addition to health spending and health outcomes being heterogeneous at the sub-national level, it is recognized that a

significant portion of health expenditure is financed by the private sector and various sources of health funding across countries, which are not directly modeled. Future studies would benefit from the use of a panel methodology that leverages variation over time and across Nigeria's thirty-six states and the Federal Capital Territory, from the use of disaggregated, cause-specific health outcome data, and from a longer time series that, as more years of data become available after 2024, would allow more sophisticated statistical testing, such as multiple regressions that control simultaneously for income, education, sanitation and security, as well as health expenditure.

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