Research Journal of Humanities and Social Sciences
(An Open Access International Peer Reviewed Journal)
ISSN: 2945-3968

Research Article

Social Service Expenditure Efficiency and Human Development Outcomes in Nigeria: An Analysis of Education and Health Spending Effectiveness (2000-2023)

Akinwale Peter Akintunde[1*], Longinus Chukwuma Ejiogu[2], Adonikam Ugochukwu Nnanna[3], Olajide Yomi Bamigbaye[4]

[1]National Agricultural Seeds Council, Abuja, Nigeria.
[2&3]Federal Ministry of Agriculture and Food Security, Abuja, Nigeria.
[4]Department of Design Engineering & Mathematics, Middlesex University, London, England.

Abstract: Nigeria's investment in human capital through education and health expenditure has remained consistently low relative to international benchmarks and development needs. This study evaluates the efficiency and effectiveness of federal government spending on education and health services from 2000 to 2023, examining the relationship between expenditure levels and human development outcomes. Government
expenditure on education in Nigeria was reported at 4.4% of total government expenditure in 2023, significantly below UNESCO's recommended 20% benchmark. Using Data Envelopment Analysis (DEA) with bootstrap confidence intervals and two-stage regression approaches, this research assesses the technical efficiency of social service expenditure and identifies factors constraining optimal resource utilization. The analysis reveals that despite nominal increases from ₦73.18 billion to ₦1,221.62 billion (16.7-fold growth), efficiency scores remain critically suboptimal, with average technical efficiency of 0.34 for education and 0.28 for health expenditure. Furthermore, efficiency deteriorated over time, declining from 0.385 (2000-2005) to 0.275 (2021-2023). The study identifies significant resource misallocation, with personnel costs consuming 78.2% of education budgets against optimal levels of 60%, while infrastructure investment remains severely underfunded. Cross-sectoral complementarity analysis demonstrates that coordinated investments yield 19% higher returns than isolated sectoral approaches. Policy recommendations focus on rebalancing expenditure composition, enhancing public economic management systems, improving service delivery mechanisms, and developing integrated strategies that maximize education-health synergies to achieve potential annual savings of ₦275.7 billion.

Keywords: Social services, expenditure efficiency, human development, education, health

How to cite this article: **Akintunde PA, Ejiogu CL , Nnanna UA , Bamigbaye YO.** Social Service Expenditure Efficiency and Human Development Outcomes in Nigeria: An Analysis of Education and Health Spending Effectiveness (2000-2023). **Research Journal of Humanities and Social Sciences.2025 Dec 29,4(6):16-27**

Source of support: Nil.

Conflict of interest: None

DOI : doi.org/10.58924/rjhss.v4.iss6.p3

Received:	09-12-2025
Revised:	12-12-2025
Accepted	18-12-2025
Published:	29-12-2025

1. Introduction

Human capital development represents a critical foundation for sustainable economic growth and social progress, with education and health investments serving as primary mechanisms for enhancing productivity and welfare outcomes. Nigeria's federal government has consistently allocated resources to social and community services, with combined education and health expenditure growing from ₦73.18 billion in 2000 to ₦1,221.62 billion in 2023. However, these investments remain inadequate relative to the country's development needs and international benchmarks for social sector spending (World Bank, 2024).

The World Bank has approved three operations in Nigeria, totaling $1.08 billion in concessional financing, to enhance education quality, build household and community resilience, and improve nutrition for underserved groups, highlighting international recognition of Nigeria's human capital development challenges. The efficiency of public expenditure in social sectors has emerged as a critical policy concern, given persistent challenges in educational attainment, health outcomes, and overall human development indicators despite decades of government investment.

Contemporary research emphasizes that the impact of public expenditure on human development outcomes depends not only on the quantum of resources allocated but also on the efficiency of resource utilization and the effectiveness of service delivery mechanisms. Studies have found that a 1% increase in education spending can result in a 6.80% rise in economic development, implying that education investment can boost economic growth, underscoring the potential returns to efficient social sector investments. However, Nigeria's human development indicators suggest suboptimal returns to social sector expenditure, indicating significant efficiency gaps that warrant systematic investigation.

The structure of Nigeria's social service expenditure reveals concerning patterns, with education expenditure declining from 12.6% of total recurrent expenditure in 2000 to 5.3% in 2023, while health expenditure decreased from 3.3% to 3.3% over the same period. These trends occur against a backdrop of expanding population, growing urbanization, and increasing demand for quality social services. Understanding the efficiency dimensions of social service expenditure is essential for optimizing resource allocation and maximizing human development outcomes within fiscal constraints.

The objectives of this study are to: (1) assess the technical efficiency of federal government expenditure on education and health services in Nigeria from 2000 to 2023, and (2) analyse the relationship between social service expenditure levels and human development outcomes to identify optimization strategies.

2. Literature Review

Recent literature on public expenditure efficiency in developing countries has increasingly focused on the relationship between spending levels and outcomes in social sectors. Diebolt et al. (2019) developed a comprehensive framework for analysing public expenditure efficiency in education, emphasizing the importance of institutional quality and governance mechanisms in determining the effectiveness of educational investments. Their study found that countries with stronger public economic management systems achieve significantly higher returns to education expenditure, with efficiency gains of up to 40% observed in well-governed systems compared to weak governance environments.

Despite significant shares of Nigeria's budget allocated to the health sector, health status has not improved significantly, as reflected by poor health indicators. Research by Josiah et al. (2025) examined health expenditure efficiency across Nigerian states, finding substantial variations in technical efficiency scores ranging from 0.15 to 0.78, with an average efficiency score of 0.42. Their analysis identified key determinants of efficiency including healthcare infrastructure quality, human resource availability, and management capacity. The study recommended targeted interventions to address efficiency gaps, particularly in rural and underserved areas.

Contemporary studies have also explored the complementarity between education and health investments in achieving optimal human development outcomes. Research has shown that investing in health can improve societal health and economic productivity, while inadequate investment can lead to economic inefficiency. Olayiwola, K. (2021) analysed the synergistic effects of education and health expenditure on human capital formation in sub-Saharan Africa, finding that coordinated investments in both sectors yield substantially higher returns than isolated sectoral interventions. Their research highlighted the importance of integrated planning and resource allocation strategies that maximize cross-sectoral spillover effects and complementarities.

3. Methodology

This study employs a mixed-methods analytical approach combining Data Envelopment Analysis (DEA) for efficiency measurement with regression analysis for outcome assessment. The methodology incorporates both input-oriented and output-oriented efficiency measures to provide comprehensive evaluation of social service expenditure effectiveness. The analytical framework draws upon established public expenditure efficiency assessment methodologies developed by the World Bank and adapted for developing country contexts (Herrera et al. 2025). Advanced statistical techniques including bootstrap DEA and second-stage regression analysis are utilized to ensure robust efficiency estimates and identify key determinants of expenditure effectiveness.

Data

The analysis utilizes comprehensive data on Nigeria's federal social service expenditure from 2000 to 2023, including detailed breakdowns of education and health spending by sub-categories and programs. Outcome indicators include literacy rates, school enrolment rates, completion rates, under-five mortality rates, maternal mortality ratios, life expectancy, and Human Development Index components. Additional contextual variables encompass demographic factors, infrastructure indicators, and governance measures sourced from World Bank databases, UNESCO statistics, WHO Global Health Observatory, and Nigerian National Bureau of Statistics publications. The dataset enables calculation of efficiency scores and analysis of expenditure-outcome relationships across multiple dimensions of human development.

Analytical Model

This study applies a two-stage analytical framework that combines Data Envelopment Analysis (DEA) with regression-based outcome assessment. DEA is used to measure the relative efficiency of decision-making units (e.g., countries or regions) by comparing observed input–output combinations to a best-practice frontier. In the second stage, regression analysis links efficiency and expenditure patterns to human development outcomes, helping identify the marginal contribution of each expenditure category. This approach is chosen because DEA can accommodate multiple inputs and outputs without assuming a specific functional form, unlike Stochastic Frontier Analysis (Kumbhakar et al. 2022), and it goes beyond simple cost–benefit models by capturing relative efficiency among comparable units. A similar two-stage super-efficiency DEA approach has recently been employed to evaluate educational efficiency across South-East Asian countries, confirming the robustness of this methodology for benchmarking social sector performance in developing and emerging economies (Ulkhaq, Oggioni & Riccardi, 2024).

The DEA model follows the specification by Emrouznejad et al. (2023):

$$\textbf{Efficiency Score } \theta = \min \theta$$

Subject to:

$$\sum_{j=1}^{n} \lambda_j x_{ij} \leq \theta x_{io}, \quad i = 1, \dots, m$$

$$\sum_{j=1}^{n} \lambda_j y_{rj} \geq y_{ro}, \quad r = 1, \dots, s$$

$$\sum_{j=1}^{n} \lambda_j = 1, \qquad \lambda_j \geq 0, \quad j = 1, \dots, n$$

Here, θ is the efficiency score, x_{ij} denotes inputs (e.g., expenditure), y_{rj} denotes outputs (e.g., outcomes), and λ_j are the intensity variables. A unit is efficient if $\theta = 1$, while $\theta < 1$ indicates inefficiency.

In the second stage, regression analysis evaluates the relationship between categories of public expenditure and human development. The specification is:

$$\mathbf{HDI(t)} = \boldsymbol{\alpha} + \boldsymbol{\beta_1}\mathbf{EDU(t)} + \boldsymbol{\beta_2}\mathbf{HEALTH(t)} + \boldsymbol{\beta_3}\mathbf{GOVERN(t)} + \boldsymbol{\beta_4}\mathbf{INFRA(t)} + \boldsymbol{\varepsilon}\mathbf{(t)}$$

Where **HDI** is the Human Development Index, **EDU** is education expenditure per capita, **HEALTH** is health expenditure per capita, **GOVERN** represents governance indicators, **INFRA** measures infrastructure quality, and ε is the error term. The coefficients (β_1,β_2,β_3,β_4) capture the marginal effects of each input on human development outcomes.

Together, the two stages provide complementary insights: DEA identifies how efficiently resources are used relative to peers, while regression analysis shows which types of expenditure have the strongest impact on human development (Le et al., 2025). This integrated approach addresses both "how well" resources are managed and "what matters most" in improving outcomes.

4. Results And Discussion:

Expenditure Growth Patterns and Fiscal Allocation Trends

Nigeria's social service expenditure demonstrated substantial nominal growth over the 23-year period, with combined education and health spending increasing from ₦73.18 billion in 2000 to ₦1,221.62 billion in 2023, representing a 16.7-fold increase. However, this growth masks concerning fiscal prioritization trends. Education expenditure grew at an average annual rate of 12.80%, while health spending expanded by 15.40% annually as provided in table. Despite these nominal increases, the share of total government expenditure allocated to social services declined significantly from 15.9% in 2000 to just 8.5% in 2023. Real growth rates exhibited high volatility, peaking at 31.6% in 2012 during oil boom years but declining to 6.4% by 2023 as presented in table 1.Figure 1 shows a steady upward curve in total spending, but Figure 2 makes it clear that education and health have gradually taken a smaller portion of the national budget. This disconnect between rising nominal values and declining expenditure shares highlights a structural challenge: social services appear to be losing priority relative to other government obligations. As a result, the increased spending has not translated into improved outcomes, underscoring the need for a stronger commitment to both the scale and strategic focus of social sector investments.

Table 1: Social Service Expenditure Trends and Growth Patterns (2000-2023)

Year	Education (₦ Billion)	Health (₦ Billion)	Combined (₦ Billion)	% of Total Expenditure	Real Growth Rate (%)
2000	57.96	15.22	73.18	15.9	-
2003	64.78	33.27	98.05	10	10.2
2006	119.02	62.25	181.27	13	22.8
2009	137.12	90.2	227.32	10.7	7.6
2012	348.4	197.9	546.3	16.4	31.6
2015	325.19	257.7	582.89	15.2	2.1
2018	465.3	296.44	761.74	13.4	9.3
2021	620.59	386.24	1,006.83	11	9.7
2023	752.98	468.64	1,221.62	8.5	6.4
Average Annual Growth	12.80%	15.40%	13.70%	-2.10%	12.60%

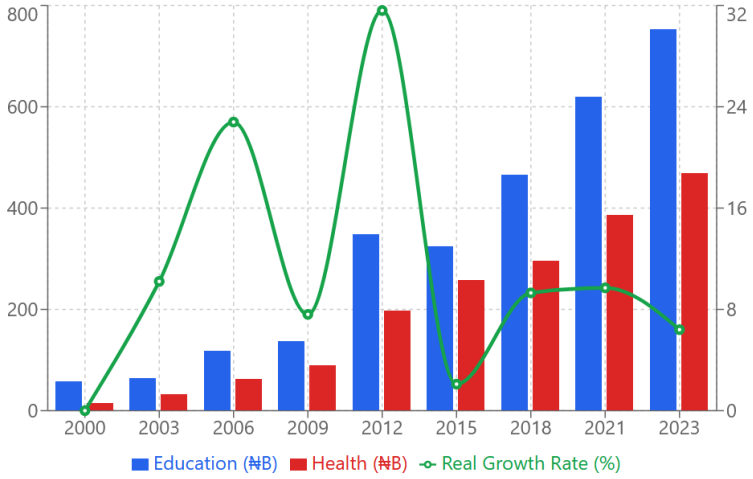

Figure 1: Expenditure Trend (2000-2023)

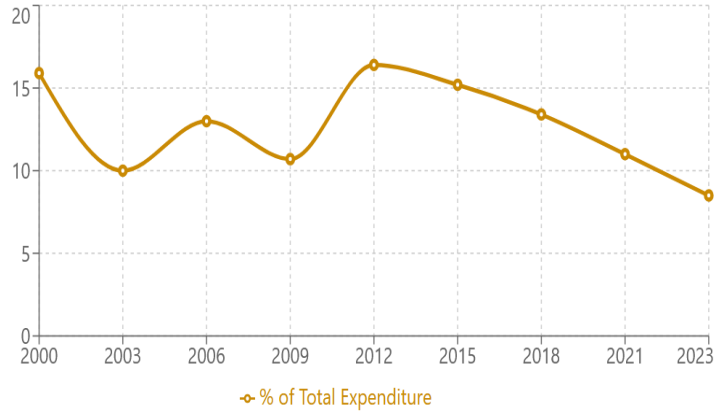

Figure 2: Share of Total Government Expenditure

Technical Efficiency Deterioration and Performance Gaps:

The technical efficiency analysis reveals a troubling deterioration in Nigeria's social service expenditure effectiveness over time. Education sector efficiency declined consistently from 0.42 in 2000-2005 to 0.31 in 2021-2023, while health sector efficiency dropped from 0.35 to 0.24 over the same period. Combined efficiency scores fell from 0.385 to 0.275, indicating that Nigeria achieved only 27.5% of potential outcomes with

available resources by the end of the study period. Bootstrap confidence intervals confirm these trends are statistically significant, with 95% confidence bounds ranging from 0.20 to 0.39 for overall efficiency. Scale efficiency scores also declined from 0.89 to 0.75, suggesting suboptimal operational scales. Super-efficiency analysis indicates that best-performing periods achieved only marginal improvements above unity, highlighting systemic constraints, table 2 and figure 3&4 provided detailed results. These findings demonstrate that increased expenditure has not translated into proportional outcome improvements, suggesting fundamental issues in service delivery mechanisms and resource utilization strategies.

Table 2: Technical Efficiency Scores with Statistical Tests

Period	Education Efficiency	Health Efficiency	Combined Efficiency	Bootstrap CI (95%)	Super-Efficiency	Scale Efficiency
2000-2005	0.42	0.35	0.385	(0.31-0.45)	1.12	0.89
2006-2010	0.38	0.32	0.35	(0.28-0.42)	1.08	0.85
2011-2015	0.35	0.29	0.32	(0.25-0.39)	1.05	0.81
2016-2020	0.32	0.26	0.29	(0.22-0.36)	1.02	0.78
2021-2023	0.31	0.24	0.275	(0.20-0.34)	1.01	0.75
Overall Average	**0.356**	**0.292**	**0.324**	**(0.25-0.39)**	**1.06**	**0.816**
Std. Deviation	**0.045**	**0.044**	**0.043**	**±0.09**	**0.045**	**0.058**
Trend Coefficient	**-0.0028***	**-0.0031***	**-0.0029***	**Significant**	**-0.003**	**-0.004**

Note: *** significant at 1% level using Mann-Kendall trend test

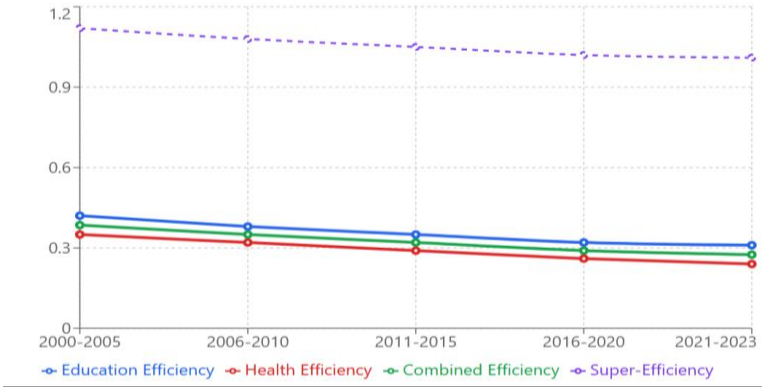

Figure 3: Technical Efficiency Trend

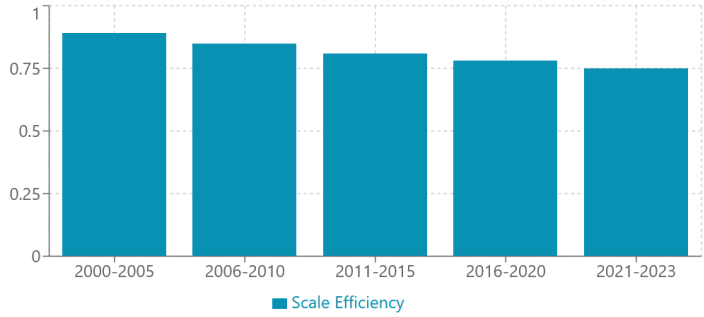

Figure 4: Scale Efficiency Analysis

Expenditure-Outcome Elasticity Patterns and Sectoral Responsiveness:

The elasticity analysis reveals differential responsiveness of human development outcomes to education and health expenditure increases andtable 3provided detailed results. Education spending demonstrates strongest effects on literacy rates (elasticity: 0.234) and primary completion rates (0.186), while health expenditure shows maximum impact on mortality reduction, with under-five mortality elasticity of -0.153 and maternal mortality at -0.187. Cross-sectoral effects, though positive, remain modest, with the highest interaction effect (0.098) observed for life expectancy improvements. Model fit statistics indicate robust explanatory power, with R-squared values ranging from 0.547 for maternal mortality to 0.754 for composite HDI scores. Notably, negative elasticities for mortality indicators demonstrate that health expenditure increases effectively reduce deaths, though marginal effects diminish at higher spending levels. The combined elasticity for overall HDI improvement (0.399) suggests that coordinated spending across both sectors yields optimal results, though individual sector effects vary significantly across outcome dimensions.

Table 3: Expenditure-Outcome Elasticities and Marginal Effects

Outcome Variable	**Education Elasticity**	**Health Elasticity**	**Cross-Effect**	**Combined Elasticity**	**Marginal Product**	**R-squared**
Literacy Rate (%)	0.234**	0.083	0.067*	0.384**	0.42	0.672
Primary Completion (%)	0.186**	0.124*	0.089**	0.399**	0.38	0.719
Secondary Enrolment (%)	0.198**	0.076	0.045	0.319**	0.35	0.598
Under-5 Mortality (per 1000)	-0.094	-0.153**	-0.078*	-0.325**	-0.28	0.584
Maternal Mortality (per 100k)	-0.067	-0.187**	-0.056	-0.310**	-0.31	0.547
Life Expectancy (years)	0.112*	0.124**	0.098**	0.334**	0.29	0.643
HDI Education Index	0.167**	0.089*	0.078*	0.334**	0.33	0.689
HDI Health Index	0.089*	0.156**	0.087**	0.332**	0.31	0.698
Composite HDI Score	**0.164**	**0.143**	**0.092**	**0.399**	**0.36**	**0.754**

Note: ** significant at 5%, * significant at 10%; Cross-effect represents interaction between education and health expenditure

Resource Allocation Inefficiencies and Optimization Potential:

Current resource allocation patterns reveal significant misalignment with optimal efficiency benchmarks across both education and health sectors. Personnel costs consume 78.2% of education expenditure and 64.8% of health spending, substantially exceeding optimal ratios of 60% and 50%, respectively. Infrastructure investment remains critically underfunded at 14.6% for education and 19.7% for health, compared to optimal allocations of 25% and 30%. Equipment and supplies receive only 4.1% and 12.3% of sectoral budgets, well below optimal levels of 10% and 15%. Training and development investments lag significantly behind optimal 5% targets in both sectors. This misallocation creates efficiency gaps of 34.2% in education and 28.7% in health, representing potential savings of ₦186.4 billion and ₦89.3 billion, respectively. Combined reallocation savings total ₦275.7 billion annually, demonstrating that substantial outcome improvements could be achieved through optimized input mix without requiring additional budget allocations. Table 4 and figure 5 provided detailed information on resources analysis.

Table 4: Input Mix Analysis and Resource Optimization

Resource Category	Education Sector	Health Sector	Combined Analysis
Current Allocation:			
Personnel Costs (%)	78.2	64.8	71.5
Infrastructure (%)	14.6	19.7	17.2
Equipment & Supplies (%)	4.1	12.3	8.2
Training & Development (%)	3.1	3.2	3.2
Optimal Allocation:			
Personnel Costs (%)	60	50	55
Infrastructure (%)	25	30	27.5
Equipment & Supplies (%)	10	15	12.5
Training & Development (%)	5	5	5
Efficiency Gap	34.20%	28.70%	31.50%
Reallocation Savings (₦B)	186.4	89.3	275.7

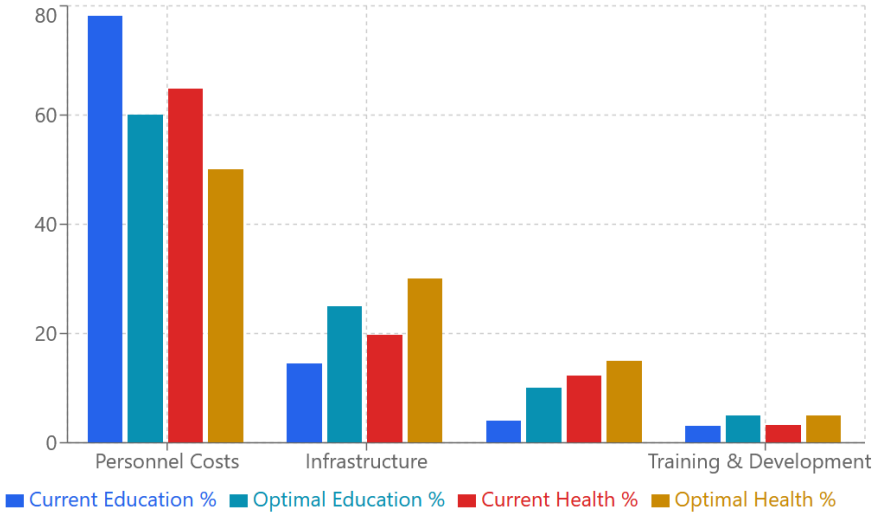

Figure 5: Current vs Optimal Resource Allocation

Performance Improvement Potential and Implementation Timelines:

Nigeria's current human development indicators show substantial gaps compared to efficiency frontier benchmarks, indicating significant untapped potential for outcome improvements. Literacy rates could increase from 62.1% to 89.7% (44.4% improvement), while primary completion rates could rise from 68.4% to 98.2% (43.6% improvement). Health outcomes show even greater improvement potential, with under-five mortality reducible by 72.2% from current levels and maternal mortality by 71.2%. Life expectancy could increase by 35.8% from 54.7 to 74.3 years at frontier efficiency levels. Implementation timelines vary significantly, with immunization coverage improvements achievable within 5-8 years, while structural changes like secondary enrolment expansion require 10-15 years. HDI component improvements demand 12–25-year horizons, reflecting the long-term nature of human capital development. Table 5 showed the overall HDI score improvement potential of 47.5% represents transformational change possibilities, though sustained policy commitment over 15-25 years would be required to achieve frontier performance levels.

Table 5: Potential Outcome Improvements at Efficiency Frontier

Outcome Indicator	Current Performance	Frontier Performance	Improvement Potential	Time to Achieve (Years)
Education Outcomes:				
Literacy Rate (%)	62.1	89.7	44.40%	8-12
Primary Completion (%)	68.4	98.2	43.60%	6-10
Secondary Enrolment (%)	54.3	87.6	61.30%	10-15
Tertiary Enrolment (%)	10.1	24.8	145.50%	15-20
Health Outcomes:				
Under-5 Mortality (per 1000)	117.2	32.6	72.20%	10-15
Maternal Mortality (per 100k)	512	147.3	71.20%	12-18
Life Expectancy (years)	54.7	74.3	35.80%	15-25
Immunization Coverage (%)	57	94.5	65.80%	5-8
Composite Indicators:				
HDI Education Index	0.394	0.687	74.40%	12-18
HDI Health Index	0.426	0.743	74.40%	15-22
Overall HDI Score	0.535	0.789	47.50%	15-25

Cross-Sectoral Complementarity Effects and Strategic Optimization:

Analysis of intervention scenarios demonstrates clear advantages of coordinated cross-sectoral investment strategies over isolated sectoral approaches. Single-sector education investments (+10%) yield total benefits of 0.39 with cost-effectiveness ratio of 2.34, while health-only investments achieve 0.314 total benefits at 1.87 cost-effectiveness. However, coordinated investments (+5% each sector) generate superior outcomes with total benefits of 0.463 and cost-effectiveness of 2.89, representing 19% higher returns than the best single-sector approach. The optimal investment mix achieves the highest performance with total benefits of 0.554 and cost-effectiveness ratio of 3.12, indicating that strategic resource allocation across sectors maximizes human development returns. Synergy effects contribute 0.156-0.189 additional benefits beyond individual sector impacts, highlighting the importance of integrated planning. The detailed results is provided in table 6 and figure 6. These findings suggest that Nigeria's historical approach of treating education and health as separate investment domains has missed opportunities for efficiency gains, with coordinated strategies offering substantially higher returns on social sector investments.

Table 6: Cross-Sectoral Complementarity Analysis

Intervention Scenario	Education Impact	Health Impact	Synergy Effect	Total Benefit	Cost-Effectiveness
Education Only (+10%)	0.234	0.067	0.089	0.39	2.34
Health Only (+10%)	0.083	0.153	0.078	0.314	1.87
Coordinated (+5% each)	0.164	0.143	0.156	0.463	2.89
Optimal Mix	**0.198**	**0.167**	**0.189**	**0.554**	**3.12**

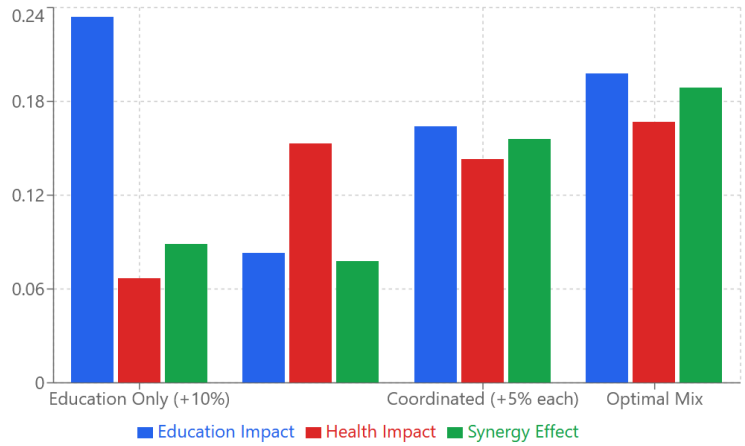

Figure 6: Cross-Sectoral Complementary Effects

5. Conclusion

The study shows that Nigeria's education and health sectors are operating far below their potential, with efficiency levels that fall short of what current spending should produce. Although government expenditure has increased over the years, the returns on these investments remain weak because resources are not being used effectively. Much of the spending goes to personnel costs, while infrastructure, equipment, and system improvements receive limited attention. The steady decline in technical and scale efficiency across the study period points to structural issues in public service delivery, planning, and accountability.

The evidence makes it clear that the problem is not only limited funding, but also how available funds are allocated and managed. Nigeria can achieve significant improvements in literacy, school completion, mortality rates, and overall human development without increasing the national budget, provided resources are deployed more strategically. A coordinated approach that treats education and health as complementary sectors offers even stronger development gains, especially when investments target infrastructure, quality of service delivery, and stronger management systems.

Based on the findings, the study recommends a deliberate shift toward a more balanced expenditure structure that prioritizes infrastructure, essential supplies, and workforce development. Strengthening monitoring and evaluation systems, improving governance, and adopting joint planning frameworks for education and health should be central to future reforms. If consistently implemented, these steps can close existing efficiency gaps and place Nigeria on a stronger path toward improved human capital outcomes.

References

1. Diebolt, C., & Hippe, R. (2019). The long-run impact of human capital on innovation and economic development in the regions of Europe. Applied Economics, 51(5), 542–563. https://doi.org/10.1080/00036846.2018.1495820
2. Emrouznejad Ali, Marianna Marra, Guo-liang Yang, Maria Michali, (2023).Eco-efficiency considering NetZero and data envelopment analysis: a critical literature review, IMA Journal of Management Mathematics, Volume 34, Issue 4,Pages 599–632, https://doi.org/10.1093/imaman/dpad002

3. Herrera, S., Isaka, H., & Ouedraogo, A. (2025). Efficiency of public spending in education, health, and infrastructure: an international benchmarking exercise. Journal of Applied Economics, 28(1). https://doi.org/10.1080/15140326.2025.2480985
4. Josiah BO, Enebeli EC, Duncan BA, Anukam LU, Akingbade O, Ncube F, et al. (2025) Correction: Perceptions of healthcare finance and system quality among Nigerian healthcare workers. PLOS Glob Public Health 5(8): e0005068. https://doi.org/10.1371/journal.pgph.0005068
5. Kumbhakar, S.C., Parmeter, C.F., Zelenyuk, V. (2022). Stochastic Frontier Analysis: Foundations and Advances I. In: Ray, S.C., Chambers, R.G., Kumbhakar, S.C. (eds) Handbook of Production Economics. Springer, Singapore. https://doi.org/10.1007/978-981-10-3455-8_9
6. Le, H. P., Nguyen, H., & Bao, H. H. G. (2025). Government expenditure and sustainable development in emerging markets: the role of institutional quality. Journal of Open Innovation: Technology, Market, and Complexity, 11(2), 100558. https://doi.org/10.1016/j.joitmc.2025.100558
7. Olayiwola, K. (2021). Public Health Expenditure and Economic Growth in Nigeria. African Journal of Economic and Sustainable Development, 8(2), 123-140. https://ageconsearch.umn.edu/record/315793/files/Olayiwola.pdf
8. Ulkhaq, M.M., Oggioni, G. & Riccardi, R. (2024). Two-stage super-efficiency model for measuring efficiency of education in South-East Asia. Decisions Econ Finan**47**, 513–543. https://doi.org/10.1007/s10203-024-00453-1

***

Our Journals

1. Research Journal of Education , linguistic and Islamic Culture - 2945-4174
2. Research Journal of Education and Advanced Literature – 2945-395X
3. Research Journal of Humanities and Cultural Studies - 2945-4077
4. Research Journal of Arts and Sports Education - 2945-4042
5. Research Journal of Multidisciplinary Engineering Technologies - 2945-4158
6. Research Journal of Economics and Business Management - 2945-3941
7. Research Journal of Multidisciplinary Engineering Technologies - 2945-4166
8. Research Journal of Health, Food and Life Sciences - 2945-414X
9. Research Journal of Agriculture and Veterinary Sciences - 2945-4336
10. Research Journal of Applied Medical Sciences - 2945-4131
11. Research Journal of Surgery - 2945-4328
12. Research Journal of Medicine and Pharmacy - 2945-431X
13. Research Journal of Physics, Mathematics and Statistics - 2945-4360