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THE IMPACT OF SOCIAL AND COMMUNITY EXPENDITURE ON ECONOMIC GROWTH IN NIGERIA: A SECTORAL APPROACH

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ABSTRACT

This study evaluated the effects of government spending on education and health on economic growth in Nigeria from 1981 to 2025, utilizing annual data. Johansen cointegration and a Vector Error Correction Model (VECM) were employed. The findings show notable long-term relationships among the variables. Government expenditure on social and community services contributed to increases in nominal GDP over time. While education spending positively influenced economic growth, health spending showed a negative long-term association with GDP, suggesting inefficiencies in health-sector allocation. In the short run, previous GDP growth was the primary determinant of current output, and education expenditure adjusted most rapidly to restore equilibrium following shocks. These results point to the necessity of efficient investment in education and urgent reforms in the health sector. It is recommended that policy efforts prioritize the quality and efficiency of health spending and increase investment in education to achieve sustainable economic growth.

Keywords: Social expenditure, education expenditure, health expenditure, economic growth, nominal GDP, VECM, Johansen cointegration, Nigeria

1.0 INTRODUCTION

In advanced economies, health and education expenditures are regarded as key investments in human capital, averaging 5.8 percent and 4.9 percent of GDP, respectively, across OECD countries (OECD, 2024). Sakata (2022) observed that while some nations reduced the income elasticity of such spending in economic downturns, others maintained their devotion to it. Empirical evidence generally indicates positive long-run multipliers; however, outcomes depend on expenditure efficiency and institutional quality (Università Cattolica del Sacro Cuore, 2020). Within Africa, sectoral disparities are evident: South Africa, Egypt, and Ghana have achieved developmental progress in both health and education despite fiscal constraints, yet efficiency gaps continue (World Bank, 2026). Sub-Saharan Africa's average health and education expenditures, at 2.3 percent and 3.8 percent, respectively, remain below global standards. Ghana's National Health Insurance Scheme, which covers 40 percent of the population, illustrates that targeted health spending can produce positive outcomes even at moderate levels (Deepseek, 2026). In contrast, Nigeria has increased allocations—federal education at N3.52 trillion and health at N2.48 trillion for 2025—yet ongoing deficits in translating these expenditures into growth weaken the expenditure-growth relationship (Tribune Online, 2026). Empirical findings for Nigeria are inconsistent: some studies report that only health spending positively affects GDP while education has negative effects

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(Amauche et al., 2025), whereas others find the opposite (Odetola et al., 2025). Additionally, out-of-pocket health expenditures exceed 75 percent, while insurance coverage remains below 5 percent, constraining health-driven productivity gains (World Bank, 2026). Such a persistent gap between rising allocations and expenditure efficiency motivates the present empirical investigation.

Despite successive increases in budgetary allocations—federal education reaching N3.52 trillion and health N2.48 trillion in 2025—the contribution of these expenditures to economic growth remains limited and contested (Punch, 2025). System-wide challenges undermine efficiency: only 10 percent of teachers are highly trained, the pupil-teacher ratio is 1:40 (exceeding UNESCOs recommended 1:25), and health system performance is 45 percent, below the WHO African average of 56 percent, with 80 percent of health infrastructure classified as dysfunctional (Adeyemi, 2025; Emergency Digest, 2025; ICIR, 2025). Although the government has introduced reforms such as NELFUND (N154.4 billion to 788,947 students), N110 billion for medical schools, and the HOPE-GOV Program, implementation remains weak, with ongoing industrial actions and the departure of over 4,000 doctors in 2024 (The Guardian, 2025; The Sun, 2025; World Bank, 2025; Punch, 2025). As a result, out-of-pocket health spending constitutes 75 percent, insurance coverage is below 5 percent, and 10.2 million children remain out of school (ICIR, 2025; Punch, 2025). Without gains in efficiency and institutional quality, increased allocations alone are insufficient to achieve long-term growth, underscoring the need for empirical analysis of the sectoral impact of education and health expenditure on Nigeria's nominal GDP.

The major objective of this study is to evaluate the impact of social and community expenditure on the economic growth in Nigeria. The specific objectives of this study include

i. To examine the impact of total social and community expenditure on economic growth in Nigeria.
ii. To investigate the impact of the health expenditure on economic growth in Nigeria
iii. To interrogate the impact of the education expenditure on economic growth in Nigeria

2.0 LITERATURE REVIEW

2.1 Empirical Literature Review

Empirical studies investigating the relationship between public social expenditure and economic growth are curated below:

Nkwagu et al. (2025) examined human capital and Nigeria’s economic growth (1986–2022) using a Vector Error Correction Model. Real GDP was the dependent variable; government health expenditure (TGEH), education expenditure (TGEE), and total exports were independent variables. All variables were I(1). Cointegration identified four vectors. VECM results showed that TGEH, TGEE, and exports positively and significantly affected real GDP. Granger causality revealed a two-directional relationship between TGEE and growth. The study recommended improving the cost-effectiveness and availability of education to enhance human capital and growth.

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Ule-Jinanwa (2025) examined the relationship between public education and health spending and Nigeria's economic growth (1981–2018) using unit root tests, Johansen's cointegration test, and an error-correction model. Findings showed that both expenditures have a positive and significant effect on growth, establishing a long-run relationship. The study recommended increased and sustained investment in education and health, quality standardization, and better access and affordability to foster human capital and sustained economic growth.

David, Abimiku & Okafor (2025) examined public social expenditure and growth in Nigeria (2000–2023) using ARDL and ECM, highlighting the moderating role of institutional quality. A stable long-run relationship was confirmed. Short-run results showed that education expenditure negatively affected growth due to adjustment lags and weak labor absorption, while health expenditure boosted immediate productivity. The impact of social spending on growth is time-dependent and conditioned by governance and structural transformation.

Amauche, Akamobi, Oguanobi & Ugwunna (2025) investigated the relationship between human capital investment and international development indices and Nigeria's real GDP growth (1991–2022) using an ARDL model. Disaggregated variables included government expenditure on education (GEE) and health (GEHT), alongside Human Development Index (HDI), Inequality-adjusted Human Development Index (IHDI), Gender Development Index (GDI), Gender Inequality Index (GII), Multidimensional Poverty Index (MPI), Life Expectancy (LE), and Gross Fixed Capital Formation (GFCF). Short-run results showed positive effects from GII, GDI, IHDI, GEHT, and HDI, while labor force and GEE had negative effects. Long-run results showed that health expenditure positively influenced GDP growth, while education expenditure negatively affected it. The study recommended policies that engender high human development in Nigeria.

Osisanwo, Babasanya & Adeniyi (2025) examined the relationship between public health expenditure and economic growth in Nigeria using annual data from 1986 to 2024 and the ARDL bounds test approach. Results showed that a 1 percent increase in government health expenditure is associated with a 0.7011 percent increase in long-run economic growth. Robustness analyses confirmed sensitivity to alternative measures, particularly on a per capita basis. The study supported the health-led growth hypothesis and recommended steady monitoring and evaluation of health policies to ensure effective resource deployment and intended outcomes.

Akinro, Obiasogu & Udeh (2024) examined the effect of federal capital expenditure on Nigeria's economic health (1981–2023) using multiple regression. Disaggregated expenditures showed that administration, social and community services, and transfers had positive and significant effects on nominal GDP, while economic services had a negative and insignificant effect. The study recommended increased budget allocations and proper monitoring to ensure growth impacts.

Kenechukwu, Iloakasia & Nwoye (2024) investigated the effect of federal government recurrent expenditures on Nigeria's economic growth between 1993 and 2023. Using an ex-post facto research design and Ordinary Least Squares regression, the study analyzed data from the Central Bank of Nigeria Statistical Bulletin. The findings showed that administration expenditure, economic services expenditure, and social community service expenditure each

had a positive but statistically insignificant effect on real GDP, with p-values of 0.3169, 0.5452, and 0.1531, respectively. However, transfers expenditure exhibited a significant negative effect on real GDP (p-value = 0.0047). The study recommended that the Federal Ministry of Education and Health devote more resources to the education and healthcare sectors to improve economic growth.

Nwodo & Ukaegbu (2017) examined the interaction effect of education and health expenditure on Nigeria's economic growth using an ARDL model. Results showed that while education and health individually had positive effects, their interaction term was highly significant but negative, indicating the current expenditure mix is harmful to the economy. The study recommended establishing an optimum expenditure mix to guarantee sustainable growth.

Ayuba (2014) examined the causal relationship between public social expenditure and economic growth in Nigeria (1990–2009) using VECM-based causality tests. Results showed unidirectional causality from economic growth to health expenditure, supporting Wagner's Law, and similar causality from growth to education and aggregate social expenditure. The study recommended increased budgetary allocations for education and health, strengthened education tax collection, multilateral donations, and improved allocative efficiency to enhance growth.

3.0 METHODOLOGY

This study used a positivist quantitative methodology with an ex post facto research design, utilizing annual time-series data from 1981 to 2025 obtained from the Central Bank of Nigeria. The theoretical construct incorporated Human Capital Theory, Endogenous Growth Theory, Keynesian Theory, and Wagner's Law. As all variables were anticipated to be integrated of order one (I(1)), the Johansen cointegration test was applied to identify long-run relationships, followed by estimation using the Vector Error Correction Model (VECM) to capture both short-run dynamics as well as long-run equilibrium adjustments. Theoretical estimates suggested positive coefficients for all expenditure variables; however, empirical results may differ due because of inefficiencies in expenditure composition, institutional quality, governance challenges, or structural impediments specific to Nigeria. Comprehensive pre-estimation, diagnostic, and post-estimation tests were conducted to ensure the stability and reliability of the empirical results.

3.1 Model for the Study

Following the theoretical framework and empirical literature, the functional relationship between social expenditure and economic growth is specified as:

$$LGDP = f\ (LEDU, L\ HTH, LTSCS) \qquad (1)$$

Where:

LGDP = Nominal Gross Domestic Product

LEDU = Government Expenditure on Education

LHTH = Government Expenditure on Health

LTSCS = Total Social and Community Expenditure (LEDU + LHTH)

The choice of this functional form is informed by Human Capital Theory, which posited that investment in education and health enhances labour productivity and consequently economic output. Endogenous Growth Theory further justifies the inclusion of these variables as endogenous drivers of long-run growth.

3.2 Model Specification

The model specification for this study is grounded in the theoretical framework linking social and community expenditure to economic growth. Following confirmation that all variables are integrated of order one (I(1)), the study adopted the Johansen cointegration approach, followed by the Vector Error Correction Model (VECM), to capture both short-run dynamics together with long-run equilibrium relationships among the variables. This approach is consistent with established econometric practice for modeling non-stationary time series that exhibit cointegration (Mills, 1999).

3.2.1 Log-Linear Functional Form

All variables are transformed to log values to enable interpretation of coefficients as elasticities, stabilize the series' variance, and linearize exponential trends commonly observed in macroeconomic time-series data. The log-linear functional relationship is specified as:

$$LGDPt = f(LEDUt, LHTHt, LTSCSt) \quad \ldots\ldots (2)$$

Where:

- $LGDP_t$ = Natural logarithm of nominal GDP at time t
- $LEDU_t$ = Natural logarithm of government expenditure on education at time t
- $LHTH_t$ = Natural logarithm of government expenditure on health at time t
- $LTSCS_t$ = Natural logarithm of total social and community expenditure at time t (computed as LEDU + LHTH)

This specification aligns with previous empirical studies on the relationships between public social expenditure and economic growth in Nigeria (Nkwagu et al., 2025; Ule-Jinanwa, 2025).

3.2.2 Vector Autoregressive (VAR) Representation

The Johansen cointegration approach begins with specifying a Vector Autoregressive (VAR) model of order k for the vector of endogenous variables Zt:

$$Zt = \mu + \prod_1 Z_{1-t} + \ldots\ldots + \prod_k Z_{t-k} + \varepsilon_t \quad \ldots\ldots (3).$$

Where:

- Z_t = [$LGDP_t$, $LEDU_t$, $LHTH_t$, LTSCS] ′ is a (4×1) vector of endogenous variables

- μ = (4×1) vector of deterministic terms (intercept and/or trend)
- Π_i = (4×4) matrices of coefficients for each lag i = 1, 2…, k
- ε_t = (4×1) vector of white noise error terms with zero mean and constant variance
- k = optimal lag length selected using information criteria (AIC, SIC, HQ)

3.2.3 Vector Error Correction Model (VECM) Representation

Following the confirmation of cointegration, the VAR model is reparameterised into its Vector Error Correction Model (VECM) form by subtracting Z_{t-1} from both sides:

$$\triangle Z_t = \mu + \Gamma_1 \Delta_{t-1} + \Gamma_2 \Delta Z_{t-2} + \ldots + \Gamma_{k-1} \Delta Z_{t-k+1} + \Pi Z_{t-1} + \varepsilon_t \ldots\ldots (4)$$

Where:

- $\Delta Z_t = Z_t - Z_{t-1}$ is the vector of first differences
- $\Gamma_i = -(I - \Pi_1 - \Pi_2 - \ldots - \Pi_i)$ are (4×4) matrices capturing short-run dynamics for i = 1,2…, k-1
- $\Pi = \alpha\beta'$ is the (4×4) long-run impact matrix decomposed into:
    - β = (4×r) matrix of cointegrating vectors representing the long-run equilibrium relationships
    - α = (4×r) matrix of adjustment coefficients (error correction terms) measuring the speed at which each variable adjusts to restore long-run equilibrium following a shock
- r = number of cointegrating relationships (rank of Π) determined by the Johansen cointegration test

All other terms are as previously defined

The VECM framework is particularly appropriate when variables are stationary at first difference and cointegrated, as it captures both short-run dynamics and long-run equilibrium adjustments (Loves et al., 2021). This approach has been widely employed in studies examining the relationship between public social expenditure and economic growth in Nigeria (Nkwagu et al., 2025; Ule-Jinanwa, 2025).

3.2.4 Expanded VECM Specification

For the system of four endogenous variables, the expanded VECM representation is specified equation-by-equation as:

Equation 1: GDP Growth Equation

$$\Delta LGDP_t = \alpha_{10} + \sum_{I-1}^{K-1} \gamma 11i\, \Delta LGDP_{t-i} + \sum_{i-1}^{k-1} \gamma 12i\, \Delta LEDU_{t-i} + \sum_{i-1}^{k-1} \gamma 13i\, \Delta LHTH_{t-i} + \sum_{i-1}^{k-1} \gamma 14i\, \Delta LTSCS_{t-1} + \lambda_1 ECT_{t-1} + \varepsilon_{1t} \ldots\ldots (5)$$

Equation 2: Education Expenditure Growth Equation

$$\Delta LEDU_t = \alpha_{20} + \sum_{I-1}^{K-1} \gamma 21i\, \Delta LGDP_{t-i} + \sum_{i-1}^{k-1} \gamma 22i\, \Delta LEDU_{t-i} + \sum_{i-1}^{k-1} \gamma 23i\, \Delta LHTH_{t-i} + \sum_{i-1}^{k-1} \gamma 24i\, \Delta LTSCS_{t-1} + \lambda_2 ECT_{t-1} + \varepsilon_{2t} \ldots\ldots (6)$$

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Equation 3: Health Expenditure Growth Equation

$$\Delta LHTH_t = \alpha_{30} + \sum_{I-1}^{K-1} \gamma 31i\, \Delta LGDP_{t-i} + \sum_{i-1}^{k-1} \gamma 32i\, \Delta LEDU_{t-i} + \sum_{i-1}^{k-1} \gamma 33i\, \Delta LHTH_{t-i} + \sum_{i-1}^{k-1} \gamma 34i\, \Delta LTSCS_{t-1} + \lambda_3 ECT_{t-1} + \varepsilon_{3t} \quad \text{......(7)}$$

Equation 4: Total Social Expenditure Growth Equation

$$\Delta LTSCS_t = \alpha_{40} + \sum_{I-1}^{K-1} \gamma 41i\, \Delta LGDP_{t-i} + \sum_{i-1}^{k-1} \gamma 42i\, \Delta LEDU_{t-i} + \sum_{i-1}^{k-1} \gamma 43i\, \Delta LHTH_{t-i} + \sum_{i-1}^{k-1} \gamma 44i\, \Delta LTSCS_{t-1} + \lambda_4 ECT_{t-1} + \varepsilon_{4t} \quad \text{......(8)}$$

Where:

- Δ denotes the first difference operator (all variables are I (1) and stationary in first differences)
- γ coefficients represent short-run dynamic relationships among the variables
- λ_1, λ_2, λ_3, λ_4 are the error correction coefficients measuring the speed of adjustment to long-run equilibrium
- $ECT_{t-1} = \beta' Z_{t-1}$ is the lagged error correction term derived from the cointegrating vector(s)
- ε_{jt} are white noise error terms

4.0 DATA ANALYSIS

4.1 Data Analysis

4.1.1 Descriptive statistics

Table 1: Descriptive statistics

	GDP	EDU	GDP	HTH	TSCS
Mean	52677.70	281.4236	52677.70	171.8545	641.0228
Median	13556.97	97.71137	13556.97	49.28761	164.4325
Maximum	213560.3	1926.385	213560.3	1198.947	4481.479
Minimum	139.3100	0.332258	139.3100	0.127282	0.591993
Std. Dev.	68649.33	414.4219	68649.33	260.5327	970.1291
Skewness	1.185907	2.209470	1.185907	2.186898	2.201064
Kurtosis	3.080319	8.187088	3.080319	8.004534	8.116613
Jarque-Bera	10.55992	87.06172	10.55992	82.82899	85.42210
Probability	0.005093	0.000000	0.005093	0.000000	0.000000
Sum	2370497.	12664.06	2370497.	7733.453	28846.03
Sum Sq. Dev.	2.07E+11	7556802.	2.07E+11	2986600.	41410622
Observations	45	45	45	45	45

Source: Author's computation using E-Views version 10 (2026)

Table 1 on descriptive statistics indicated positive skewness for all variables, with means exceeding medians: GDP averaged ₦52,677.70 billion (median ₦13,556.97), education ₦281.42 billion (median ₦97.71), health ₦171.85 billion (median ₦49.29), and total social and community services ₦641.02 billion (median ₦164.43). GDP demonstrated the highest

volatility (SD = ₦68,649.33), with values ranging from ₦139.31 to ₦213,560.30. Skewness values were 2.209 for education, 2.187 for health, 2.201 for total social and community services, and 1.186 for GDP. Kurtosis values indicate that education (8.187), health (8.005), and total social and community services (8.117) are leptokurtic, while GDP (3.080) is mesokurtic. The Jarque-Bera test rejected the null of normality ($p < 0.05$). Cumulative totals were ₦2.37 quadrillion for GDP, ₦28,846.03 billion for total social and community services, ₦12,664.06 billion for education (44%), and ₦7,733.45 billion for health (27%). The observed positive skewness and non-normality support the use of log transformations and robust estimators such as ARDL or VECM.

4.1.2 Unit Root Test

The unit roots in the series were detected using the Augmented Dickey-Fuller (ADF) test.

Table 2: Unit Root Test Outcomes

Variables	ADF Test Statistics – 5%	Critical Values	P-Values	Order of Integration
LGDP	3.796553	-3.518090	0.0263	Stationary at 1st Diff
LHTH	-10.47816	-2.931404	0.0000	Stationary at 1st Diff
LEDU	-5.676204	-3.526609	0.0002	Stationary at 1st Diff
LTSCS	-8.021324	-3.518090	0.0000	Stationary at 1st Diff

Source: Author's computation using E-Views version 10 (2026)

Table 2 presented the Augmented Dickey-Fuller (ADF) unit root test results for the four logged variables. The test results showed that all variables are integrated of order one, I(1), meaning they become stationary only after first differencing. Since all variables are I(1), the study proceeded with cointegration analysis using the Johansen approach to test for long-run equilibrium relationships among the series, and with the use of a Vector Error Correction Model (VECM) for the simultaneous estimation of both short-run dynamics along with long-run equilibrium adjustments.

4.1.3 VAR Lag Order Selection Criteria

Table 3: VAR lag order selection criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-99.18053	NA	0.001599	4.913358	5.078851	4.974018
1	45.84899	255.5282	3.45e-06	-1.230904	-0.403442*	-0.927607
2	72.50576	41.88922*	2.12e-06*	-1.738370*	-0.248938	-1.192434*
3	88.20502	21.67993	2.28e-06	-1.724049	0.427352	-0.935475

Source: Author's computation using E-Views version 10 (2026)

Table 3 on the VAR lag length selection analysis evaluated optimal lags from 0 to 3 using multiple information criteria. The Schwarz Criterion (SC) and Hannan-Quinn (HQ) criteria

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identified lag 1 as optimal, while Akaike Information Criterion (AIC) selected lag 2 as optimal. Given the consistency of AIC and FPE in finite observations and confirmation by the LR test, lag 2 was adopted as the optimal lag length. This corresponds to one lag in the Vector Error Correction Model (VECM), as the VECM utilizes p-1 lags of the differenced variables.

4.1.4 Correlation Matrix

Table 4: Correlation Matrix Result

Correlation Probability	LEDU	LGDP	LHTH	LTSCS
LEDU	1.000000 -----			
LGDP	0.984993 0.0000	1.000000 -----		
LHTH	0.993804 0.0000	0.987283 0.0000	1.000000 -----	
LTSCS	0.996515 0.0000	0.991972 0.0000	0.996392 0.0000	1.000000 -----

Source: Author's computation using E-Views version 10 (2026)

Table 4 on the correlation matrix revealed extremely strong positive relationships among all four variables, with correlation coefficients ranging from 0.984993 to 0.996515, all statistically significant at the 1 percent level (p = 0.0000). LTSCS exhibited the highest correlations with LEDU (0.996515) and LHTH (0.996392), consistent with its definition as the sum of education and health expenditures. The presence of correlations exceeding 0.98 among the independent variables indicates potential multicollinearity, warranting further diagnostic testing, such as a Variance Inflation Factor (VIF) analysis, to ensure the reliability of coefficient estimates.

4.1.5 Variance Inflation Factor - Multicollinearity Test

Table 5: Variance Inflation Factor

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.105588	49.07201	NA
LEDU	0.047107	468.0482	146.0121
LHTH	0.039068	314.0197	141.0464
LTSCS	0.074547	951.1496	250.4676

Source: Author's computation using E-Views version 10 (2026)

Table 5 on Variance Inflation Factor (VIF) results pointed to severe multicollinearity, with centered VIF values of 146.01 for LEDU, 141.05 for LHTH, and 250.47 for LTSCS, all substantially exceeding the acceptable threshold of 5. LTSCS had the highest VIF because it was derived as the sum of the other two variables. These extreme values confirmed that including all three expenditure variables simultaneously in a standard OLS regression would produce highly unstable and unreliable coefficient estimates. Consequently, the use of the Vector Error Correction Model (VECM) framework is justified, as it addresses multicollinearity by means of modeling joint relationships through cointegrating equations rather than treating the variables as direct regressors in a single equation.

4.1.6 Johansen Cointegration

Table 6a: Johansen Cointegration Test Results

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.445174	63.50083	47.85613	0.0009
At most 1 *	0.412046	38.16951	29.79707	0.0043
At most 2	0.237051	15.33189	15.49471	0.0529
At most 3	0.082399	3.697665	3.841466	0.0545
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.445``174	25.33132	27.58434	0.0945
At most 1 *	0.412046	22.83762	21.13162	0.0285
At most 2	0.237051	11.63423	14.26460	0.1252
At most 3	0.082399	3.697665	3.841466	0.0545

Source: Author's computations using E-Views version 10 (2026)

Table 6a on the Johansen cointegration test provided evidence of long-run equilibrium relationships among Nigeria's social expenditures and nominal GDP. The Trace test identified two cointegrating equations at the 5 percent significance level, whereas the Maximum Eigenvalue test indicated no cointegration at the 5 percent level but one relationship at the 10 percent level. Given the relatively small sample size of 45 observations and the Trace test's greater statistical power in restricted samples, r = 2 is adopted for the Vector Error Correction Model (VECM) specification.

Table 6b: Normalized Cointegrating Coefficients (r = 2)

COINTEGRATING EQUATION	LGDP	LEDU	LHTH	LTSCS
EQUATION 1	1.000000	0.000000	0.149092	-1.073586
			(0.26979)	(0.27833)
EQUATION 2	0.000000	1.000000	-0.366519	-0.578567
			(0.19643)	(0.20264)

Source: Author's computation using E-Views version 10 (2026)

With two cointegrating equations as presented in Table 6b, the normalized coefficients indicated meaningful long-run relationships. The first equation, normalized by LGDP, showed that total social and community expenditure (LTSCS) has a positive and significant long-run effect on GDP (coefficient = 1.0736, t ≈ 3.86), whereas health expenditure has a negative but statistically insignificant effect (coefficient = -0.1491, t ≈ 0.55). The second equation, normalized on LEDU, confirmed that education and health expenditures are positively related in the long run, with education positively associated with both health (coefficient = 0.3665) and total social expenditure (coefficient = 0.5786).

Table 6c: Error Correction Terms (Speed of Adjustment) – r = 2

Equation	CointEq1 Coefficient	t-Statistic	CointEq2 Coefficient	t-Statistic
D(LGDP)	-0.062742	-1.03	-0.005484	-0.07
D(LEDU)	0.789304	2.72*	-0.543389	-1.45
D(LHTH)	0.625955	2.00**	0.083947	0.21
D(LTSCS)	0.723982	3.15*	0.165623	0.56

Source: Author's computation using E-Views version 10 (2026)

Table 6c on the error correction terms revealed important adjustment dynamics. GDP is weakly exogenous, with adjustment coefficients of -0.0627 (t = -1.03) and -0.0055 (t = -0.07), indicating that social expenditures influence GDP rather than the reverse. All three expenditure variables display significant and rapid adjustment to restore long-run equilibrium: education expenditure adjusts at 78.9 percent annually (t = 2.72, p < 0.01), health expenditure at 62.6 percent annually (t = 2.00, p ≈ 0.05), and total social expenditure at 72.4 percent annually (t = 3.15, p < 0.01). These results proved the existence of stable long-run relationships and confirmed that social expenditures are critical drivers of economic growth in Nigeria.

4.1.7 Vector Error Correction Model Results

Table 7a: Long-Run Cointegrating Equation

Normalized on LGDP:

Variable	Coefficient	t-Statistic
LEDU	6.879739	5.2268***
LHTH	-3.962115	-3.3253***
LTSCS	-1.440962	-0.8882

**p < 0.01

Source: Author's computation using E-Views version 10 (2026)

Table 7a on the long-run cointegrating equation indicated that education expenditure has a strong positive effect on Nigeria's nominal GDP, with a coefficient of 6.88, statistically significant at the 1 percent level. This suggested that a 1 percent increase in education spending

is associated with a 6.88 percent increase in GDP over the long term. Conversely, health expenditure showed a significant negative long-run relationship, with a coefficient of -3.96, also significant at the 1 percent level, implying substantial inefficiencies in the health-sector resource allocation process. Total social and community expenditure does not exhibit a significant long-run effect on GDP (coefficient = -1.44, t = -0.89), likely due to the offsetting effects of the education and health components within the aggregate measure.

Table 7b: Error Correction Terms

EQUATION	COEFFICIENT	T-STATISTIC
D(LGDP)	0.0162	1.3643
D(LEDU)	0.1286	1.9465*
D(LHTH)	-0.0249	-0.3774
D(LTSCS)	0.0236	0.4446

$p < 0.10$

Source: Author's Computation using EVIEWS

Table 7b on the error correction term for GDP is positive and statistically insignificant (coefficient = 0.0162, t = 1.3643), confirming that GDP is weakly exogenous and does not bear the burden of adjustment to restore long-run equilibrium. Education expenditure shows a positive and marginally significant adjustment coefficient of 0.1286 (t = 1.9465, $p < 0.10$), indicating that approximately 12.9 percent of any disequilibrium is corrected annually through changes in education spending. Health expenditure and total social expenditure exhibited insignificant adjustment coefficients of -0.0249 (t = -0.3774) and 0.0236 (t = 0.4446), respectively, confirming that these variables do not adjust significantly to correct deviations from long-run equilibrium.

Table 7c: Short-Run Dynamics (GDP Growth Equation)

Variable	Coefficient	t-Statistic
D (LGDP (-1))	0.7175	4.0276***
D (LHTH (-1))	0.1225	1.6823*
D (LEDU (-2))	0.1138	1.5861

***$p < 0.01$; $p < 0.10$

Source: Author's Computation using EVIEWS

Table 7c on the short-run dynamics of GDP growth exhibited strong persistence, with the first lag exhibiting a highly significant positive effect of 0.7175 (t = 4.0276, $p < 0.01$), indicating that approximately 72% of previous growth is transmitted to current growth. Health expenditure displayed a marginally significant positive short-run effect on GDP growth, with a coefficient of 0.1225 (t = 1.6823, $p < 0.10$), suggesting that health spending provided modest

demand-side stimulus in the short term. Education expenditure at the second lag has a positive coefficient of 0.1138, but this effect is not statistically significant (t = 1.5861), confirming that the growth-enhancing benefits of education are realized primarily in the long run. Overall, these outcomes indicated that GDP growth is highly persistent and more responsive to health spending in the short run, whereas the positive effects of education require longer time horizons to manifest.

4.2 Post Diagnostic Tests

Table 8: Results of Post Diagnostic Tests

S/N	TEST	DECISION RULES	RESULTS	INTEPRETATIO
1	VEC Residual Serial Correlation LM Test	[a] If p-value > 0.05: Fail to Reject H_0. **Conclusion**: There is no serial correlation at that lag. Your model is statistically sound. [b] If p-value < 0.05: Reject H_0. **Conclusion:** There is serial correlation present. The model may be misspecified (usually requires adding more lags to the VEC model).	The joint test for lags 1 to 3 yielded a probability of 0.0610	model showed acceptable properties at higher lags
2	VEC Residual Normality Test	[a] If p-value > 0.05: Fail to Reject H_0. **Conclusion**: The residuals are normally distributed. This is the desired "Excellent" result for statistical inference. [b] If p-value < 0.05: Reject H0. **Conclusion**: The residuals are not normally distributed. There may be outliers or "fat tails" (kurtosis) in your data.	The joint Jarque-Bera statistic of 9.44 and a probability of 0.3065	. These results validated that the VECM residuals are well-behaved and normally distributed, providing confidence in the reliability of hypothesis tests, standard errors, and overall model inference
3	VEC Residual Heteroskedasticity Test	[a] If p-value > 0.05: Fail to Reject H0. **Conclusion:** The residuals are Homoskedastic. This means the variance is constant (stable), which is an "Excellent". [b] If p-value < 0.05: Reject H0. **Conclusion:** The residuals are Heteroskedastic. This means the variance changes over time, potentially making the standard errors and t-statistics unreliable.	Joint test statistic of 229.85 and a probability of 0.2453	The residuals are Homoskedastic. This means the variance is constant (stable),
4	AR Roots Stability Test	[a] Stable (Stationary) Model: All inverse roots must have a modulus less than 1. Visual: All dots must lie inside the unit circle. [b] Unstable (Non-Stationary) Model: At least one inverse root has a modulus greater than or equal to 1. Visual: At least one dot lies on or outside the unit circle.	The results ranged from 0.123 to 0.684	This means that the dynamic system converged to long-run equilibrium following any shock.

Source: Author's Computation using EVIEWS

4.3 Post Diagnostic Analyses

Table 9: Post Diagnostic Analyses

S/N	TEST	DECISION RULES	RESULTS	INTEPRETATION
1	Impulse Response Function	Rule: If the coefficient is positive, the relationship is pro-cyclical (the variables move together). If negative, it is counter-cyclical.	Starting from a modest response of 0.037 in Period 2, the impact climbed steadily to 0.094 by Period 10.	This suggested that investments in health do not yield immediate "overnight" growth but instead build a healthier, more productive workforce that sustained long-term economic expansion.
2	Variance Decomposition Results	The variable with the highest non-self-percentage is identified as the primary driver of that specific equation. High Contribution (> 20-30%): A variable is considered a significant driver or "endogenous" to the system. Shocks to this variable heavily influence the forecast error of the response variable. Low Contribution (< 5-10%): A variable is considered relatively exogenous or unimportant in explaining the target variable's fluctuations.	1. Variance Decomposition of LGDP (Economic Growth) Results (Period 10): Self (85.78%), LHTH (10.61%), LTSCS (2.42%), LEDU (1.16%). 2. B. Variance Decomposition of LEDU (Education) Results (Period 10): LGDP (43.10%), Self (46.49%), LHTH (6.61%), LTSCS (3.78%). 3. C. Variance Decomposition of LHTH (Health) Results (Period 10): LEDU (50.81%), LGDP (35.61%), Self (11.51%), LTSCS (2.05%). 4. D. Variance Decomposition of LTSCS (Infrastructure) Results (Period 10): LGDP (42.04%), LEDU (41.51%), Self (15.20%), LHTH (1.23%).	Policy interventions aimed at improving health must first ensure a stable economic environment and a robust educational foundation, as these two variables account for the vast majority of the variance in the rest of the system.
3	VEC Granger Causality Test	• **p-value < 0.05:** Evidence of Granger Causality (Reject H_0). • **p-value > 0.05:** No evidence of short-run Granger Causality (Fail to Reject H_0).	1. Health granger cause Education (0.0245) 2. All variables granger cause Education (0.0256)	1. Unidirectional causal flows from Health to education 2. Unidirectional causal flows from all variables to Education

Source: Author's Computation using EVIEWS

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5.0 DISCUSSION OF FINDINGS

The empirical results present nuanced insights into the relationship between social and community expenditure and economic growth in Nigeria. The Johansen cointegration test confirms the presence of long-run equilibrium relationships among government expenditure on education, health, and nominal GDP. Total social and community expenditure exhibits a strong positive long-run effect on GDP, showcasing the critical role of aggregate social spending in promoting economic growth. However, sectoral analysis shows divergent outcomes: education expenditure exerts a strong positive and statistically significant effect on economic growth, consistent with Human Capital and Endogenous Growth Theories. This finding indicates that investments in education generate considerable returns through increased productivity and output.

In contrast, health expenditure shows a significant negative long-run relationship with GDP, contrary to theoretical expectations. This result underscores persistent inefficiencies in the allocation and utilization of health-sector resources, suggesting that increased spending does not necessarily lead to enhanced health outcomes or greater economic productivity. System-wide challenges, including poor governance, resource misallocation, and infrastructure deficits, may undermine the effectiveness of health expenditure. Additionally, short-run dynamics confirm that while past GDP growth is the primary driver of current output, the effects of health expenditure are more complex and may at times crowd out resources for other social sectors.

The error correction mechanism further indicates that education expenditure, rather than GDP, bears the primary responsibility for adjusting to restore long-run equilibrium following shocks. This finding supports a causal direction from social expenditure to economic growth, contrary to Wagner's Law, and supports the crucial importance of sustained investment in human capital.

The findings indicate that policymakers should prioritize improving the quality and output of health spending by carrying out comprehensive actions to address governance and institutional weaknesses, while also maintaining and increasing investment in education. This strategic priority is essential to achieving sustained, inclusive economic growth in Nigeria.

6.0 CONCLUSION

This study assessed the impact of social and community expenditure, particularly education and health spending, on economic growth in Nigeria using time-series data from 1981 to 2025. The analysis, grounded in well-known theoretical frameworks and validated by advanced econometric techniques, shows that while aggregate social expenditure promotes growth, the sectoral composition of spending is fundamental. Education expenditure functions as a significant driver of long-term economic growth, whereas the effectiveness of health expenditure is constrained by institutional inefficiencies.

The results highlight the need for Nigeria to improve the management and targeting of health-sector resources, enhance the efficiency of education spending, and promote policy coherence across social sectors. Addressing these challenges is essential for realizing the full potential of social expenditure in achieving sustainable economic development.

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7.0 RECOMMENDATIONS

Based on the empirical findings, it is recommended that the government prioritize educational investment by increasing budgetary allocations and ensuring efficient resource utilization to maximize growth outcomes. Comprehensive health sector reforms are essential to improve governance, reduce resource wastage, and translate health spending into measurable productivity gains. Robust monitoring and evaluation frameworks should be established to assess the effectiveness of social and community services expenditure through clear performance benchmarks and accountability mechanisms. Inter-sectoral policy coordination should be promoted to optimize investment synergies across education and health services, and public-private partnerships should be encouraged to leverage additional resources and enhance service delivery. Effective implementation of these strategic recommendations will help ensure that public expenditure in Nigeria drives sustained, inclusive economic growth.

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