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AN EMPIRICAL ASSESSMENT OF HEALTH EXPENDITURE ON ECONOMIC GROWTH IN NIGERIA

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ABSTRACT
This paper empirically investigates the impact of health expenditure on economic growth that was measured by the Gross Domestic Product (GDP) during the period (1986-–2021). The researcher chose GDP as a dependent variable and five independent variables namely; Total Government expenditure on health, Total government expenditure on education, Life expectancy at birth, educational enrolment, and gross capital. The data were sourced from world development index, central bank of Nigeria annual reports and analysed by means of descriptive statistics, unit root tests and cointegration techniques. The result of the estimation revealed that TGED found to be positive and statistically significant, total government expenditure on health appeared to be negative, but statistically significant at the 5% level of significance. Also, the result further indicates negative relationship between educational enrolment and economic growth but statistically significant at 5% level of significance. Life expectancy at birth (LLB) result revealed negative relationship, while the coefficient of GCF is positive and statistically significant. However, with the exception of educational enrolment and total government expenditure on education no evidence of any short-run causality observed from public spending on health to economic growth. This study recommends that government at various levels should strongly pursue health policies and programmes to create free conditions for boosting the level of welfare through increase in health sector budget to achieve sustainable economic growth and transformation.

Key words: Public Health Expenditure, Educational Enrolment, Government Expenditure on Education, Economic Growth, Co-integration, Causality.

1.0 Background to the Study
The importance of a health as a working population to economic growth cannot be over emphasized since it's often regarded as a catalyst that provides an infinite basis for sustainable economic development. Investing in health can boost labour efficiency,

resulting in higher revenues and subsequent resulted, in better quality of life for the people. When an active agent is in good health, there is a greater incentive to embrace and learn new skills and knowledge since labor is expected to derive long-term advantages. Workers with bad health, on the other hand, have a negative impact on production, which explains why many Nigerian states are developing unevenly. Illness and short life expectancy are responsible for 50% of the difference in economic growth between developing and industrialized countries (WHO 2019).

The economic wellbeing of every society is raised by change in technology and part of this change is due to advances in medical science, since healthcare is a core component of human capital investment, rising national healthcare spending would tend to raise labor productivity, quality of life and general welfare. Healthcare spending has also been credited for prolonging life expectancy, and reducing morbidity and infant mortality rates (Lawanson 2021). Therefore, it can be stated that health is a significant form of human capital and there is a close relationship between the health level of society and its economic development.

Nigeria devotes a significant portion of its financial resources to health care because it believes that the health of its citizens may be a major engine of economic growth. Because health equals wealth, no amount spent on it by a country is considered excessive. The United Nations (UN) advised that a country spend an average of 8 to 10% of its GDP on health as a benchmark.

Over the years, Nigerian governments have made concerted efforts to ensure that public spending on health has increased. For example, capital expenditure on health increased from N7.3 million in 1970 to N126.75 million in 1987. There was a considerable increase to N297.96m in 1988. The figure continuously increased at increasing rate for instance between 1993 the amount rose from N586.2 million to N17717.42, N33396.97 and N34647.9million in 2003, 2005 and 2007 respectively. The capital expenditure on health also jumped from N64922.90 million in 2008 to N98211.51 million in 2010. The trend of expenditure approach in Nigeria further confirmed that only few amounts of outlay earmarked for health sector are spent on health while the remaining are diverted to unintended source. As of 2018, the annual budget on health in Nigeria is approximately equalled to 3.89 percent of the country's GDP. Also, as of 2019 the expenditure on health in Nigeria equalled to 3.03 percent of the country's GDP. The figures dramatically upsurge from N190.71 billion in 2019 to 11329.78, 1477.77 billion between 2020 and 2021 respectively (CBN Statistical Bulletin 2021). The above trends clearly showed that health care expenditure in Nigeria has been on the increase over the years. Even though the fund

injected to the health sector is not enough to adequately to take of the what is required in the sector but indicates a slight improvement compared to previous years in the past.

The improvement in health status in Nigeria greatly possesses huge challenges and often experience large-scale health problems, such as high infant mortality rate and low life expectancy, are as a result of the inadequate health resources and infrastructure. Available statistics revealed that apart from limited healthcare budget that is far below than what is required in the health sector, the few health infrastructures available are lopsided between urban-rural areas. Accessibility of improved healthcare services aimed at reducing mortality and financial risk among the population does not keep pace with the rate of population growth. This clearly exposed the poor commitment of the Nigeria as a nation to improved health care provisions and deliveries system.

Nigeria's health status is ranked low when compared to other developing nations in the same category (World Bank 2012). Life expectancy is put at 52 years in 2011 and the death rate, in that same year account for 14%. It is anticipated that 124 out of every 1000 new born babies will not live to see their fifth birthday, only 39.56 percent of men and 42.25 percent of women live to be 65. In 2020, life expectancy at birth for Nigeria between 1988 to 2020 has witness upsurge at annual rate of 0.58%. More precisely, the total life expectancy at birth for Nigerians increased from 41.39 years in 1971 to 55.02 years in 2020 growing at an average annual rate of 0.58%. In 2021, life expectancy at birth in Nigeria was estimated at about 60.87 years. These figures indeed shows that normal life expectancy for male is 59 years while that for female stood at 63 years. The numbers significantly indicates that Life expectancy at birth in Nigeria is among the bottom list in Africa as well as in the world (WHO Global Data Base 2021).

However, despite the rise in government disbursement on health care provisions in Nigeria the contribution of this to human health are still marginally low. Moreover, the extent and magnitude of its impact on economic growth is yet to be adequately investigated and ascertain. In order to ensure that health sector play a significant role in enhancing human resources development, there is need for Nigeria to embark on comprehensive review of the public expenditure on health sector focusing on the identification and eliminate all obstacles that militate against the judicious utilization of fund allocated to health sector. This will ensure that public expenditure plays its fundamental role of developing individual productive capacity for the Nigerian’s.

While reviewing literature from empirical perspective It has been observed that previous studies such as Lee & Jei (2019) ; Wong (2021) ; Lawanson & Umar (2021) ; Danladi,

(2021) relied upon the use of fully modified OLS, Johansen co-integration technique, Quartile Regression Model and ordinary least square as major techniques of analysis. Their method of analysis and diagnostic tests might suffer from the restrictive assumptions of stationary since in the presence of "a large finite sample OLS estimates may suffer from serial correlation and heteroskedasticity because the omitted dynamics are captured by the residual so that inference using the normal tables will not be valid even asymptotically. Therefore, "t" statistics for the estimates OLS estimates are ineffective.

Moreover, the available literature is not exhaustive to produce an acceptable conclusion regarding the relationship between public health expenditure and economic growth. The study will also hope to add to the available literature on the area of the study by providing fresh input for policy makers and point some areas for other researchers who may want to further their studies.

It is in the light of the above that this study seeks to empirically investigate whether there is a relationship between healthcare expenditures and economic growth in Nigeria, over the period 1986-2021 using annual time series data.

1.2 Research Questions

The study is guided by the following specific questions.

1. How government expenditure on health cointegrate with economic growth in Nigeria over time?
2. What are the nature and magnitude of impact of health expenditure on economic growth in Nigeria?
3. What is the nature of causal relationship between health expenditure and economic growth

1.3 Objectives of the Study

The broad objective of the study is to empirically examine impact of health expenditure on economic growth over the period 1986-2021 using annual time series data.

Other specific objectives are as follows:

1. To investigate extent to which health cointegrate with economic growth in Nigeria.
2 To examine nature and magnitude of impact of public expenditure on health and economic growth.
3 To empirically examine the direction of causality between public health expenditure and economic growth in Nigeria.

2. Literature Review

Empirical research regarding the relationship between health expenditure and economic growth indicate that improvements in health affect level of individual performance and thus increase in aggregate production of goods and services. When education and health are combined together and considered as major components that enhances the ability of productive capacity of human resources, it is a believed that investments made in these fields will automatically help to accelerate economic growth both in the long and short run. However, arguments on the impact of public health expenditure on economic growth remain inconclusive. For instance, Wang and Lee (2018) conducted a study to analyze this relationship in 24 different countries. By using regression analysis, it is determined that health care expenditure has a significant contribution to the economic growth. Moreover, Piabuo and Tieguhong (2017), Naidu and Chand (2013), Ogundipe and Lawal (2011), also reached the similar result by using the same methodology. Furthermore, Erçelik (2018) and Atılgan et. al. (2017) identified that health care expenditure has a positive influence on economic development with the help of ARDL methodology.

Additionally, using principal component analysis (PCA) as a technique of analysis, OJO (2022) measure the impact of government health expenditure on economic growth using variables such as the education expenditure index (EEI) and the health expenditure index (HEI), as well as other explanatory factors such as inflation (INF), life expectancy rate (LER), maternal mortality rate (MMR), and GDP growth. The empirical result indicates presence of positive relationship between government expenditure on education and health on macroeconomic performance. The results also revealed non-appearance of serial autocorrelation.

Olayiwola, Bakar & Abiodun (2021) re-examined the relationship between public health expenditure and economic growth in Nigeria within the framework of Wagner's theory of ever-increasing State activities. The study evidence of a long-run associations between public health expenditure and the level of economic growth. The granger-causality test results, shows neither unidirectional nor bi-directional relationship between public health expenditure and GDP. But health expenditure as a total fund earmarked for health sector and total number of populations has a unidirectional causal relationship with real GDP. Thus, public expenditure pushes public health expenditure. The study concluded that even though there is no evidence of causal relationship between public health expenditure and GDP, but public health expenditure and GDP still have evidence of a long-run connection.

Danladi, (2021) examine the impact of government health expenditures on the health sector performance in Nigeria for the period (1979-2019). The study employs the expo facto

research design as a technique of the analysis using annual time series data obtained from World Development Indicators (WDI) and the Statistical Bulletin of the Central Bank of Nigeria (CBN). The employed fully modified OLS (FMOLS) estimation method as major analytical tool for the study to measure the coefficient of the parameters to test the four hypotheses developed. The show that capital health expenditure and recurrent health expenditures are positively related to the performance of the health sector but its statistically insignificant. However, capital health expenditure is statistically significant to life expectancy.

Lawanson, & Umar, (2021) investigates the impact of life expectancy–growth nexus and the role of poverty reduction, using fully modified OLS within the theoretical framework of endogenous growth approach as techniques of the analysis, to determine the link between life expectancy, poverty incidence, and economic growth. Findings showed that health contributes immensely to economic growth and also help to lessen the adverse effect of poverty on economic growth in Nigeria.

Wong, (2021) applied the Johansen co-integration technique and the Vector Error Correction Model to analytically examine the connection between education expenditure, health care expenditure, and economic growth in Malaysia between 1980 to 2012 (VECM). The finding showed long-term positive and strong link between public education investment and healthcare spending on economic growth.
Lee &Jei (2019) investigate the connection between Government Expenditures and Economic Growth in China and Korea from 1970 to 2015; Using a Quantile Regression Model as major tool of the analysis. The empirical result suggests that public fund earmark for both health and education have a favourable considerable influence on economic growth in both countries.

The above review of empirical literature indicates a wide range of inconclusive result. This clearly indicates that many of the central issues of interest still remained unclear and generate various outcomes. The inconclusive nature of these empirical studies provides another basis for further research.

3. Methodology

Introduction

This section presents the methodology of the study. The section focused on methodological aspect that cover model specification, Model Estimation, the method of data collection and sources, method of data analysis, unit root tests, cointegration tests, and causality test.

Model Specification

Econometrically, regression model can be specified as follows:

GDP = β0 + β1THE + β2TED+ β3LEB + β3EDUROLL + β4GCF + Ut

Where; GDP = Gross domestic product, THE= Total Government expenditure on health, TED= Total government expenditure on education, LEB= LIFE expectancy at birth, EDUROLL= Educational enrolment, GCF = gross capital formation, **U** = E=Error term with zero mean and constant variance.

Model Estimation

This study tested for stationarity of the variables within the framework of Philips Peron (PP) test procedure. This test is important in order to avoid spurious regression which is a common problem when estimating a regression line with data whose generated process follows a time trend. The test requires estimating an equation of the form:

Δyt= β0+ β1 yt-1 + β2t + ∑∑ Δypi=1 t-i+Z ……. (2); H0: β1=; H1: β1>0

Where, y is a vector for all-time series variables under consideration in a particular regression model (our t variables of interest); t is a time trend variable; Δ denotes the difference operator; Z is the error term; p is the optimal lag length After checking the properties of the univariate series, the study thus, proceeded with testing for cointegration among the variables of interest. The basic idea behind cointegration is that, if in the long-run, two or more series move closely together. This study applied the Johansen Cointegration developed by Johansen (1988) and applied by Johansen and Juselius (1990) to determine the number of cointegrating vectors. After the testing for the cointegration relationship, the next task is to estimate the equation using Dynamic OLS (DOLS) test and causality between economic growth and total government expenditure on health using Nigeria's data in a multivariate case. According to Kao and Chiang dynamic OLS (DOLS) estimator bears superiority compared to OLS and FMOLS. Apparently DOLS is trying to address the issues results from asymptotic bias contained in the OLS estimate by including leads and lags of the difference series. According to Kao and Chiang (2000) DOLS outperforms FMOLS approach. Not only DOLS is computationally simpler but it reduces bias better than FMOLS. The t statistic from DOLS approximates the standard normal density much better than the statistic from OLS or FMOLS.

The functional form of the model is based on the following regression;

GDP_t=α_0+$\sum_{t=1}^{n}\alpha_1\Delta Gdp_{t-i}$+$\sum_{t=0}^{n}\alpha_2THE_{t-i}$+$\sum_{t=0}^{q}\alpha_3TED_{t-i}$+$\sum_{t=0}^{q}\alpha_4LEB_{t-i}$+ $\sum_{t=0}^{n}\alpha_5$EDUROLL$_{t-I}$+$\sum_{t=0}^{n}\alpha_6$GCF$_{t-i}$+μ_t

THE_t=θ_0+$\sum_{t=0}^{n}\theta_1$THE$_{t-i}$+$\sum_{t=0}^{n}\theta_2\Delta Gdp_{t-i}$+ $\sum_{t=0}^{n}$ +θ_3TED$_{t-i}$+$\sum_{t=0}^{n}\theta_4$LEB$_{t-i}$+ $\sum_{t=0}^{n}\theta_5$EDUROLL$_{t-I}$+$\sum_{t=0}^{n}\theta_6$GCF$_{t-i}$+μ_t

Where: α_i, θ_i, are the various coefficients and et is the residuals as define in the previous equations. The lag values are determined by Akaike information criterion (AIC)

4. Findings and Discussion

Descriptive Statistics

GDP f (THE, TED, LEB, EDUROLL& GCF)

Table 1: Descriptive Statistics Result

VARIABLES	OBS	MEAN	STD. DEV	MEDIAN	MIN	MAX	PROBABILITY	SKEWNESS	KURTOSIS	JQB
LGDP	39	3.3241	0.1047	3.1968	3.1197	3.4066	0.097498	-0.3717	2.5556	0.0000
LTGED	39	3.5441	0.4342	2.2265	8.3343	9.91996	0.268668	-3.3123	2.1385	0.0000
LTGEH	39	4.1519	0.1047	3.1968	3.1197	3.40662	0.097498	-2.0140	1.1665	0.0000
LEDUROLL	39	16.542	2.4667	4.1895	11.630	19.1490	0.075194	-0.5752	3.1114	0.0041
LLEB	39	46.387	1.0250	32.267	45.637	54.6870	0.048963	-0.9781	2.6845	0.0002
LGCF	39	16.946	1.0582	15.118	0.6860	75.4016	0.000000	-0.1415	2.3568	0.0000

Source: Author's Computations Using E-views Version 10.0

According to Table 1, the average gross domestic product growth rate was 3.32 per cent, representing annual grows rate of 3.32 per cent of the economy, compared to a median value of 3.19 per cent. Additionally, the average education expenditure index, which includes both capital and recurrent education spending, is 3.54 per cent, which is greater than the median figure of 2.22 per cent. This indicates additional increase in educational expenditure. Furthermore, the average mean value for the health expenditure index, which comprises both capital and recurring health expenditure, is 4.15 per cent, somewhat higher than the median value of 3.19 per cent. In addition, the average mean educational enrolment rate is 16.54 per cent, compared to 14.89 per cent for the median rate. This means that the country's educational enrolment rate has increased by 14.89 per cent yearly. Additionally, the average life expectancy rate is 49.38 per cent, which significantly indicates improvement when compared with the median value of 32.26 per cent. This means that a person can expect to live for around 49 years and three months on average. The estimated

average value of GCF 16.946 percent higher than the median value of 15.118. Furthermore, the standard deviation for all variables is less than the value of both mean and median respectively. The probability value of the Jarque-Bera statistic for all variables also indicates that their distribution levels are all at mean zero. This demonstrates that the analysis is correct and fit.

Table 2

	PP-P			ADF-F		
Variables	PP Levels	PP First Difference	Order of Integration	ADF Levels	ADF First Difference	Order of Integration
GDP	-1.897	-5.845*	I(1)	-2.78	-4.67*	I(1)
TED	-1.593	-5.845*	I(1)	-2.54	-5.68*	I(1)
THE	-1.329	-5.622*	I(1)	-2.38	-9.45*	I(1)
GCF	-1.467	-6.135*	I(1)	-2.49	-7.23*	I(1)
LEB	-1.396	-4.685*	I(1)	-1.23	-4.45*	I(1)
EDUROLL	-2.474	-7.332*	I(1)	-1.67	-4.87*	I(1)

* Denotes rejection of null hypothesis at 5% levels of significance

The summary of the results of unit root tests is contained in Table two. From the Table, all the variables were not stationary at levels but converted to stationary at their first difference. Phillips and Perron (PP) and ADF tests for unit root and stationarity reveals that all the variables have a unit root; implying they are not stationary at their levels. However, the tests showed that after the first difference the variables have no unit root and the null hypothesis was rejected at 5% level of significance, indicating that all the variables are integrated of the same order that is I (1). Both lag length selection criterion, that is the AIC and SBC revealed that the optimal lag length for the models is one.

Cointegration Test

As justified by unit root test all the variables of the study are integrated of order one so co –integration tests are possible. Cointegration is a statistical property that describes long-run relationship of economic time series.

Results of Johansen Maximum Likelihood cointegration test

After conducting the unit root test, this study applies the Johansen and Juselius (1990) maximum likelihood method to investigate whether there is more than a single cointegration relationship among the variables of interest. At 5% significance level, the trace test indicates 2 cointegrating equations while the maximum eigen value test indicates

1 cointegrating equation among the variables, meaning that there is one cointegrating equation among the variables based on the maximum eigen value test (Enders, 2004)

Table 3 Johansen Cointegration Rank Test for Trace and Maximum Eigen value

Hypothesized No. of CEs	Eigen value	Trace Stats	0.05 Critical value	Prob	Max-Eigen Stats	0.05 Critical value	Prob
None	0.808290	171.0570	134.6780	0.0001	59.46371	47.07897	0.0015
At most 1	0.654748	111.5933	103.8473	0.0139	38.28534	40.95680	0.0970
At most 2	0.593101	73.30792	76.9727	0.0920	32.37085	34.80587	0.0950
At most 3	0.414046	40.93707	54.07904	0.4241	19.24248	28.58808	0.4720
At most 4	0.254373	21.69459	35.19275	0.6160	10.56707	22.29962	0.7884
At most 5	0.160065	1.12753	20.26184	0.5299	6.279511	15.89210	0.7560
At most 6	0.125993	4.848017	9.164546	0.3005	4.848017	9.164546	0.3005
At most 7	0.223982	4.839016	8.164546	0.1205	5.848417	8.163545	0.2005
Trace Test Trace Test Indicates 2 Cointegrating Eqn(s) at the 0.05 level							

Sources: computation using E-Views 10.0 Software by the Researcher

Table three indicates that the dependent variable GDP is cointegrated with total deposit (TED), total lending (THE), total loan and advances (GCF), credit allocation by banking sector (LEB), foreign direct investment (EDUROLL). The results indicate that the dependent and independent variables are both cointegrated and have long run relationship with one another. The trace test results in Table three revealed that there are two (2) long-run equilibrium relationships of the variables.

Table 4. The Cointegration Coefficients.
Dependent Variable GDP

Variables	Coefficient	Standard Error	t-Statistics	Prob.
TED	0.725226	0.141506	5.125059	0.0000
THE	-0.110046	0.016722	-6.581114	0.0000
GCF	1.458984	0.513017	-2.843929	0.0048
LEB	-1.823206	0.389375	-4.682391	0.0000
EDUROLL	-1.272269	0.432503	2.941642	0.0035

R-squared	0.686239	Mean dependent var	11.83124
Adjusted R-squared	0.681027	S.D. dependent var	3.341108
S.E. of regression	1.886982	Akaike info criterion	4.127185
Sum squared resid	1071.771	Schwarz criterion	4.200022
Log likelihood	-627.5229	Hannan-Quinn criter.	4.156312
Durbin-Watson stat	0.081918		

Source: Author's Computations Using E-views Version 10.0.

The above result shows that the coefficient values of total government expenditure on education (TED), total government expenditure on health (THE), gross capital formation (GCF). Educational enrolments (EDURROL), life expectancy rate at birth (LLB), jointly explained about 69% variations or changes in the economic growth. It signifies that 69% of the total variations in economic growth in Nigeria were caused by variations in TED, THE, EDURROL, LLB, and GCF, while the remaining 31% of the total variations in economic growth was caused by factors not explained by the model. Also, TED, and GCF are statistically significant in explaining the level of the macroeconomic performance, while THE, EDURROL and LEB are not statistically significant. Furthermore, in terms of sign some of the independent variables conform to a priori expectation since they exhibit a positive relationship with the economic growth. This means that a greater amount or level of TGED and GCF would engender a higher level of macroeconomic growth in Nigeria. However, TGEH, EDUROLL and LEB do not conform to a priori expectation since they exhibit a negative relationship with the macroeconomic performance or growth level (GDP).

Furthermore, the table four above shows that, Total Government Expenditure on Education (TED) was found to be positive and statistically significant. This means that the higher the TED the higher will be the economic growth in Nigeria. This may be because educated people have more innovative ideas and can better master new technology, which is extremely important in today's world competitive environment. Public investment on education empowers people to move out of poverty, equip people to be socially mobile and

to avoid exclusion, as well as improve individuals and society resilience as a whole to attain sustainable economic growth. Investment in education has been recognised by various scholars as a potential mechanism that improves the productivity of the labour force, including its capacity for innovation, which in turn, enhances the increase in productivity and delivers higher growth and sustainable development. Therefore, investment in human capital, particularly education, can have long-lasting positive effects on the microeconomic performance.

The results in the table four also revealed that, the coefficient of total government expenditure on health is negative and has insignificant effect on economic growth in this case an increase in public health spending by 1% leads to decrease in macroeconomic performance by 11%. A possible reason for this scenario is that provision of basic health facilities has never been a given adequate priority in Nigeria. Although the revenues grow and more resources are becoming available to Nigerian government, health spending most a time being de-prioritized. Funding flows are characterized with extreme annual fluctuations, which limit the sectors capacity to effectively plan and implement their proposed annual budget.

It is often argued that the degree of attention given to health care delivery in Nigeria are grossly inadequate. Several scholars (Onuwuje, Enoka, Khuko, Uzochukewu, & Wong (2018) ; WHO (2018); Chang & Crowling, (2019); Ibe *etal* (2017) ; Aboubacar (2017) & Christopher (2019) have recognised some of the problems that interrupt effective government-based health care delivery system to include gender bias, corruption, political instability, illiteracy, poverty, poor health insurance practice, etc. Similarly, urban concentration provides the relatively equipped hospitals and health care centres, especially the private ones exploit the opportunity of making greater profits through their exorbitant charges for services rendered to their patients. This trend over the years deprived residents in rural areas the opportunities of benefitting from quality health care services, even the ones available in urban areas are poorly equipped, some measures adopted to compel the government to increase fund disbursement to health have also failed to yield adequate positive result (Novignon, J. et al. (2012).

EDUROLL was negative and statistically significant as can be observed from table3 In this case an increase educational enrolment by 1% does not significantly affect Nigerian economic growth. This may be due to the shortage of funds; high dropout rate and loss of professional teachers are common phenomena in Nigeria schools. Available record revealed that, in many West African schools' which Nigeria is included, educational quality is so poor to the extent that after several years of education, children leave school

without acquiring basic requisite knowledge and skills on a sustainable basis UNESCO (2015).

The coefficient of life expectancy rate has a negative relationship with economic growth as evidence appeared in table 3 but the result has indicated a positive statistically significant relationship between life expectancy rate and economic growth at 5% level of significance. The result revealed that one-year increase in life expectancy rate in Nigeria tends to generate decrease in economic growth by 18%.The possible reasons for this situation can be attributed to the fact that Nigeria faced with the challenges of underdevelopment, especially in the area of lack of necessary health infrastructure, issues like high mortality rate (Maternal, infant, adult), inadequacy of public-owned healthcare facilities and personnel, urban bias in the distribution of health facilities, counterfeit drug, very low compliance of health insurance program, political instability, insufficient health professionals, dependency on African traditional medicine, poverty and insufficient budgetary allocation are the major contributors towards negative performance of life expectancy rate on economic growth in Nigeria.

Table 5 Result of Causality Test

Null hypothesis:	OBS	F-statistics	Prob.
THE does not Granger cause GDP	32	0.02141	0.8847
GDP does not Granger cause THE		0,21610	0.6456
TED does not Granger cause GDP	32	5.34816	0.0283
GDP does not Granger cause TED		0.00561	0.9408
LEB does not Granger cause GDP	32	0.28638	0.5968
GDP does not Granger cause LEB		4.22727	0.0492
EDUROLL does not Granger cause GDP	32	2.41996	0.1310
GDP does not Granger cause EDUROLL		2.43183	0.1301
GCF does not Granger cause GDP	32	0.04464	0.8342
GDP does not Granger cause GCF		0.07808	0.7820
TED does not Granger cause THE	32	0.00098	0.9753
THE does not Granger cause TED		0.13999	0.7111
LEB does not Granger cause THE	32	0.04219	0.8388
THE does not Granger cause LEB		1.79756	0.1908
EDUROLL does not Granger cause THE	32	0.02590	0.8733
THE does not Granger cause EDUROLL		1.24412	0.2742
GCF does not Granger cause THE	32	0.12963	0.7215
THE does not Granger cause GCF		0.22209	0.6411
LEB does not Granger cause TED	32	0.10041	0.7537

TED does not Granger cause LEB		8.42550	0.0071
EDUROLL does not Granger cause TED TED does not Granger cause EDUROLL	32	9.39747 14.3389	0.0048 0.0007
GCF does not Granger cause TED TED does not Granger cause GCF	32	1.09553 0.07358	0.3042 0.0788
EDUROLL does not Granger cause LEB LEB does not Granger cause EDUROLL	32	3.88960 0.72827	0.0585 0.4007
GCF does not Granger cause LEB LEB does not Granger cause GCF	32	0.87401 0.29819	0.3578 0.5893
GCF does not Granger cause EDUROLL EDUROLL does not Granger cause GCF	32	0.45610 0.25209	0.5050 0.6195

Source: Author's Computations Using E-view Version 10.0.

Table five above presents results from pair wise granger causality test. The test result reveals that there is no causal relationship between total health expenditure and economic growth (GDP). However, there is unidirectional causality running between total expenditure on education and gross domestic product where total expenditure on education granger causes gross domestic product. It also revealed unidirectional causality between LEB and GDP. Contrarily the result revealed existence of bidirectional relationships between educational enrolment and TED. Also, the result further indicates existence of no causal relationship between educational enrolment and gross domestic product. Likewise, the result also indicated evidence of no causal relationships between gross capital formation and total health expenditure, total expenditure on education and total expenditure on health, life expectancy at birth and total expenditure on health, educational enrolment and total health expenditure, growth capital formation and total expenditure on health. The result also revealed that a unidirectional causality exists between life expectancy at birth total expenditure on education, educational enrolment and total expenditure on education, gross capital formation and TED, educational enrolment and LEB, gross capital formation and life expectancy at birth, similarly no causality exist between GCF and educational enrolment.

5. Conclusion

In this research, an attempt was made to find the empirical relationships between government expenditure on health and economic growth as well as direction of the causal relationship between public spending on health and economic growth in Nigeria using co-integration technique.

Data properties were analysed using Philips Peron (PP) test procedure to ascertain the stationarity of the variables. The result of the unit root test reveals that, the variables are not stationary at level. The variables were all stationary at first difference, suggesting they are integrated of order one 1(1), and that the variable have no trend element in them. Therefore, the data were transformed to the first difference. The results of the cointegration based on Johansen technique indicate that there is a long run equilibrium relationship between health expenditure and economic growth; even though disequilibrium were witness in the short run. The main results also confirm that there is unidirectional causal link running from GDP to public spending on health. Yet, public spending on health does not Granger-cause GDP growth with a positive sign. Study points out a little role of public spending on health in determining the GDP status in Nigeria, this scenario may be attributed to the fact that, Government of Nigeria depends on its oil revenues that fluctuate over time which in turn affect the public spending on health and the growth of the economy.

6. Recommendations

This study recommends that government at various levels should strongly pursue health policies and programmes to create free conditions for boosting the level of welfare through increase in health sector budget to achieve sustainable economic growth and transformation.

The study recommend that government and related donor agencies should increase the level of spending on community health and medical services as this may strongly help to ameliorate the effectiveness in the treatment and diagnosis of diseases that persistently hampered the welfare of Nigerian citizens.

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