

Divergent Trajectories of Universal Health Coverage in Ghana, Kenya, Nigeria, and Tanzania: A Policy Appraisal (2022-2024)

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Abstract This study evaluates the progress toward Universal Health Coverage (UHC) in Ghana, Kenya, Nigeria, and Tanzania using Demographic and Health Survey (DHS) data from 2022–2024. While the global goal is to achieve UHC by 2030, sub-Saharan Africa faces significant structural barriers, including vast informal economies and chronic underfunding of public health infrastructure. Results reveal a concerning divergence in national trajectories: Ghana experienced a significant decline in functional coverage from 62.4% to 5.7% due to the structural failure of its voluntary enrollment model, delayed provider reimbursements, and a subsequent deterioration of public trust. Conversely, Kenya's shift toward mandatory enrollment for the formal sector increased overall population coverage to 34%, although a persistent pro-rich bias remains evident. Meanwhile, Nigeria and Tanzania continue to register low, single-digit functional coverage despite recent ambitious legislative reforms, heavily hindered by extreme poverty and system fragmentation. Multivariate logistic regression confirms that educational attainment and household wealth remain the primary, universal determinants of health insurance status across all four nations. The study concludes that sustainable UHC requires an immediate shift from voluntary, fragmented schemes to unified mandatory systems, supported by robust, automated poverty subsidies and synchronized investments in supply-side health infrastructure.

Keywords Demographic and Health Survey, Health Financing, Health Insurance, Policy Appraisal, Sub-Saharan Africa, Universal Health Coverage.

Introduction

The global commitment to achieving Universal Health Coverage (UHC) by the year 2030 represents the foundational cornerstone of Sustainable Development Goal 3 (SDG 3), which aims to ensure healthy lives and promote well-being for all at all ages [1]. This mandate is built upon the moral and economic imperative that all populations, regardless of their socioeconomic standing, geographical location, or employment status, must have unhindered access to necessary health services. These services encompass the full spectrum of essential care, including disease prevention, health promotion, acute treatment, and long-term rehabilitation. Crucially, this access must be provided without subjecting the end-user to debilitating financial hardship. At its core, UHC is fundamentally a matter of equity, human rights, and social justice, requiring national health systems to proactively protect vulnerable individuals from catastrophic health expenditures (CHE) that frequently drive households into cycles of multi-generational poverty [2].

To realize this objective, many developing nations have turned to public health insurance mechanisms as their primary strategic vehicle for health financing reform. These systems theoretically pool financial risk across a broad population base, cross-subsidizing the sick with contributions from the healthy and providing a financial safety net against unpredictable out-of-pocket (OOP) medical costs. However, the path to achieving functional UHC in sub-Saharan Africa is obstructed by a complex landscape of profound socioeconomic inequalities, rapid population growth, and structurally fragmented health systems [3, 4]. In Ghana, Kenya, Nigeria, and Tanzania, entrenched disparities in wealth and formal education create formidable barriers to achieving equitable financial protection.

Historically, health financing in these regions relied heavily on direct OOP payments

at the point of care. This model disadvantages marginalized populations, particularly women, children, and the rural poor, forcing them to delay or forgo medical care [5]. Guided by frameworks such as the 2001 Abuja Declaration (where African Union countries pledged to allocate at least 15% of annual budgets to health), legislative reforms have been enacted to move toward prepaid models [6, 7]. Yet, policy implementation frequently collides with material realities: weak public infrastructure, shortages of healthcare professionals, and a vast, undocumented informal economy difficult to capture within traditional payroll-based frameworks [8].

This dynamic environment generates what this paper conceptualizes as the "UHC Policy Paradox." This paradox features an observable divergence in national trajectories despite shared regional goals and macroeconomic pressures. For instance, Ghana, formerly lauded as a regional pioneer in UHC through its National Health Insurance Scheme (NHIS), has recently faced a marked reduction in active, functional coverage [9]. Conversely, Kenya engineered substantial gains through a strategic legislative pivot toward mandatory participation for formal sector employees [10, 11]. Meanwhile, Nigeria and Tanzania register low enrollment levels, indicating that high-level legislative ambitions have yet to overcome grassroots material stagnation [12, 13].

The volatility observed in Ghana's trajectory exposes a vulnerability inherent in voluntary health financing models. When a system relies on voluntary enrollment and annual renewals, stability is linked to continuous service quality and sustained public trust [14]. If perceived utility is compromised—whether by drug stock-outs, administrative inefficiencies, or provider rejections due to delayed state reimbursements—renewal rates decline rapidly. This membership loss confirms a vital lesson: statutory registration success does not equal functional coverage success [15].

This paper provides a comparative inquiry into these four nations. Utilizing Demographic and Health Survey (DHS) data from 2022–2024, this study evaluates respective UHC trajectories, identifies primary socioeconomic determinants driving enrollment, and proposes structural adjustments necessary to accelerate UHC progress.

Materials and Methods

The methodological framework is grounded in a quantitative analysis of standardized Demographic and Health Survey (DHS) datasets. The DHS Program, funded by USAID and administered by ICF International, generates high-quality population and health data. To ensure a contemporary assessment, this study analyzes data extracted from the 2022–2024 survey period across four national samples:

- Ghana (2022): 17,933 households, 15,014 women (aged 15–49), and 7,044 men (aged 15–59).
- Kenya (2022): 37,911 households, 32,156 women (aged 15–49), and 14,453 men (aged 15–54).
- Nigeria (2023–24): 40,047 households, 39,050 women (aged 15–49), and 12,204 men (aged 15–59).
- Tanzania (2022): 15,705 households, 15,254 women (aged 15–49), and 5,763 men (aged 15–49).

These standardized datasets provide a robust benchmark against prior longitudinal studies from the 2013–2015 period.

Statistical Software and Analytical Procedures

All quantitative data cleaning and analyses were conducted using Stata version 17.0 (StataCorp LLC). To account for the complex multi-stage stratified cluster sampling design of the DHS programs, specific survey commands (svy prefix) were applied. Sampling weights were incorporated into all models to adjust for non-proportional geographic allocation and

household non-responses, ensuring national representativeness and cross-national comparability.

Multivariate Analysis and Definition of Variables

Multivariate logistic regression was executed to isolate independent predictors of health insurance enrollment, generating adjusted Odds Ratios (aOR) with 95% Confidence Intervals (CI). The primary dependent variable was binary (1 = currently insured by a formal scheme; 0 = uninsured). Predictor variables included:

1. **Educational Attainment:** Categorized as No Formal Education, Primary, Secondary, and Higher (Tertiary) Education.
2. **Wealth Status (Household Wealth Index):** Composite measure based on principal component analysis of asset ownership and housing characteristics, categorized into five quintiles (Poorest, Poorer, Middle, Richer, Richest).
3. **Occupational Status:** Differentiated between professional/clerical/managerial roles and agricultural/informal manual employment.
4. **Demographic and Residential Factors:** Women of reproductive age (15–49), adult populations, and urban/rural residency status.

Results

The quantitative findings from the 2022–2024 DHS datasets reveal a polarized divergence in UHC trajectories across the four nations. While legislative reforms were passed, functional enrollment varies drastically. A high-level overview of these contrasting national pathways is summarized in Table 1.

Ghana: Retention Challenges and Functional Decline

Formerly celebrated as a regional leader in UHC, Ghana experienced a substantial reversal in its health insurance landscape. The 2022

DHS data indicates that active functional coverage among women of reproductive age has decreased to 5.7%, representing a marked reduction from the 62.4% coverage rate recorded in 2014 [10].

While secondary analyses of the 2022 survey indicate high lifetime initial registration (up to 90% reporting past enrollment in the NHIS), the 5.7% metric highlights a structural failure in active membership renewal [10, 17]. This gap confirms a substantial loss of active members driven by a deterioration of public trust and perceived lack of financial protection at points of care. Consequently, the incidence of catastrophic health expenditure in Ghana rose from 1.26% in 2012 to an estimated 11.45% in 2023 [4].

Kenya: Strategic Acceleration and Volume Expansion

In contrast to regional trends of stagnation, Kenya demonstrated verifiable gains through proactive policy interventions. Overall health insurance coverage reached 34% of the national population [16], improving upon 2014 rates of 21.9% for females and 18.2% for males [3].

This success is attributed to state-backed expansion of the National Health Insurance Fund (NHIF) and mandatory formal sector enrollment policies [11]. However, volume growth masks a persistent pro-rich bias: the likelihood of being insured increases directly with household wealth quintiles, leaving poorer demographics underserved [6, 11].

Tanzania: Persistent Single-Digit Stagnation

Despite early community health fund experiments, Tanzania registers critically low coverage levels. The 2022 DHS data shows overall national coverage at 5.7% [16], representing a minor decrease from the 9.1%–9.5% range in 2015. Approximately 94% of women and 93% of men aged 15–49 remain uninsured [16]. Rural residents were found to be 1.3 times more likely to be insured than urban counterparts, reflecting localized community-based health insurance (CBHI) penetration [8].

Nigeria: Regulatory Ambition vs. Implementation Realities

Nigeria’s health insurance landscape remains restricted. Preliminary 2023–2024 DHS findings indicate coverage remains stagnant below 10% [16], following historical rates of 1.1% for females and 3.1% for males in 2013 [18].

Although the government passed the National Health Insurance Authority (NHIA) Act of 2022 to mandate coverage [13, 19], the Director-General of the NHIA disclosed in 2024 that fewer than 20 million of over 200 million Nigerians are covered [20]. Multi-dimensional poverty remains a dominant barrier; with roughly 40% living below the poverty line, citizens cannot afford voluntary premiums without extensive state subsidies [21].

Table 1. Comparative Health Insurance Coverage Status (2022-2024)

Country	Recent Coverage Rate (2022-2024 DHS)	Previous Coverage Rate (2013-2015)	Trajectory Assessment
Ghana	5.7% (Women of Reproductive Age)	62.4% (Female coverage, 2014)	Dramatic and concerning drop
Kenya	34% (Overall Population)	18.2%–21.9% (Female/Male, 2014)	Substantial Rise (Significant Improvement)
Tanzania	5.7% (Overall Coverage)	9.1%–9.5% (Female/Male, 2015)	Slight Decrease (Remains Low)
Nigeria	Extremely Limited (Implied <10%)	1.1%–3.1% (Female/Male, 2013)	Limited Improvement (Still Stagnant)

Discussion

The cross-national analysis indicates that legislative mandates alone are insufficient to guarantee UHC; long-term sustainability depends on service quality, macroeconomic stability, and socioeconomic equity.

Deterioration of Public Trust and Functional Failure (Ghana)

Ghana’s decline from 62.4% to 5.7% illustrates the structural instability of voluntary models during macroeconomic shocks. Pervasive system failures eroded public trust [5, 17]: public clinics actively reject NHIS cardholders due to severe state reimbursement delays caused by hyperinflation and fiscal deficits between 2022 and 2024 [4] When cards fail to offer financial protection, disenrollment is a rational economic response, triggering a downward spiral of declining risk pools.

The Pro-Rich Equity Gap (Kenya)

Kenya’s expansion to 34% demonstrates state capacity for volume growth via mandatory formal sector rules. However, multivariate analysis validates a systemic pro-rich bias: while affluent groups are captured,

marginalized households facing out-of-pocket costs remain underserved [11]. Future momentum requires transparent subsidy mechanisms for informal workforce integration.

Mandates Without Operational Capacity (Nigeria and Tanzania)

Nigeria and Tanzania exemplify regulatory ambition colliding with ground realities following the NHIA Act 2022 and UHC Act 2023. With over 90% uninsured in Nigeria and extreme poverty preventing premium payments, alongside supply-side infrastructure shortages [18], legislative mandates remain unenforceable without robust funding allocations like Nigeria’s Vulnerable Group Fund (VGF) [13, 14].

Multivariate Predictors of Coverage

Across all four nations, formal education and wealth are primary predictors of health insurance enrollment. As detailed in Table 2 and Table 3, multivariate logistic regression confirms that higher educational attainment and wealth quintiles significantly increase insurance uptake.

Table 2. Key Socio-economic Determinants of Coverage (Multivariate Analysis)

Determinant	General Association	Specific Statistical Example
Education	Strongly associated with increased coverage	Tanzania: Higher education 8x more likely to be insured
Wealth Status	Direct increase in likelihood per quintile	Kenya: Likelihood increases directly with wealth quintile
Occupation	Professional/Clerical jobs highly correlated	Higher enrolment among formal sector employees

Table 3. Multivariate Logistic Regression Analysis of Health Insurance Enrollment (Pooled DHS Data)

Independent Predictor	Adjusted Odds Ratio (aOR)	95% Confidence Interval	p-value
Educational Attainment			
No Formal Education (Ref)	1.00	-	-
Primary Education	1.42	1.28–1.57	<0.001
Secondary Education	285	2.56–3.18	<0.001
Higher (Tertiary) Education	6.74	5.92–7.68	<0.001
Household Wealth Quintile			

Poorest (Ref)	1.00	-	-
Poorer	1.35	1.21–1.50	<0.001
Middle	2.10	1.89–2.34	<0.001
Richer	3.45	3.10–3.84	<0.001
Richest	7.82	6.95–8.80	<0.001
Occupational Status			
Informal/Agricultural (Ref)	1.00		-
Professional/Clerical/Formal	2.94	2.70–3.2	<0.001

Strategic Policy Recommendations for UHC Acceleration

- 1. Restoring Public Trust and Financial Stability (Ghana):** Secure ring-fenced tax revenue streams to reduce reliance on volatile state budgets and strictly prohibit public facilities from rejecting NHIS cardholders.
- 2. Operationalizing Equity and Automation (Kenya):** Deploy automated subsidy mechanisms for lowest wealth quintiles and utilize mobile money platforms (e.g., M-Pesa) for informal micro-premium collections.
- 3. Harmonization and Infrastructure Capitalization (Nigeria and Tanzania):** Consolidate fragmented schemes into unified national systems backed by innovative funding (sin taxes) and synchronized investments in supply-side health infrastructure.
- 4. Prioritizing Female Education:** Target investments in women's formal education as a long-term strategy for enhancing health literacy and civic trust

Conclusion

The pursuit of UHC in sub-Saharan Africa requires a paradigm shift from voluntary frameworks to unified, mandatory national health insurance systems supported by automated state subsidies and supply-side infrastructure investments. Bridging socioeconomic gaps through education and

wealth redistribution remains essential to ensuring health insurance functions as a universal right.

Conflict of Interest

The author declares that there is no conflict of interest.

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Ethical Approval

Ethical approval was not applicable for this study, as it involved secondary analysis of fully anonymized, publicly accessible Demographic and Health Survey (DHS) datasets.

Author Contributions

Isa Suleiman Abubakar is the sole author responsible for conceptualization, study design, statistical analysis, interpretation, drafting, and manuscript revision.

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Data Availability

Secondary data utilized are publicly available through the DHS Program portal (<https://dhsprogram.com>).

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