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Health Financing and Economic Growth in Nigeria

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Abstract
This study examines the impact of the health financing on economic growth in Nigeria using Auto-regressive Distributed Lag Model (ARDL) estimation technique with time series data from 1990 – 2020. The results show that the previous year productive activities have a growth effect on economic growth both in the short-run and the long-run. The current domestic government general health expenditure has a negative growth effect on economic growth while the previous year domestic general government expenditure on health improves economic growth. Also, current out-of-pocket health expenditure negatively affect economic growth while previous year out-of-pocket health expenditure improves economic growth. The domestic private health expenditure has a significant positive growth effect on the economic growth. The result also strengthens the importance of private health spending than government health expenditure in improving economic growth. Therefore, it was concluded that health financing is necessary for sustainable economic growth. Hence, government should enhance individual health spending ability, increase health sector budgetary allocation and ensure prudent and effective budgetary implementation for the heath sector.

Keywords: Health Financing, Government, Private Health Expenditures, Economic Growth
JEL Classification: H51, I15, O47

1. Introduction

Good 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. In a World Health Organisation (2005), report about fifty percent of economic growth gaps between developed and developing nations are attributed to ill-health and low life expectancy.

Nigeria is among the developing nations with poor health outcomes and its attendant problems. The health status of Nigeria is considerably low compare to some other countries in sub-Saharan Africa. Low life expectancy at birth, high infant and maternal mortality rates, malaria and tuberculosis afflictions are some of the features of the Nigeria`s health status. For instance, life expectancy at birth in Nigeria was estimated to be 54 years in 2020, compared with 63 years in Ghana. The high rates of HIV/AIDS infection also contributed to Nigeria's low life expectancy.

According to the Joint United Nations Programme on HIV/AIDS [UNAIDS] (2019) Nigeria has the second largest HIV epidemic in the world and one of the highest rates of new infection. Also, about 1.9 million people are living with HIV, 1.5% adult ages 15 - 49 with HIV, 130,000 new HIV infections and low level of anti-retroviral treatment implies that there are many AIDS-related death in Nigeria. Furthermore, about 52% of under-five deaths are associated with malnutrition. Since, the provision of basic health service is a major form of human capital investment and a fundamental determinant of growth and poverty reduction (UNAIDS, 2019), then, health condition can influence the design of economic growth and poverty reduction. However, health situation cannot be addressed in a sustainable way without adequate funding.

Adequate and sustainable health financing is important to the attainment of Sustainable Development Goals (SDGs) health goals (Olayiwola, Oloruntuyi & Abiodun, 2017) and the attainment of sustainable growth and development. Thus, a fair amount of budget is spent on health care for achieving economic growth and development. Given the United Nations (UN) recommendation that countries should spent at least 8 - 10% of their Gross Domestic Products (GDP) on health sector and the 2001 Abuja Declaration of committing at least 15% of the annual budget to health sector by each African country, the Nigerian government has been making efforts to meet up with these benchmarks by increasing her expenditure on health sector. For instance, government increases her expenditure on health from ₦84.46bn in 1981 to ₦134.12bn in 1986. But it dropped to ₦41.31bn in 1987, and again increases to ₦575.30bn in 1989. In 2002, the total government expenditure on health rise to ₦40, 621.42bn and dropped to ₦33, 267.98bn in 2003 and later appreciated to ₦104, 810.08bn in 2010. Between 2011 and 2014, government expenditure on health increase to ₦113,766.30bn in 2011, ₦122,722.60bn in 2012, ₦131,678.87bn in 2013 and ₦140,635.10bn in 2014 (Central Bank of Nigeria [CBN], 2017). Health care expenditure was ₦1, 190.71 billion in 2019; it rose to ₦1, 329.78 billion in 2020 and increase to ₦1, 477.77 billion in 2021. Thus, expenditure on health has been increasing on yearly basis.

The above scenario shows that health sector as an important facilitator of economic growth has attracted government's attention and received a fair share of the country's GDP in the past years. Despite this, there appears no correlation between expenditures on health care, health status and economic growth in Nigeria. 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 financing 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) on economic growth in Nigeria from 1990 - 2020. The rest of the paper is divided into four sections. Section two is preoccupied with the review of the literature on health care financing and economic growth while section three contains research methodology. Section four contains results and discussion of results and section five conclude.

2. Literature Review

2.1 Conceptual Review

Health care financing is the mobilisation of funds for health care services (Oyefabi, Aliyu & Idris, 2014). It is the provision of money, funds or resources to the planned activities of the government to maintain people's health. These activities encompass the provision of medical and related services geared toward maintaining good 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. It has been argued that the nature of health care financing defines the structure and the behaviour of different stakeholders and quality of health outcomes (Metiboba, 2012).

The pattern of health financing is thus linked to the provision of health services. There are various means of health care financing existing across the world, including Nigeria. These sources include tax-based public sector health financing, household out-of-pocket health expenditure, the private sector (donor funding), health insurance among others. External financing of health care includes grants and loans from donor agencies like the World Bank, the World Health Organization, European Union among others (Olayiwola, Oloruntuyi & Abiodun, 2017). Tax-based health financing is derived from proceeds of tax-based revenue of government across all levels and sectors. Government financed health care is largely a function of its revenue base. In essence, there is a strong positive relationship between the proportions of tax-based health spending and the progressivity of total health expenditure.

Savedoff (2009) submitted that one of the major advantages of tax revenue is the pooling of health risks across a large contributing population and contributions are spread over a larger share of the population. Out-of-pocket (OOP) health expenditure is the imposition of user-charges at the point of consuming health care services. Out-of-pocket payment also known as household health expenditures accounted for more than 90% cost of accessing health care in Nigeria. Private sector health financing includes donor funding and Public-Private Partnership (PPP). The health donors include United Nations Children's Fund (UNICEF), the World Bank, United Nations Development Programme (UNDP) and Joint United Nations Programme on HIV/AIDS (UNAIDS) among other institutions. The contribution may be in terms of loans and grants, commodities (drugs, medical equipment), technical expertise, training, research funding among others. Government donation and concession loans (include about 25% non-reimbursement components) is the official development assistance (ODA) that constitute major source of external financing for the health sector in the developing countries (Ravishankar, Gubbins, Cooley, Leach-Kemon, Michaud, Jamison & Murray, 2009).

Examples of health-oriented donor agencies are United States Agency for International Development (USAID), the UK's Department for International Development (DFID), Social Development Committee (SDC), Agence Francaise de Development (AFD), Directorate-Genera for International Cooperation (DGIS) among others. There are also major global public-private partnerships that focus on specific diseases or health conditions which include the Global Fund, the Medicines for Malaria Venture, and the Partnership for Maternal Newborn and Child Health among others. However, a challenge of private sector health care financing is the duplication of financing efforts by the donor agencies and the lack of global coordination among donor agencies in providing aids on health care to the developing countries. Table 1 shows the volume and composition of the current health expenditures in Nigeria.

Table 1: Size and Composition of forms of Health Financing in Nigeria

Year	Domestic General Health Expend. (DGGHE) (%)	Domestic Private Health Expend. (DPHE) (%)	Out-of-Pocket (OOP) (%)
1990	11.02	45.26	43.42
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2000	18.32	64.72	60.16
2001	26.89	66.39	60.74
2002	21.33	71.36	65.05
2003	18.39	75.89	72.81
2004	25.94	67.84	64.55
2005	25.56	68.99	65.97
2006	21.18	73.41	70.46
2007	19.91	74.19	70.94
2008	17.87	76.06	72.76
2009	15.92	77.86	74.48
2010	13.60	80.14	76.88
2011	14.43	77.71	74.73
2012	16.20	75.38	72.84
2013	14.30	73.25	70.92
2014	13.31	74.40	71.85
2015	16.45	73.64	71.89
2016	13.02	76.66	75.18
2017	14.18	77.91	77.22
2018	14.87	77.2	76.60
2019	11.02	45.26	43.42
2020	11.02	45.26	43.42

Source: World Development Indicators, 2021

From Table 1 both domestic private health expenditure and out of pocket health expenditure increases at a higher rate than the domestic general government health expenditure. This shows that both domestic private health expenditure and out of pocket health expenditure contributes more to the current health expenditures in Nigeria. However, their movement as shown by Figure I indicates similar unsteady trend over the years. The highest growth was recorded in 2010 with 80.1% and 76.9% respectively.

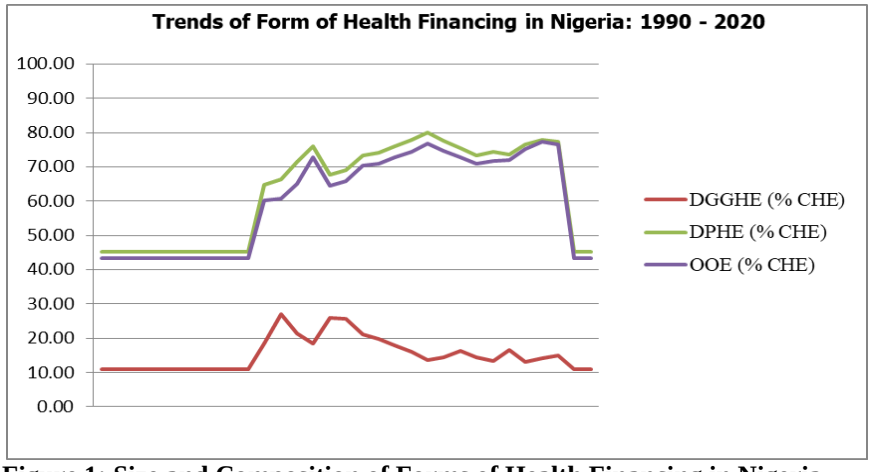

Figure 1: Size and Composition of Forms of Health Financing in Nigeria
Source: Authors Computation, 2021

Gross Domestic Product (GDP) is regarded as a comprehensive measure of a country's economic health status. Critics of GDP as a measure of economic growth have argued that it was never meant to measure progress, and leave out other important externalities such as resource extraction, environmental impact and unpaid domestic services. Figure 2 shows the trends of the various means of health financing and real GDP. The figure shows that domestic private health expenditure (% of current health expenditure), domestic government health expenditure (% of current health expenditure) and out-of-pocket expenditure (% of current health expenditure) followed the same path. This suggests that the rate of real GDP and health expenditures has symmetric movements.

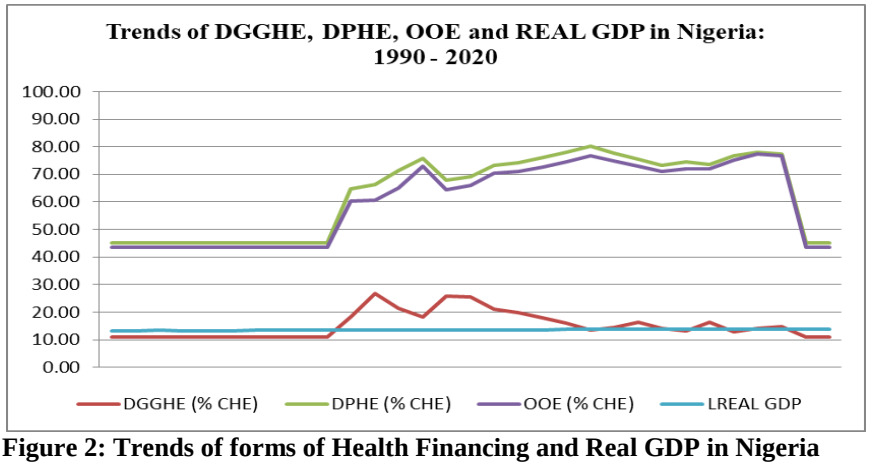

Figure 2: Trends of forms of Health Financing and Real GDP in Nigeria
Source: Authors Computation, 2021

2.2 Empirical Review

Many empirical studies had established direct causal relationship between health financing and economic growth in various economy in the world. For instance, Bloom and Canning (2000) and Bloom and Canning (2003) suggested that health as a macroeconomic indicator influences aggregate output positively. Supporting this submission, Piabuo and Tieguhong (2017) on health expenditure and economic growth in the Central African States and selected African countries showed that health expenditure has a significant and positive impact on economic growth and there is a long-run relationship between the two variables for both groups of countries. 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.

In the investigation of the relationship between health financing and economic performance (using GDP per capita), Anowor, Ichoku & Onodugo (2020) shows that public or private expenditures on health care in Economic Community of West African States (ECOWAS) region have a positive effect on economic performance with an existence of a long- run relationship between health care financing and output per capita within and across ECOWAS countries. Ibukun and Osinubi (2020) study of the relationship among environmental quality, economic growth and health expenditure in 47 African countries shows that air pollutants reduce the quality of the environment and increases health expenditure per capita. The study further corroborates the idea that economic growth has a positive, inelastic significant effect on per capita health expenditure. This is the situation in all the five sub-regions (Central Africa, North Africa, East Africa, West Africa and Southern Africa). This implies that, while increases in economic growth augment health expenditure per capita, air pollution worsen environmental quality and spur increases in health expenditure. Therefore, the study concluded that increases in economic growth should not be at the expense of the environment.

Ibe and Olulu-Briggs (2015) on the impact of public health expenditure on economic growth in Nigeria between 1981 and 2013

established a positive relationship between public health expenditure and economic growth. The study concluded that improvement in public health will enhances labour productivity and leads to gains in economic growth. The study, thus recommended that policy makers in Nigeria should give more attention to the health sector by increasing budgetary allocation to the health sector.

The findings of Kilanko (2019) on the effect of health expenditure on health outcomes in selected West African countries reveals that public and private health expenditure have different effects on the health outcomes. Government health expenditure was found to be positively related to the health outcomes without any significant impact while private health expenditure reduces mortality and provides a significant impact on infant and under five mortalities. This may be due to the manner and usage of funding public health in these countries. Private health expenditure is more significant in improving health outcomes than public expenditure.

This is in line with the findings of Novignon and Lawanson (2017) that the effect of public health spending is less than the effect of private health spending. The authors, therefore, stressed a review of public-private emphasis on health expenditures in the region. It should be noted that a caveat is important not to assume that there might not be differences among various empirical outcomes within individual countries. Hence, considerations should be given to other challenges of non-sampling errors and lack of reliable regional price index and other observations in the literature.

3. Methodology

The mechanism through which health investments affect economic growth and development is embedded within the endogenous growth models. These models highlight the importance of human capital to economic growth. This study adopted Buchanan & Tullock (1975) theoretical model, which encourages public authorities to increase public spending on health care independent of demand. The theory argued that inefficiency in the provision of health care should be seen not by lack of supply but by reduced quality of health care services. According to Romer (1986) and Barro (1991), human capital is an important factor in boosting economic growth.

The augmented Solow model by Mankiw, Romer & Weil (1992) also emphasised the role of human capital on economic growth. These endogenous models assume that economic growth is based on the ability of human capital to influence growth in the short-run and long-run. This theoretical model highlights a functional relationship between economic growth and health financing through public health investment in human

capital. Guided by Olaniyi and Adams (2000) and other empirical literature on the subject matter, our functional relationship between economic growth and health financing in Nigeria is written as:

$$\mathrm{RGDP} = \mathrm{f}(\mathrm{DGHE}, \mathrm{DPHE}, \mathrm{OOP}) \quad (1)$$

Where RGDP represents Real Gross Domestic Product, DGHE represents Domestic Government Health Expenditure, DPHE represents Domestic Private Health Expenditure and OOP stands for Out of Pocket Health Expenditure. Equation (1) can be re-specified in explicit linear form as:

$$RGDP_t = \alpha_0 + \alpha_1 \mathrm{DGHE_t} + \alpha_2 \mathrm{DPHE_t} + \alpha_3 \mathrm{OOP} + \varepsilon_t \quad (2)$$

α_1, α_2 and α_3 are the coefficients of health care financing and ε_t is the stochastic factor or error term. A *priori* $\alpha_1 > 0$, $\alpha_2 > 0$ and $\alpha_3 > 0$

3.1 Estimation and Identification

The data for the study is a time series data covering a period of 31 years (1990 -2020). Augmented Dickey-Fuller Unit root test was used to test for the stationarity of the data (Dickey & Fuller, 1981). This also guides our choice of estimation technique. The Augmented Dickey-Fuller (ADF) equation for testing unit root is given as:

$$\Delta Y_t = \beta_1 + \beta_{2t} + \rho Y_{t-1} + \sum \delta \Delta Y_{t-1} + \varepsilon_t \quad (3)$$

Where Y_t is the level of the variable under consideration, t is the time trend, β_1 denotes the constant term and μ_t is the error term assumed to be normally distributed with zero mean and constant variance. The optimal lag length is chosen using Akaike Information Criterion (AIC). When dealing with time series data that are integrated of different order, I(0), I(1), or that have the combination of both, the Auto-regressive Distribute Lag technique (ARDL) can be applied. The ARDL representation of the model is given as:

$$\Delta RGDP_t = \beta_0 + \sum ni = 1\beta_1 \Delta DGGHE_{t-1} + \sum ni = 1\beta_2 \Delta DPHE_{t-1} + \sum ni = 1\beta_3 \Delta OOP_{t-1} + \varepsilon_t \quad (4)$$

The Error Correction Model (ECM) can be derived from ARDL model through a simple linear transformation, which integrates short-run adjustments with long-run equilibrium without losing long-run information. The Error correction model (ECM) shows the speed of adjustment from short-run equilibrium to a long-run equilibrium in a time series analysis. The main reason for the construction of the error correction model is to indicate speed of adjustment from the departure from long-run equilibrium. It is expected that the ECM coefficient must be negative and significant for the errors to be corrected. The greater the co-efficient of the parameter, the higher the speed of departure from the long-run equilibrium. The ECM model is written as:

$$\Delta Y = \alpha_0 + b_1 \Delta X_t - \pi u_{t-1} + Y_t \quad (5)$$

Granger-causality test was used to test the causality between health financing and economic growth. The rule states that if the probability value is between 0 and 0.05 there is a casual relationship. The granger-causality relationship can be written as:

$$Y_t = \beta_1 + \sum ni = 1\ \beta_1\ X_{t-1} + \sum mi = 1\ YiY_{t-1} + \varepsilon_{1t} \quad (6)$$

$$X_t = \beta_2 + \sum ni = 1\ \delta_i X_{t-1} + \sum mi = 1 \rho_i YiY_{t-1} + \varepsilon_{2t} \quad (7)$$

3.2 Source of Data

The study used secondary data sourced from World Development Indicator. The data used and their measurements are shown in Table 2.

Table 2: Variables Used and Descriptions

Variables	Description	Source
DGHE	Domestic Government Health Expenditure (% of current health expenditure)	WDI, 2021
DPHE	Domestic Private Health Expenditure (% of current health expenditure)	WDI, 2021
OOP	Out of Pocket Health Expenditure (% of current health expenditure)	WDI, 2021
RGDP	Real Gross Domestic Product Growth (annual Growth)	WDI, 2021

Source: Authors' Generation, 2021

Table 3 shows the descriptive statistics of the data used in the study. However, the mean of domestic government health expenditure (DGHE, % of current health expenditure) is about 15.3 while the minimum and maximum values are around 11.0 and 26.9 respectively. The mean of domestic private health expenditure (DPHE, % of current health expenditure) is about 62.8 while the minimum and maximum values are 45.26 and 80.14. Also, the mean of out-of-pocket health expenditure (OOP, % of current health expenditure) is around 60.22 while the minimum and maximum values are 13.3 and 13.9 respectively. Finally, the mean of log of real GDP is about 13.59 while the minimum and maximum values are 13.3 and 13.9. The standard deviation shows how far the observations are from the sample mean. From the result, LRGDP is less dispersed with standard deviation 0.2 compare to other variables.

Table 3: Descriptive Statistic of the Variables Used

	DGHE	DPHE	OOP	LRGDP
Mean	15.29	62.78	60.22	13.59
Std. Dev.	4.86	14.53	14.53	0.20
Minimum	11.02	45.26	43.42	13.34
Maximum	26.89	80.14	77.22	13.86
Skewness	1.03	-0.32	-0.25	0.06
Kurtosis	3.05	1.25	1.26	1.37
Observations	31	31	31	31

Source: Authors Computation, 2021

4. Results and Discussion

Table 4 shows the unit root stationarity test using ADF statistics. According to the result, LRGDP is stationary at level. However, other variables, LDGHE, LDPHE and LOOP are stationary at first difference. Thus, we concluded that LRGDP is integrated of order zero I(0), while others are integrated of order I(1)). These results implied that auto-regressive redistributed Lag estimation technique (ARDL) is more appropriate estimation technique for the examination of the impact of health financing on economic growth in Nigeria.

Table 4: Augmented Dickey-Fuller Unit Root Test

Variable	Level ADF Test Statistic	Mackinnon Critical Value at Level at 5% level	First Difference ADF Statistic	Mackinnon Critical Value at First Difference at 5%	Decision
LDGGHE	-1.456116	-2.941145	-5.735339*	-2.943427	I(1)
LDPHE	-2.059084	-2.948404	-6.647087*	-2.951125	I(1)
LOOP	-2.440297	-2.941145	-8.251314*	-2.943427	I(1)
LRGDP	-3.5403*	-1.3555	-2.0289	-2.9458	I(0)

*Significant at 5% level

Source: Authors Computation, 2021

The Akaike Information Criterion (AIC) was used for the selection of lag length and lag 1 was selected as the optimum lag length for the models. The ARDL results for the short-run and long-run of the model is presented in Table 5. From the results, the lag of real domestic product (LGDP) has positive effects on economic growth in both short-run and long-run, albeit only the long-run is significant. This implied that last year productive activities impact has a positive growth effect on the

current year productive activities though this is only significant in the long-run. The current domestic general government expenditure on health (DGHE) has a significant negative effect on economic growth while the previous year domestic general government expenditure on health significantly impacted real GDP positively both short-run and long-run. The implication of these results is that only the consistent and committed general government health spending over the years can significantly impacted economic growth positively. Current government general health spending may not influence economic growth positively and can even impacted economic growth negatively, all things being equal. Our result of the previous year (a year lag) government general health spending corroborates Ibe and Olulu-Briggs (2015) but the result of the current year government general health spending does not support them. This may be due to the choice of estimation technique or the choice of the data used in the study.

The short-run results of the current out-of-pocket health expenditure and the previous out-of-pocket health expenditure follows the same path with the government general health spending. The previous out-of-pocket health expenditure has a significant positive effect on economic growth while the current out-of-pocket health expenditure significantly impacted economic growth negatively in the short-run. The situation may be real rather than exception in the short-run. Therefore, increasing health expenditure every year may be require to influenced economic growth via health financing in the short-run. However, the long-run out-of-pocket health expenditure has a positive significant effect on economic growth. Also, the current domestic private health expenditure (DPHE) and the previous domestic private health expenditure have a significant positive effect on economic growth both in the short-run and the long-run in Nigeria. This emphasised the importance of private health spending than government health expenditure. Hence, increasing individual spending capacity to spend on their health privately may be more effective that direct government spending on health. The R^2 and adjusted R^2 for both the short-run and the long-run models indicate that the results have more than 80% explanatory power both in the short-run and the long-run. The F-test also validates the results both in the short-run and the long-run.

Table 5: Short-run and Long-run ARDL Estimate of the Impact of Health Financing on Economic Growth

Short-Run		**Long-Run**	
Variables	**Dependent Variable: D(LRGDP)**	**Variables**	**Dependent Variable: LRGDP**
	Coefficients		**Coefficients**
D(LRGDP(-1))	0.202928 (1.0521)	LRGDP(-1)	0.240297* (3.7684)
D(DGHE)	-2.742519* (-4.9740)	DGHE	-1.954263* (-4.7168)
D(DGHE(-1))	1.811160* (5.1094)	DGHE(-1)	2.110476* (6.7906)
D(DPHE)	10.06292*** (1.8926)	DPHE	12.59467* (4.0871)
D(OOP)	-17.02099* (-3.8094)	DPHE(-1)	6.612194* (5.3784)
D(OOP(-1))	5.924784* (5.0681)	OOP	19.19183* (7.4328)
C	-0.026320 (-1.2579)	C	0.021836 (0.0070)
F-statistic	0.5986	F-Statistic	29.38710
Prob (F-statistic)	0.000608*	Prob(F-statistic)	0.000000*
R-squared	0.939609	R-squared	0.951436
Adjusted R-squared	0.887844	Adjusted R-squared	0.919060
Durbin-Watson stat	2.6838	Durbin-Watson stat	2.550168
Breusch-Godfrey Serial Correlation LM test	0.3026	Breusch–Godfrey Serial Correlation LM test	0.0312

*, **, *** Significant at 1%, 5% and 10% level
Standard Errors are in Parenthesis
Source: Authors Computation, 2021

The co-integration equation (CointEq(-1)) result in Table 6 shows the rate of correction of departure from the long-run equilibrium. The result confirms that the CointEq(-1) is negative and statistically significant. Its value of 0.75 reveals that the speed of adjustment towards long-run equilibrium is about 75%. This implies that about 75% of departure from the long-run is restored in a year. Figures 3 and 4 show the CUSUM and CUSUM of squares of the recursive test for stability of all the variables in the model. The result indicates that the models estimated are stable, which further implies the significance of the models.

Table 6: Result of the Restricted Error Correction Model

Variable	**Coefficient**	**t-statistic**	**Prob.**
C	0.021836	1.671421	0.1290
D(DGGHE)	-1.954263	-8.477781	0.0000
D(DPHE)	0.59467	0.781949	0.0000
CointEq(-1)*	-0.7467	-15.47592	0.0000
R-squared	0.003996	F-statistic	83.63534
Adjusted R-squared	-0.867508		
Durbin-Watson stat	2.382007	Prob(F-statistics)	0.000000
Breusch-Godfrey serial correlation LM: F-stat	0.032094	Prob(F-statistics)	0.9825

Source: Authors Computation, 2021

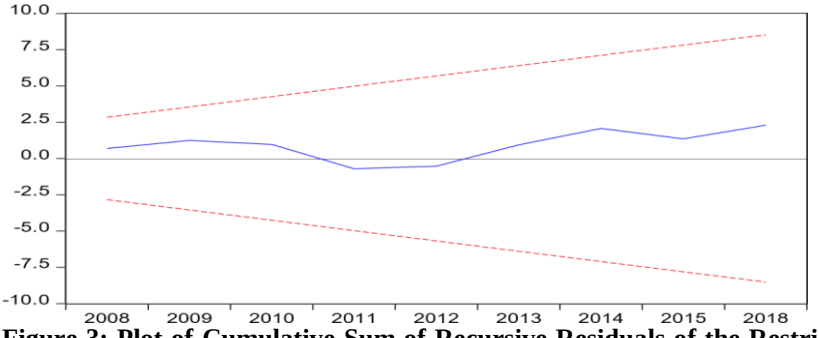

Figure 3: Plot of Cumulative Sum of Recursive Residuals of the Restricted ECM CUSUM TEST

Source: Authors Computation, 2021

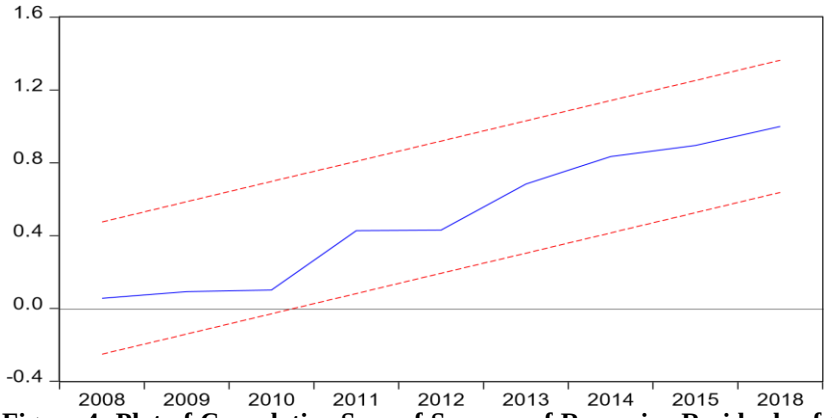

Figure 4: Plot of Cumulative Sum of Squares of Recursive Residuals of the Restricted ECM CUSUM OF SQUARES
Source: Authors Computation, 2021

Table 7 shows the granger-causality test results between health financing mechanism and economic growth. For causality to exit between two variables the probability of F-Statistic must be less than or equal to 0.05. The results show a one-way (unidirectional) causality between domestic government general health expenditure and economic growth; domestic private health expenditure and economic growth and economic growth and out-of-pocket health expenditure. It shows that domestic government general health expenditure and domestic private health expenditure granger-cause economic growth and economic growth granger-cause out-of-pocket health expenditure. This implies that increase domestic government general health expenditure and domestic private health expenditure leads to economic growth and economic growth increases out-of-pocket health expenditure. This confirms some of our earlier results.

Table 7: Granger-Causality Test Result

Null Hypothesis:	**Obs**	**F-Statistic**	**Prob.**
DGHE does not Granger Cause LRGDP	31	5.22997	0.019**
LRGDP does not Granger Cause DGHE		0.00960	0.923
DPHE does not Granger Cause LRGDP	31	4.03972	0.0283**
LRGDP does not Granger Cause DPHE		0.08937	0.7697
OOP does not Granger Cause	31	2.02287	0.1785

LRGDP			
LRGDP does not Granger Cause OOP		4.03725	0.027**
DPHE does not Granger Cause DGHE	31	2.53251	0.1324
DGHE does not Granger Cause DPHE		0.19247	0.6671
OOP does not Granger Cause DGHE	31	2.49065	0.1354
DGHE does not Granger Cause OOP		0.08357	0.7765
OOP does not Granger Cause DPHE	31	0.24779	0.6259
DPHE does not Granger Cause OOP		0.28213	0.6031

** Significant at 5% level

Source: Authors Computation, 2021

5. Conclusion and Recommendations

This study examines the impact of health financing on economic growth in Nigeria with data from 1990 to 2020. The result of the unit root test favoured the use of Auto-regressive Distributed Lag Model (ARDL) estimation technique. The results show that the previous year productive activities have a growth effect on the current year productive activities both in the short-run and the long-run. The current domestic government general health expenditure has a negative growth effect on economic growth while the previous year domestic general government expenditure on health has a positive growth effect on the economy. 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 growth effect on the economy. The result further emphasised the importance of private health spending than government health expenditure in growing the economy. Hence, both the previous year health spending and current health spending are sine-qua-non for economic growth. Therefore, 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.

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