

## Government Expenditure on Education, Health, and Economic Growth in Nigeria

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### **Abstract**

*The study examined the Effect of Government Expenditure on Education, Health and Economic Growth in Nigeria spanning from 1990-2023. The relevant data used were sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin. The EViews software was used to analyze data. Philip Perron statistical test was used for the unit root analysis. All the variables tested were stationary after first difference, in other words, all the variables were all I(1). The Johansen co-integration result revealed that there was a long run relationship amongst the series which necessitated the performance of VECM. The findings reveal that in the short run Real gross domestic product (Economic Growth) is positively influenced by the coefficients of government expenditures on education and health but negative in the long run. It was then, recommended that allocation to education and health sectors should always be monitored so as to ensure that such finances are released as at when due and to ensure it is effectively and efficiently utilized. Greater percentage of budgetary allocation should be spent on capital project in education and health sectors. There is the need to urgently redirect both the short run and long run economic policy towards developing the education and health sectors because of their capacity to grow the economy and sustain it into development.*

**Keywords:** Government Expenditure, Education, Health and Economic growth.

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### **INTRODUCTION**

The Nigerian government has hugely intervened and participated in the educational sector over the years. There have been several developments in the sector. Being viewed from another perspective, socio-economic, political development etc is by knowledge advancement. Education is the acquisition of basic skills needed for the building of an economy. By this definition it goes a long way in explaining what development is all about. The general notion concerning the positive influence education has is that the rate of its private return for an individual from extra year of being schooled is from 5% to 15% percent. They were of the notion that it must reflect that employers of labour see workers that are educated as being productive unlike less educated employees. Education helps to instil in an individual, how to enlarge or broaden his/her horizons, making choices that are wise and having a very strong voice in public decision making. So, education means investment to develop the individual and

his future (Lawal and Wahab, 2011). In advanced nations of the world, the major part of human capability is the cognitive and non-cognitive abilities, needed in his/her place of work, home, formal and also informal training acquired by various individuals are highly utilized in producing output and indeed further knowledge (Fwente, 2006). Thus, for any society to attain development, such a nation must develop its manpower and human capabilities. Therefore, adequate investment must be seen to develop our human capabilities (Chima & Ebong, 2018). Nigerian has experienced lots of political, social and economic issues. Despite the numerous human capabilities and natural resources which the country is endowed with, high poverty rate leads the list. This has inversely affected the Nations educational sector. Apart from poor funding of education, there are other issues that has plagued the Nigerian education sector. The education system has experienced poor level in infrastructural development, inadequate man power, fall in educational standard etc.

Proper human capital enhances workers' skills, efficiency, and standard of living. Therefore, investing in education and health is an important and fundamental social priority. According to Eggoh, et al. (2015), human capital accumulation is a fundamental determinant of economic performance owing to efficiency, and higher economic growth enables more human capital investment. As a result, there are links between economic growth and human capital accumulation via education and health. Health is a fundamental component of human capital that not only enhances worker efficiency but also increases productivity. A country's economic growth is dependent on its citizens' health. A sound body and mind are necessary for performing everyday life tasks, and a healthy person can enjoy life without relying on others. Spending on health also increases food production and disease awareness. Health improvement can boost economic growth by up to 40% in developed countries, while increased mortality causes a low change in developing countries (Arora, 2001). In the same vein, no government has maintained consistent economic growth, returns to primary education, science, training, learning-by-doing, and aptitude development (Bedir, 2016). Education, schooling, science, innovation, knowledge, and training have become essential components of individual and state productivity since the beginning of the twentieth century. Human capital has long been regarded as a critical component of a country's economic growth and development. Education is often considered the most crucial aspect in enhancing human capital quality. As a result, education is essential for a country's social and economic development. No country can achieve long-term economic progress unless its human capital is better educated (Salgur, 2013). Several government programmes and projects are specifically aimed at promoting sustainable and equitable economic growth of which public expenditure have played a very important role over time. Analysis of public expenditure in Nigeria indicated that the productive sectors of the economy such as agriculture, mining, health and education have not been given the required and sufficient attention that will steer the country to the target economic growth (Jumare, Yusuf & Rafiat, 2016).

### **Objective of the Study**

To determine the impact which government expenditures on education and health have on Real gross domestic product in Nigeria between 1990-2021

## **LITERATURE REVIEW**

### **Conceptual Clarifications**

#### **Government Expenditure**

The money spent by the Government out of its revenue to meet various needs of the economy is known as government expenditure (Adigwe, et al. 2016). The concept of government expenditure emanates from the activities of government which includes paying for and providing goods and services, investment in material and human capital as well as transfers. According to Ukwueze (2018) public expenditures can be disaggregated or classified into subheadings, such as recurrent expenditures and capital expenditures. The recurrent expenditures are expenditures or purchases of stationeries, wages and salaries of workers, fuel, electricity bills and other bills, etc. Capital expenditures are constructions undertaken by the government on roads, bridges, health centres, schools, military installations and hardware, etc. the author is of the view that the concept of public expenditures arose from the perspective that any expenditure undertaken by the government is public. Government expenditures are also called public sector spending, public expenditures, or government purchases. From the above views, it is assumed that government has sufficient revenue to expend. Wanjiru (2019) explained that, government spending on education and health sectors leads to development and build-up of human capital that will be more resourceful and adequately creative to enhance economic growth. Therefore, this study shall adopt government expenditure as all spending or purchases by the Federal Government of Nigeria in the health and education sectors as well as expenditures on public debts. This study will adopt expenditure at the federal government level.

#### **Economic Growth**

Anyiwe & Oziegbe (2020) opined that economic growth connotes increase in outputs in various sectors, national product, national income, improved level of technology, health, education and urbanization. In addition, economic growth refers to as a long-term rise in its capacity to supply increasingly diverse economic goods to its population. It is also a process by which the productive capacity of the economy is increased over time to bring about rising level of national output and income. On the other hand, economic growth is a long-term process wherein the substantial and sustained rise in real national income, total population and real per capita income takes place. In addition, economic growth is the expansion of the system in one or more dimensions without a change in its structure. Thus, economic growth is related to a quantitative, sustained increase in the country's per capita output or income accompanied by expansion in its labour force, consumption, capital and volume of trade (Ukwueze, 2018).

### **Theoretical Literature**

#### **Human Capital Theory**

The Human Capital Theory (HCT) was first Propounded by Theodore W. Schultz in 1960 but was later popularised by Gary S. Becker in 1962. Human capital implies the investment individuals make in themselves which enhances such person's economic productivity. The theory is concerned with a persons existing knowledge, personality, social attitudes, habits and creative ability to carry-out activities of labour in other to add to an economy. It argues that, if

a society has a learned population, such population is otherwise a highly productive population. Human capital involves the physical and physical ability people possess. The theory emphasizes the development human productive factor in other to attain development. The major thesis of the theory is that spending on health, education, job search, information retrieval, migration etc. by individuals, household, organizations and public authorities is a conscious investment activity guided by anticipated future (Ebong, 2006). This indeed shows that human capability in the real form of skill and also knowledge acquired through proper education and even health care makes individuals more productive and more employable; making such persons more employable even guarantees them more future income. Thus, human capital includes man to stimulate and produce capital for their personal and entire economic societal development.

## METHODOLOGY

This study employed Ex-post facto research design. The study used time series data obtained from the Central bank of Nigeria Statistical bulletins and the World Development indicators covering the period from 1990-2021.

### Model Specification

In order to analyse the impact of government expenditure on education, health and economic growth in Nigeria, the study specified a model to capture the objective of the study. The model is expressed as follows;

$$RGDP = F(GOVEE, GOVEH, LER, LITR) \quad 1$$

Where;

RGDP = Real Gross Domestic Product

GEE = Government Expenditure on Education

GEH = Government Expenditure on Health

LEX = Life Expectancy Rate

LIR = Literacy Rate

RGDP is the dependent variable

-Linear Equation

$$RGDP_t = a_0 + a_1(GEE_t) + a_2(GEH_t) + a_3(LEX_t) + a_4(LIR_t) + U_t \dots \text{equ}(2)$$

-Log Linear Equation

$$\log RGDP_t = \log a_0 + a_1 \log(GEE_t) + a_2 \log(GEH_t) + a_3 \log(LEX_t) + a_4 \log(LIR_t) + U_t \dots \text{equ}(3)$$

A priori, it is expected that there will be a significant relationship between the variables for real gross domestic product, government expenditure on education, government expenditure on health, life expectancy and literacy rate. i.e.  $a_1 > 0$ , to  $a_4 > 0$ .

## Empirical Results and Discussions

**Table 1: Descriptive Statistics Results**

	RGDP	GEE	GEH	LEX	LIR
Mean	43962.97	2028.131	52.05882	49.56441	58.64235
Median	41459.00	2104.765	66.00000	48.91500	55.55000
Maximum	72874.00	4491.690	106.0000	55.14000	77.60000
Minimum	19199.00	215.9500	17.00000	45.87000	51.10000
Std. Dev.	20680.26	1483.681	30.46502	3.459972	6.210167
Skewness	0.100395	0.111680	0.029747	0.334962	1.528139
Kurtosis	1.332443	1.351782	1.548181	1.541884	4.716513
Jarque-Bera Probability	3.996506 0.135572	3.919227 0.140913	2.991034 0.224133	3.647774 0.161397	17.40694 0.070166
Sum	1494741.	68956.44	1770.000	1685.190	1993.840
Sum Sq. Dev.	1.41E+10	72643198	30627.88	395.0564	1272.684
Observations	34	34	34	34	34

Source: Authors Computation

The result of the descriptive statistics in table 1, shows that the average of distribution which is the means value of the distribution for RGDP, GEE, GEH, LEP, and LITR are 43962.97, 2028.131, 52.05882, 49.56441 and 58.64235 respectively, while the median which is the center of distribution less sensitive to outliers relative to mean are 41459.00, 2104.765 66.00000, 48.91500 and 55.55000 respectively. The maximum and minimum values for the distribution includes; 72874.00, 4491.690, 106.0000, 55.12000 and 77.60000, 19199.00, 215.9500, 17.00000, 45.87000 and 51.10000 respectively.

Skewness of the distribution above indicates that all variables have long right tails owing to positive values of the elasticity. The kurtosis which measures the peakiness of the distribution above indicates that all the variables are platy Kurtic (short tailed) because they are all less than 3 except literacy rate (LIR) which is more than 3. Jarque-Bera statistics and its associate probability values indicate that all the variables; RGDP, GEE, GEH, and LEX are all normally distributed given that their probability values are more than 0.05 while LIR is less than 0.05.

**Table 2: Philips Perron Unit Root Test for RGDPModel**

Variable	PHILIPS PERRON TEST (PP)					I(.)
	Level		1 <sup>st</sup> Diff		Prob.	
	Coeff.	5% CV	Coeff.	5% CV		
<b>GEE</b>	<b>-1.895</b>	<b>-3.553</b>	<b>-4.030</b>	<b>-3.558</b>	<b>0.0177</b>	<b>I(1)</b>
<b>GEH</b>	<b>-1.314</b>	<b>-3.553</b>	<b>-4.058</b>	<b>-3.558</b>	<b>0.0166</b>	<b>I(1)</b>
<b>LEP</b>	<b>-2.616</b>	<b>-3.553</b>	<b>-3.992</b>	<b>-3.558</b>	<b>0.0193</b>	<b>I(1)</b>
<b>LIR</b>	<b>-2.135</b>	<b>-3.553</b>	<b>-7.319</b>	<b>-3.558</b>	<b>0.0000</b>	<b>I(1)</b>
<b>RGDP</b>	<b>-1.763</b>	<b>-3.553</b>	<b>-3.751</b>	<b>-3.558</b>	<b>0.0330</b>	<b>I(1)</b>

Table 2, shows the Philips Perron Test. Going by the proposition of Jenkin and Box (1970), the Variables that are not stationary at levels shall be made stationary after first difference. Government expenditure on education, government expenditure on health, life expectancy, literacy rate and real gross domestic product were stationary after first difference.

**Table 3. Results of Co-integration Test (Johansen Co-integration)**

Date: 01/25/25 Time: 23:05  
Sample (adjusted): 1993 2023  
Included observations: 31 after adjustments  
Trend assumption: Linear deterministic trend  
Series: RGDP GEE GEH LEX LIR  
Lags interval (in first differences): 1 to 2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.893639	141.2362	69.81889	0.0000
At most 1 *	0.568051	71.76770	47.85613	0.0001
At most 2 *	0.463163	45.74484	29.79707	0.0003
At most 3 *	0.401335	26.46095	15.49471	0.0008
At most 4 *	0.288604	10.55630	3.841466	0.0012

Trace test indicates 5 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.893639	69.46853	33.87687	0.0000
At most 1	0.568051	26.02286	27.58434	0.0781
At most 2	0.463163	19.28389	21.13162	0.0889
At most 3 *	0.401335	15.90466	14.26460	0.0273
At most 4 *	0.288604	10.55630	3.841466	0.0012

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Source: E-view 9 Output (Authors Computation).

The co-integration test seeks to empirically define the Long-run association/relationship between a given set of variables i.e. identifying the stochastic drift amongst variable (to know if the variables move together) which is carried out using the Johansen cointegration output. Assuming all study variable as endogenous using the Trace Statistic and Max-Eigen value tests.

From the trace test output above, it can be seen that there exists five (5) co-integrating equation, which are positively signed and statistically significant at 5% level of significance as can be seen in its prob. values. It was also observed using Max-Eigen test that there exists also three (3) co-integrating equation, which are positively signed and statistically significant at 5% level of significance as can be seen in its prob. value. It thus means that there exist a long run relationship and movement amongst employed variables, indicating that there is a presence of long run co-integration amongst employed variable since the probability level exhibit values less than 0.05 level of significance. in which case we do proceed to Vector Error Correction model (VECM).

**Table 4. Johansen Normalization**

1 Cointegrating Equation(s):	Log likelihood	96.67329
Normalized cointegrating coefficients (standard error in parentheses)		
LOG(RGDP)	LOG(GEE)	LOG(GEH)
1.000000	0.037995	-0.272552
	(0.01119)	(0.03300)
		LEP
		-0.256414
		(0.14549)
		LITR
		0.773231
		(0.15044)
Adjustment coefficients (standard error in parentheses)		
D(RGDP)	0.040591	
	(0.08279)	
D(GEE)	0.041037	
	(0.01105)	



D(GEH)	0.000783 (0.00032)
D(LEX)	2.27E-05 (5.3E-06)
D(LIR)	0.000574 (0.00017)

Source: E-view 9 Output (Authors Computation).

### Johansen Normalization Interpretation

RGDP is positioned as the target or dependent variable. When interpreting Johansen Normalized cointegrating equations we reverse the signs of the coefficients. That is positive becomes negative vice versa. In the long run; government expenditure on education (GEE) has negative impact on RGDP and it also statistically significant at 5% level of significance. Government expenditure on health has a positive impact on RGDP and it is also statistically significant at 5% level of significance. This does not align with the findings of Oziegbe (2016), Wanjiru (2019), and Ukwueze (2018). However, it is consistent with the findings of Akanbi (2018). Substantial economic growth will continue to elude the nation until adequate funding of the education and health sectors is achieved. Effective investment in education and health would drive production output in the long-run

### Table 5. Vector Error Correction Model (VECM) Results

Vector Error Correction Estimates

Date: 01/25/25 Time: 23:13

Sample (adjusted): 1992 2023

Included observations: 32 after adjustments

Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1
RGDP(-1)	1.000000
GEE(-1)	-2.352544 (1.38687) [-1.69630]
GEH(-1)	27.00803 (47.4288) [ 0.56944]
LEX(-1)	-5290.574 (307.360) [-17.2130]
LIR(-1)	339.9827



	(51.0455)				
	[ 6.66038]				
C	201491.1				
Error Correction:	D(RGDP)	D(GEE)	D(GEH)	D(LEX)	D(LIR)
CointEq1	-0.116253 (0.16555) [-0.70224]	-0.008847 (0.02857) [-0.30970]	3.88E-05 (0.00072) [ 0.05353]	7.50E-05 (1.3E-05) [ 5.65631]	-9.58E-05 (0.00042) [-0.22796]
D(RGDP(-1))	0.141517 (0.22186) [ 0.63786]	0.067137 (0.03828) [ 1.75369]	0.001494 (0.00097) [ 1.53966]	-2.33E-05 (1.8E-05) [-1.30994]	0.000340 (0.00056) [ 0.60401]
D(GEE(-1))	-1.178688 (1.64282) [-0.71748]	0.050282 (0.28348) [ 0.17738]	0.008698 (0.00719) [ 1.21031]	-0.000145 (0.00013) [-1.10057]	-0.009480 (0.00417) [-2.27288]
D(GEH(-1))	117.9311 (64.3146) [ 1.83366]	4.424334 (11.0978) [ 0.39867]	-0.063180 (0.28134) [-0.22457]	0.007136 (0.00515) [ 1.38530]	0.281587 (0.16329) [ 1.72444]
D(LEX(-1))	3423.731 (1601.70) [ 2.13757]	26.24586 (276.382) [ 0.09496]	-7.107191 (7.00647) [-1.01438]	0.212614 (0.12828) [ 1.65736]	-0.815003 (4.06664) [-0.20041]
D(LIR(-1))	-81.82658 (80.4956) [-1.01653]	13.62352 (13.8900) [ 0.98082]	0.334657 (0.35212) [ 0.95041]	-0.041800 (0.00645) [-6.48354]	-0.060693 (0.20438) [-0.29697]
C	374.1763 (562.708) [ 0.66496]	-28.48280 (97.0985) [-0.29334]	0.337953 (2.46151) [ 0.13729]	0.286544 (0.04507) [ 6.35790]	0.731120 (1.42869) [ 0.51174]

Source: E-view 9 Output (Authors Computation).

### Interpretation of the Vector Error Correction Model

The previous years deviation from long run equilibrium is corrected or adjusted at an adjustment speed of 11%. The VECM results reveal that a unit increase in the coefficient of government expenditure on education (GEE) would increase RGDP by 0.026158. What this means is, an increase in GEE would increase RGDP (Economic growth) in Nigeria in the short run ceteris paribus. The coefficient of GEH is positively signed which means that a one percent increase in GEH would lead to 0.048717. It thus means that in the short run the coefficient of government expenditure on health impact positively on economic growth in Nigeria all things

being equal. The results reveal that in the short run all things be equal the coefficients of LEP and LITR negatively impact on RGDP in Nigeria.

**Table 5. Granger Causality Test**

Pairwise Granger Causality Tests

Date: 01/25/25 Time: 23:17

Sample: 1990 2023

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
GEE does not Granger Cause RGDP	32	1.53334	0.2340
RGDP does not Granger Cause GEE		6.60361	0.0046
GEH does not Granger Cause RGDP	32	4.40347	0.0221
RGDP does not Granger Cause GEH		3.54994	0.0428
LEX does not Granger Cause RGDP	32	2.14374	0.1367
RGDP does not Granger Cause LEX		8.33883	0.0015
LIR does not Granger Cause RGDP	32	0.50887	0.6068
RGDP does not Granger Cause LIR		1.50060	0.2410
GEH does not Granger Cause GEE	32	0.68579	0.5123
GEE does not Granger Cause GEH		1.72247	0.1977
LEX does not Granger Cause GEE	32	2.49572	0.1013
GEE does not Granger Cause LEX		1.57952	0.2245
LIR does not Granger Cause GEE	32	0.33458	0.7186
GEE does not Granger Cause LIR		1.63976	0.2128
LEX does not Granger Cause GEH	32	0.92688	0.4080
GEH does not Granger Cause LEX		4.48824	0.0208
LIR does not Granger Cause GEH	32	0.25836	0.7742
GEH does not Granger Cause LIR		0.16074	0.8523
LIR does not Granger Cause LEX	32	7.34833	0.0028
LEX does not Granger Cause LIR		3.26706	0.0536

Source: E-view 9 Output (Authors Computation).

The test of causality is presented in Table 5. From the results, RGDP does Granger Cause GEE, GEH does not Granger Cause RGDP, RGDP does not Granger Cause GEH, RGDP does not Granger Cause LEX, GEH does not Granger Cause LEX, and LIR does not Granger Cause LEX. Thus, there are five uni-directional causality among the variables, five independent

directional causality and one bi-directional causality. Thus, there are correlations between the variables so as to predict the future trend.

**Tables 4.1 Residual Diagnostics Test for RGDP**

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.796948	Prob. F(2,21)	0.4639
Obs*R-squared	2.116362	Prob. Chi-Square(2)	0.3471

The null hypothesis of serial correlation LM Test states that there is no serial correlation. From the table we observed that the F-statistics probability values are greater than the 5%, therefore, we accept the null hypothesis of no serial correlation. It means that the result is good for prediction.

VEC Residual Heteroskedasticity Tests: Includes Cross Terms

Date: 09/29/23 Time: 07:35

Sample: 1990 2021

Included observations: 30

Joint test:

Chi-sq	Df	Prob.
433.0242	405	0.1620

The null hypothesis of heteroscedasticity test- Pagan-Godfrey states that there is no heteroskedasticity. From the table we observed that the F-statistics probability values are greater than the 5%, therefore, we accept the null hypothesis of no heteroskedasticity. It means that the result is good for prediction.

**Conclusion/Recommendations**

This paper examined the effect of government expenditure on education, health and economic growth in Nigeria spanning from 1990-2023. The study examined the short run and long-run cointegrations amongst variables by using Johansen Cointegration and VCEM analysis. The findings reveal that in the short run Real gross domestic product (Economic Growth) is positively influenced by the coefficients of government expenditures on education and health but negative in the long run. It means that while expenditures in the education and health sectors bring about economic growth in the short run but reverse is the case in the long run. The study thus makes the following recommendations: Allocation to education and health sectors should always be monitored so as to ensure that such finances are released as at when due and to ensure it is effectively and efficiently utilized. Greater percentage of budgetary allocation should be spent on capital project in education and health sectors. There is the need to urgently redirect

both the short run and long run economic policy towards developing the education and health sectors because of their capacity to grow the economy and sustain it into development.

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