IMPACT OF HEALTH EXPENDITURES ON ECONOMIC GROWTH IN NIGERIA. (1990- 2023)

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Abstract

The paper examined the impact of the health expenditures on economic growth in Nigeria from 1990-2023). The study was a time series thereby employing Secondary data sourced from the Central Bank of Nigeria (CBN) Statistical bulletin 2023 and world Development Index 2023. The data were subjected to unit root diagnostic test to determine whether they are stationarity or otherwise. The data were integrated of order 1(0) and 1(1). Therefore, the Autoregressive Distributed Lag (ARDL) model was adopted, the Error Correction Model (ECM) technique was also adopted to check for the cointegration. The study reported along run relationship between economic growth and health expenditures instruments. The result shows that Domestic general health expenditures, inflation and exchange rate negatively affect economic growth in Nigeria. While Domestic private health expenditure, out of pocket Expenditures, healthcare ratio per capita healthcare budget expenditure ratio to GDP rate and immunization intervention rates positively affects economic growth in Nigeria. The diagnosis tests; Serial correlation and Heteroskedasticity tests were conducted on the variables and the result from Breusch-Pagan-Godfrey test for heteroskedasticity and from Breusch-Godfrey serial correlation LM test revealed that there is no problem of heteroskedasticity and serial correlation respectively. The study concludes that healthcare expenditures tools influence economic growth in Nigeria and the paper recommends the federal government should enhance individual health spending ability (health insurance may be relevant here), increase budgetary allocation to health sector and monitor the implementation of heath sector budget to achieve sustainable economic growth.

Keywords: Health expenditures, government health expenditures, economic growth.
JEL Codes: H36, K15

1. Introduction

A wholesome health is crucial to human well-being, a measure of increased productivity and total economic growth and development. It is also a driving force on which human capitals such as education and skill relied. The positive consequence of good health on economic growth gives impetus to the worth of the strength of improvements in human health in the past decades.

World Health Organisation (2022) observed that about fifty percent of economic growth gaps between developed and developing nations are attributed to ill-health and low life expectancy. The health sector supports human capital investments and significantly impact public health over the years.

Health impact on economic growth through productivity and innovation of a country (Ifa & Guetat, 2022). Health affect the Socioeconomic development of a country which are dependent on health status of individuals, (Wahab A.A 2023). Hatam N et Al (2022), Health expenditures are therefore not only a consumption good but also an investment goods that will yields greater productivity. Nigeria's health expenditure as a share of gross domestic product has remained below four percent over the past five years. The country's healthcare services have been consistently poor, with a growing population and emerging health inequalities exacerbating the situation.

The sector is characterized by lack of adequate health infrastructure, obsolete facilities and insufficient funding to equip and staff hospitals. Prioritizing an equitable and inclusive healthcare system is crucial for governments at all levels, including the national and the sub-national levels, as adequate and appropriate financing of healthcare is imperative for the future of every nation. The share of total federal expenditure for the Federal Ministry of Health, the administrative body responsible for providing quality and efficient health care services for Nigerians, has been hovering between four and five percent for the last four years. Despite the increase of federal health budget allocations from 434 billion naira in 2018 to 1.02 trillion naira in 2021, the ministry underspent their approved budget by 31 percent in 2018 and 47 percent in 2021. This underspending limits the funding available for the nation's health system and therefore restricts opportunities for equitable, qualitative and universally accessible healthcare, (International Budget Partnership (IBP), 2022)

This situation has continually make argument that allocating more public resources to health services is not enough to ensure quality services and economic growth. To examine the validity of this argument, this study investigates the impact of health care budget, financing and interventions using domestic government general health expenditure (% of current health expenditure), domestic private health expenditure (% of current health expenditure) and out-of-pocket expenditure (% of current health expenditure), healthcare ratio to Per Capita, healthcare budget expenditure ratio to GDP, immunization intervention rates, inflation and exchange rate on economic growth in Nigeria from 1990 - 2023.

2.Literature Review

2.1 Conceptual Clarification

2.1.1 Healthcare Expenditure.

Healthcare financing and expenditures is the mobilization of funds for healthcare services (Oyefabi, Aliyu & Idris, 2023). It is the provision of money, funds or resources to the planned activities of the government to maintain people's health. The amount of resources allocated for health care in a country is said to be a reflection of health value placement in respect of other categories of goods and services. The pattern of health expenditures is thus linked to the provision of health services. There are various means of health care financing which include tax-based public sector health financing, household out-of-pocket health expenditure, the private sector (donor funding), health insurance among others (Olayiwola, Oloruntuyi & Abiodun, 2022).

Government health expenditure is the share of revenues from domestic general government sources spent on health as percentage of current health expenditure indicates how much is funded domestically by the government. Domestic general government sources include government internal transfers and grants, government transfers and subsidies to voluntary schemes, as well as social health insurance contributions (WHO, 2023). An out-of-pocket expense (or out-of-pocket cost, OOP) is the direct payment of money that may or may not be later reimbursed from a third-party source. It is any direct outlay by households, including gratuities and in-kind payments, to health practitioners and suppliers of pharmaceuticals, therapeutic appliances, and other goods and services whose primary intent is to contribute to the restoration or enhancement of the health status of individuals or population groups. It is a part of private health expenditure (WDI,2022).

2.1.2 Economic Growth

Anyiwe and Oziegbe (2023) 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, 2022).

2.2 Theoretical Review

Various theories have been propounded to guide the study of healthcare expenditures one of these theories is the social cognitive theory. However, this study focused on social cognitive theory (SCT) which describes the influence of individual experiences, the actions of others, and environmental factors on individual health behaviors. This theory was advanced by Albert Bandura (1986), as an extension of his social learning theory. The theory states that when people observe a model performing a behavior and the consequences of that behavior, they remember the sequence of events and use this information to guide subsequent behaviors. The study adopted the Social cognitive theory because it stress the importance of public health campaigns in an attempt to foster a more healthy public through financing and expenditures. Healthcare funding promotes Self-efficacy as one of six constructs on which SCT is based on; the other five include reciprocal determinism, behavioral capability, observational learning, reinforcements, and expectations.

2.3 Empirical Review

Many empirical studies had established direct causal relationship between health financing and economic growth in various economy in the world. Yusuf (2022) Used ARDL model to determine health expenditure where HDI is a composite index that measures a country's overall development based on three key dimensions: life expectancy at birth; mean years of schooling and expected years of schooling; per capita income or Gross National Income (GNI) per capita. Increasing capital expenditure in the health sector can lead to improvements in health indicators, such as increased life expectancy and reduced infant mortality rates. The findings show that improvements contribute positively to the health dimension of the HDI. Better healthcare can lead to improved school attendance and cognitive development among children, indirectly contributing to the education dimension of the HDI. A healthier population can be more productive, which can positively affect the standard of living dimension of the HDI.

Awogbemi (2023) Using VECM, concluded that there is a clear and evident link between the health sector expenditure and economic growth in Nigeria, and recommends private sector investment in health and education to increase their involvement in the delivery of human capital services to the populace. This assumes that government spending on the health sector is ineffective in addressing health challenges without private investment in health. Also, an increase in the welfare programs for health care workers in order to lower the misery index in Nigeria and

prevent a mass flight of doctors and other health professionals from the country's shores is important as this would improve the quality of life for Nigerians.

Akintunde et al. (2022), determined public health expenditure and health outcomes in Nigeria using Autoregressive Distributed Lag Model. The study also shows the existence of a long-run relationship between health expenditure and economic growth for both Central African Economic and Monetary Community (CEMAC) countries and the five other countries that achieved the 2001 Abuja declaration. Bi-directional causality between economic growth and health expenditure was also noticed for CEMAC countries while countries that achieved the 2001 Abuja declaration portrayed a unilateral causality running from economic growth to health expenditure. This implies that income is an essential component in explaining health care expenditure, hence, increase in level of income can stimulate growth of health expenditure. Similarly, Babatunde (2022), investigated government spending on infrastructure in Nigeria, using both primary and secondary data. His findings indicate that government spending on health infrastructure has significant effects on economic growth in Nigeria.

3. Methodology

3.1 Model Specification

A healthier workforce is likely to raise better wages by minimizing inefficiencies. Improving the workforce's health increases productivity and raises the minimum wage through presenteeism at work and overtime incentives while reducing potential losses. More recently, the effect of health as measured by life expectancy at birth on economic growth portrays that health's elasticity of growth is positive and significant. Bakare & Olubokun (2004), high government expenditure on the health sector stimulates economic production because a healthy person is more likely to produce at a higher rate than an unhealthy person. Increased income would lead to high human capital via an increase in health expenditure which in turn, lead to increased productivity.

The model in this paper is specified in a functional form as follows:

RGDP = f(DGHE,DPHE,OOP,HPC,HBEGDP,IMN, INFL +EXR). .....(1)

Therefore, equation (1) may be expressed in a linear and log form as:

$LnGDP_t = \beta_0 + \beta_1 LDGHE_t + \beta_2 LDPHE_t + \beta_3 LOOP_t + \beta_4 LHPC_t + \beta_5 LHBEGDP_t + B_6 LIMN_t + B_7 LINFL + B_8 LEXR + \mu$.....(2)

3.2 Technique of Data Analysis

The Auto-Regressive Distributive Lag Model (ARDL) cointegration technique was employed in this study. Thus in order to establish the nature, magnitude and direction of the relationships among health expenditures and economic growth in Nigeria, the following specification will be the empirical model for estimation

$$\Delta lRGDP_t = \beta_\circ + \sum_{i=0}^{n} \beta 1_i \Delta RGDP_{t-1} + \sum_{i=0}^{n} \beta 2_i \Delta lGHE_{t-1} + \sum_{i=0}^{n} \beta 3_i \Delta lPHE_{t-1} + \sum_{i=0}^{n} \beta 4_i \Delta lOOP_{t-1} + \sum_{i=0}^{n} \beta 5_i \Delta lHPC_{t-1} + \sum_{i=0}^{n} \beta 6_i \Delta lHBEGDP_{t-1} + \sum_{i=0}^{n} \beta 7_i \Delta lIMN_{t-i} + \sum_{i=0}^{n} \beta 8_i \Delta lINFL_{t-1} + \sum_{i=0}^{n} \beta 9_i \Delta lEXR_{t-1} + \beta_{10} ECM_{t-1} + E_t \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3$$

Where, RGDP is real gross domestic product; DGHE is domestic government health expenditure; DPHE is domestic private health expenditure; OOP is out of pocket expenditure; HPC is healthcare expenditures ratio to per capita; HBEGDP is healthcare budget expenditure; IMN is immunization interventions; INFL is inflation; LEXR is exchange rate.

Note that: α1, α2 , α3, a4, a5, a6 a7 and a8 are the coefficients of health expenditures; ECM(-1) representing Error Correction Term and ε_t is the stochastic factor or error term.

3.3 Source of Data

The study is an ex-post factor research. The variables for the study were based on secondary data. The data were sourced from CBN Statistical bulletin, 2023 edition and world Development Index (WDI 2023). The time series covers the market based economic era when health economic budgets, financing and interventions were seen to be the main stand-post of economies across the world. Thus, the data covers 1990 to 2023. This study employs annual data on the domestic general health expenditure (CBN,2023), Domestic private health expenditure (WDI, 2023,) out of pocket expenditure (CBN,2023), health care ratio to Per Capita (CBN), Health expenditure ratio to GDP (CBN,2023), immunization intervention (WDI), inflation (CBN,2023), and exchange rate (CBN, 2023), as the explanatory variables and the Gross Domestic Product (CBN,2023) as the proxy for economic growth as the dependent variable.

4. Presentation and Discussion of Results.

Result Presentation Data analysis using descriptive statistics were carried out and the results were presented on Table 1

Table 1: Summary of Descriptive Statistics Results

	RGDP	DGHE	DPHE	OOP	HPC	HBEGDP	IMN	INFL	EXR
Mean	4.697059	15.79765	61.46500	73.43706	98.76471	4.126471	78.5588	18.68365	169.0006
Median	4.200000	15.35000	67.11500	64.80000	67.00000	3.900000	79.00000	12.94350	130.2450
Maximum	15.30000	26.90000	80.14000	551.3000	1615.000	8.600000	86.00000	72.84000	879.0000
Minimum	0.10000	11.02000	36.92000	37.00000	15.00000	2.490000	71.00000	5.388000	8.040000
Std. Dev.	3.347589	4.556428	14.67634	85.65711	269.6561	1.149379	5.527842	16.12689	172.2582
Skewness	1.071766	0.867886	-0.187873	5.320436	5.456300	2.032761	-0.003907	2.044323	2.268632
Kurtosis	4.406707	3.076199	1.275475	30.24933	31.21226	8.127282	1.398414	6.301119	9.593411
Jarque-Bera	9.312539	4.276507	4.413162	1212.319	1296.273	60.65810	3.633947	39.12043	90.75142
Probability	0.009502	0.117860	0.110076	0.000000	0.000000	0.000000	0.162517	0.000000	0.000000
Sum	159.7000	537.1200	2089.810	2496.860	3358.000	140.3000	2671.000	635.2440	5746.020
Sum Sq. Dev.	369.8097	685.1142	7108.034	242125.6	2399576	43.59538	1008.382	8582.529	979204.8
Observations	34	34	34	34	34	34	34	34	34

Source: *Author's Computation 2024 using E-views 9.0*

Table 1 above contain summary of statistics: the mean, median, maximum, minimum, standard deviation, Kurtosis, and Jarque-Bera values for the variables under consideration. It shows the mean value of LRGDP, DGHE, DPHE, OOP, HPC, HBEGDP, IMN, INFL and EXR are 4.6, 15.7, 61.4, 73.4, 98.7,4.1, 78.5, 18.68 and. 169.0 respectively. HPC has the highest level of discrepancy, as shown in the standard deviation result (269.65). This means that health expenditure ratio to per capita was found to be more volatile and unpredictable having the highest standard deviation of 269.6561. Healthcare budget expenditure ratio to GDP (HBEGDP) shows the lowest level with the standard deviation of 1.149379 respectively. Skewness is a measure of the rate of asymmetry or discrepancy of the variables. The p-value of the JarqueBera test indicated that most of the series are normally distributed.

Testing for stationarity

Following the Granger and Newbold (1977), most time series variables are non - stationary, and utilizing such non - stationary variables in estimation might lead to spurious regression. To overcome this shortcoming, the stationary status of the series using both the Augmented Dickey-Fuller (ADF) was utilized. The ADF test is base on minimizing the Akaike information criterion (AIC). The bandwidth is selected based on the Newey-west approach.

Table 2: Unit Root Test Results (ADF Statistics)

Statistics	Statistics at level	Statistics at 1st difference	Integration Order

Variables	ADF	Critical value @5%	ADF	Critical value @5%	
RGDP	-2.413056	-2.967767	-11.02635	-2.957110	I(1)
LDGHE	-1.973339	-2.954021	-5.512444	-2.960411	I(1)
LDPHE	-1.729811	-2.954021	-5.860955	-2.957110	I(1)
LOOP	-1.011168	-2.967767	-4.982374	-2.967767	I(1)
LHPC	-4.958045	-2.954021	-28.27675	-2.957110	I(0)
LHBEGDP	-4.020956	-2.954021	-9.946343	-2.957110	I(0)
LIMN	-0.643749	-2.954021	-4.810545	-2.957110	I(0)
LINFL	-2.282148	-2.954021	-4.607156	-2.957110	I(0)
LEXR	-1.169010	-2.954021	-5.211228	-2.957110	I(1)

Source: *Author's Computation 2024 using E-views 9.0*

Results on Table 2 show that the growth rate of real gross domestic product (RGDP), domestic government health expenditure (LDPHE), domestic private health expenditure (LDPHE), out of pocket expenditures (LOOP) and exchange rate (LEXR) were all stationary at first difference and therefore integrated of order I(1). The unit root results also shows that healthcare Expenditures ratio to Per Capita (LHPC), Healthcare budget expenditure ratio to GDP (HBEGDP), IMN representing immunization interventions (LIMN) and inflation (LINFL) were all stationary at level and therefore integrated of order I(0).

Autoregressive Distributed Lag (ARDL) Bound Test Result

The long run dynamic relationship among the variables in the model was tested using the ARDL modelling approach in line with Pesaran and Pesaran (1997) procedure. Table 3 above shows the bounds test. The F-statistics is 4.530237 exceeds the upper bound values at 1 per cent, 2.5 per cent, 5 per cent and 10 per cent critical values. Thus as seen from the above bound test, the f-statistic value of 4.530237 is evidently above the I (O) and I (1) critical values bound. Our analysis of this series indicates that we reject Ho: that there is no equilibrating relationship and conclude that there is equilibrating relationship.

Table 3: Bounds Test of Presence of Co-integration in ARDL including the Critical Lower and Upper Bound Values for the periods

Significance	Lower Bound I(O)	Upper Bound I(1)
10%	1.95	3.06
5%	2.22	3.39
2.5%	2.48	3.7

1%	2.79	4.1
Test Statistic	Value	K
F-Statistic	4.530237	8

Source: Author's Computation 2024 using E-views 9.0

Error Correction and Long Run Results.

As observed in table 2, the computed F- statistics of the Bounds Cointegration Test was greater than the F-Critical values at both 10% and 5% level of significance. The implication is that there is Cointegration among the variables. Thus, the dynamic short-run relationship can be represented with an Error Correction Model (ECM). The estimated ECM and the long-run coefficients are presented in table 4 below.

Table 4: Long-Run Dynamic Analysis

D/ Variable : RGDP	ARDL	(2,2,0,0,2,2,2,2, 2)		
Variables	Coefficients	Std. Error	t-Statistics	Prob
LDGHE	-2.904050	1.273862	-2.279721	0.0486
LDPHE	-2.849563	1.104100	-2.580892	0.0297
LOOP	1.232111	0.345609	3.565046	0.0061
LHPC	3.811832	1.650237	2.309807	0.0462
LHBEGDP	1.903309	0.644478	2.953255	0.0161
LIMN	36.080718	16.323980	2.210289	0.0544
LINFL	-1.494503	0.468950	-3.186916	0.0111
LEXR	-3.605104	0.848236	-4.250121	0.0021
C	5.094464	22.27486	2.287091	0.0480
CointEq(-1)	-1.039935	0.345761	-3.007672	0.0148
R-squared	0.927247			
Adjusted R-squared	0.749406			
S.E. of regression	0.208593			
Sum squared resid	0.391598			
Log likelihood	25.04603			
F-statistic	5.213923			
Prob(F-statistic)	0.007257			
Durbin-Watson stat	2.403562			

Source: Author's Computation 2024 using Eviews 9.0

Diagnostic Test

In order to ascertain if a model is robust, it is expected that the error term be identical, independent and normally distributed with a zero mean and constant variance. Thus, in order to

test for the robustness of the model the study conducted the diagnostic test, to check for the presence of heteroskedasticity and autocorrelation respectively.

Table 5: Heteroskedasticity and Serial Correlation Tests

Heteroskedasticity:Breusch-Pagan-Godfrey				**Autocorrelation : Breusch-Godfrey Seriel Correlation LM Test**			
F-Statistics	1.344067	Prob.F(22,9)	0.3339	F-Statistics	0.338814	Prob.F(2,7)	0.7237
Obs*R-Squared	24.53296	Prob. Chi-Square (22)	0.3199	Obs*R-Squared	2.824322	Prob. Chi-Square (2)	0.2436
Scale explained SS	2.810790	Prob. Chi-Square (22)	1.0000				

Source: Author's computation (2024) using Eviews 9.0.

The result from Breusch-Pagan-Godfrey test for heteroskedasticity and from Breusch-Godfrey serial correlation LM test revealed that there is no problem of heteroskedasticity and serial correlation respectively

5. Conclusion and Recommendations

This study examines the impact of health budget, financing and interventions on economic growth in Nigeria with data from 1990 to 2023. The result of the unit root test favoured the use of Auto-regressive Distributed Lag Model (ARDL) estimation technique. The results show that there is a positive relationship between healthcare budget financing and interventions on economic growth in Nigeria both in the short-run and the long-run. The current domestic government general health expenditure has a negative growth effect on economic growth in Nigeria. The out-of-pocket health expenditure follows the same path with the government general health spending. The domestic private health expenditure has a significant positive relationship with economic growth in Nigeria during the study.

Based on the findings and conclusion drawn from this study, the we recommend that government should increase budgetary allocation to health sector and monitor the expenditure therein to achieve sustainable economic growth. Similar, Government should increase employment generation in Nigeria. This will increase the standard of living of it citizens. The anti-graft agencies established to fight corruption should be independent as stipulated by law without any form of favouritism and nepotism in discharging their duties. A well-functioning anti-graft agency will enhance proper utilization of public health funds and expenditures.

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