



GOVERNMENT HEALTH EXPENDITURES AND PERFORMANCE OF NIGERIAN HEALTH CARE SYSTEM

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Abstract

The study investigated the relationship between Government Health Expenditures and healthcare system performance in Nigeria. The study adopted ex post facto research and employed the autoregressive distributed lag (ARDL) to analyze the data. The major findings of the study indicated that there is a significant positive relationship between Government capital expenditure on health and basic health care provision fund (BHCPF) in Nigeria. The study also found that there is significant positive relationship between Government recurrent on health basic health care provision fund (BHCPF) in Nigeria. Further, it was found that there is a significant positive relationship between the Government's total expenditure on health and the basic health care provision fund (BHCPF) in Nigeria. The study concluded that there is a significant positive relationship between Government Health Expenditures and healthcare system performance in Nigeria. Based on the outcome of the various tests carried out and the hypothesis evaluated, this research therefore makes the following recommendations: The government should increase the recurrent expenditure on health care provision by employing more medical personnel. This will help to improve the performance of the healthcare system; there is a need to improve the capital expenditure on healthcare by way of equipping the available ones and remodelling them to meet international standards. This will help to curtail foreign medical tourism and improve the performance of the healthcare system

Keywords: Government health sector expenditures, Nigerian health care system, Health care system performance.

Introduction

The Nigerian Health institutions are majorly categorized into three layers. Namely; tertiary, secondary and primary. The primary health centers otherwise known as Primary health care centers are cited in rural areas and usually in remote communities where the impact of such facilities is felt and its strategic importance to cover the poor populace for the attainment of SDG three (3) in line with United Nations recommendations. The first entrance point to any local facilities is Primary Health Centers (PHCs). The health care system is largely public-sector

driven, with substantial private-sector involvement in service provision. Secondary and tertiary-level health facilities are mostly found in urban and regional areas, whereas rural areas are predominantly occupied by primary health centres (PHCs). Primary health care (PHC) is regarded as the cornerstone and backbone of the Nigerian healthcare system. The necessity for PHC was borne as a result of proximity to access health facilities in rural areas. Primary health centres are available in each political ward of

every local government in Nigeria for easy access to quality health care needs.

The Nigerian health care system is the entire agency that provides health care services to citizens and foreign residents. Bashir (2016) stated that health care facilities are crucial to socioeconomic development. Ifunayachukwu and Dauda (2019) also argued that development in Africa for quality of life improvement requires access to educational and health facilities. Health is regarded as a relevant and crucial factor that determines the quality of human capital and also a vital factor for economic growth and development which remains the basic factor for any activity undertaken by man (Olarinde & Belolo 2016). World Health Organization (2010), pointed out that the relevance of healthcare to our economy cannot be overemphasize.

All over the world, government health expenditures can be seen as that aspect of government expenditure that shows the total amount of money that has been spent on different levels of the health system in the country such as primary, secondary and tertiary levels of health services. Government health expenditures in the country are often allocated through the recurrent expenditure and capital expenditure. Wasiu (2020) found that health expenditure (HE) climbed from 0.13 billion in 2000 to 99.90 billion in 2010 and 231.80 billion in 2011. Health expenditures reached 257.72 billion in 2015 and 202.36 billion in 2016 but Government health expenditures are still below the WHO benchmark for the nation. The Federal Government's revenues are drained by Nigeria's spending on internal security and defense, which is caused by terrorism, banditry, kidnapping, and religious killings (Osuji, 2018). This affects the development of other sectors, including health. Total recurrent and capital spending from 2017 - 2022 are: 549.83 billion in 2021, 711.2 billion in 2022, and 304 billion in 2017. Over the past 20 years, the Nigerian health system budget has averaged less than 6%. (NBS 2022). The questions that arise from these contentious issues are: How much is spent annually on health? Is the spending on health adequate? It is difficult however to provide precise answers to the questions. While the United Nations (UN)

recommendation of an average expenditure of 8-10 per cent of the GDP may be considered as benchmark. (McKing Izeiza Amedari Ejidike 2021). However, successive governments have not paid the desired attention to primary health care as a gateway to accessing health care delivery in the country. Nigeria ranks 187 out of 191 countries in health system efficiency for health expenditure per capita. (World Fact Book, 2017). The Millennium Development Goals (MDGs3) stated that PHCS are essential for achieving universal healthcare coverage and achievement of healthcare needs at PHCS through BHCPF.

The Basic health care provision fund (BHCPF) encapsulates all sources of finance through which funds flow into health facilities and such funds are disbursed and retirement of those funds which are carried by finance officers in respective facilities. Healthcare financing responsibilities are shared amongst the three levels of government (Federal, State, and LGA) in Nigeria. The Federal is concerned with the tertiary health sector whilst the State is concerned with both secondary and primary health care. The Federal Ministry of Health's ability to effectively superintend the health sector is weakened due to the lack of adequate information on health outcomes, health resources, costs and the utilization of services across the various tiers including the federal, state and local levels (Hafez, 2020). Despite sufficient budgets allocations at the time of planning, health facilities frequently operate without adequate financial resources and are unable to provide basic PHC services as required by the National Primary Health Care Development Agency (NPHCDA). In addition, challenges with poor documentation of state and LGA expenditures on health, and the fragmented delivery of PHC between state and local agencies have led to inefficient use of limited resources. The unreliable funding flow has disrupted multiple facets of PHC delivery and contributed to unfavorable health outcomes. insufficient funding, poor project execution.

Abdulraheem, Olapipo, Amodu (2012). Submitted that Corruption in the health sector has made various health institutions ineffective while scarce resources invested in the sector are

wasted. Health system corruption prevails in Nigeria among different actors including senior and junior administrative officers in health ministries, parastatals and agencies, health officials and among political officeholders. This is because there is no adherence to the rule of law, coupled with a lack of transparency and trust. The data available from the Federal Ministry of Health (2021) showed that Nigeria's health financing indicators are generally below expectations. Total health expenditure consistently grew over the years, more than doubling from N1.9 trillion in 2010 to N4.5 trillion in 2018 (WHO 2018). In 2017, the Total health expenditure to GDP ratio was 3.9% of the Nigerian economy, which is just 0.1% less than the international benchmark of 4-5% of GDP. Government-funded health expenditure per capita stood at ₦3,786 (\$12), which is far below \$86 - an amount that approximates the minimum amount needed to ensure universal health coverage for priority services for everyone in Nigeria. (King Amedari Ejidike 2021). Considering the desire of the government towards the health sector, this study seeks to study the relationship between government health expenditure and health system performance in Nigeria available data from BHCPF within the period of (2018-2023).

Other research works have focused on health expenditures and economic growth and development mostly but our interest is on a new variable known as the BHCPF as the dependent variable to regress the public expenditures health variable which was measured using recurrent and capital expenditures. This study fills this gap by covering specifically data availability on Health care expenditures and BHCPF from Consolidated Revenue Fund Account. (CRF) which other studies had not properly used to make a point of departure from previous studies.

Objectives of the Study

The main objective of the study is to determine the relationship between Government Health Expenditures and healthcare system performance in Nigeria using primary healthcare centres as a reference point.

Specifically, the study sought to:

1. Determine the relationship between capital expenditure on health and basic health care provision fund (BHCPF).
2. Determine the relationship between recurrent expenditure on health and basic health care provision fund (BHCPF).
3. Evaluate the relationship between total expenditures on health and basic health care provision funds. (BHCPF).

Research Hypotheses

The following hypotheses are raised in a null form to guide the study below:

H0₁: There is no significant relationship between Government capital expenditure on health and basic health care provision fund (BHCPF) in Nigeria.

H0₂: There is no significant relationship between the Government's recurrent health and basic health care provision fund (BHCPF). in Nigeria.

H0₃: There is no significant relationship between the Government's total expenditure on health and the basic health care provision fund (BHCPF) in Nigeria

Health Care Expenditures in Nigeria

Public expenditures on Health are defined as "the mobilization of funds for health care services and needs of the common man. It's the provision of funds and resources to the government's planned activities to maintain people's health. Olayiwola and Olusanya (2022) posited that adequate and sustainable health expenditures are important to the attainment of Sustainable growth and development in line with SDG three. Public health care in Nigeria is organized around approximately 13,703 Primary Health Centers (PHC) supported by a network of hospitals that includes 845 secondary and 59 tertiary health care centers which include University Teaching Hospitals, and Specialized Hospitals. There is a variety of types of basic care facilities especially in the rural areas grouped by various names like dispensaries, health centers and health posts. Health expenditure according to the World Health Organization (WHO) refers to mobilization, accumulation, and allocation of money in the health system to cover the health needs of the people (individually and

collectively). It entails the assemblage of funds from different sources to access improved health services. Available statistics show that state funding of healthcare in countries within the Economic Community of West African States (ECOWAS) is evidently below the 15% recommended by the United Nations Education Scientific and Cultural Organization (UNESCO) to meet the then Millennium Development Goals (MDGs, 2000–2015) and its successor, Sustainable Development Goals (SDGs, 2015–2030).

Health Care Public Financial Management System

The Federal Ministry of Health in 1992 set up the National Primary Health Care Development Agency (NPHCDA) in Nigeria for the single purpose of improving the country's primary health care system. Policies are formulated and adopted by NPHCDA at the federal level, and implemented by the Local Government Health Authorities (LGHAs) of each state. When LGAs received financial autonomy in the 1980s, by extension, they also became the principal funding source for PHC service delivery (Gupta, Gauri, Kheman 2003). Revenues are collected from primary and secondary sources, e.g., out-of-pocket payments (OOPs), indirect and direct taxes, donor funding, voluntary prepayments, and mandatory prepayment, which are accumulated in fund pools to share risk across large population groups and using the revenues to purchase goods and services from public and private providers for identified needs of the population, e.g., fee for service, capitation, budgeting and salaries.

In October 2014, the Nigerian President signed into law the National Health Act, which provides a legal framework for the provision of health care services to all Nigerians and the organization and management of the health system and government health intervention. A key component of the National Health Act is the establishment of the Basic Health Care Provision Fund, which is predominantly financed through an annual grant from the federal government of not less than 1% to be sourced from the Consolidated Revenue Fund (total federal revenue before it is shared to all tiers of

government). Half of the fund will be used to provide basic minimum package services in PHC facilities through the National Health Insurance Scheme otherwise known as National Health Insurance Authority (NHIA) domiciled in different states as its called Ebonyi state Health Insurance scheme (EBSHIA) in Ebonyi State and Imo State Health Insurance Scheme (IMSHIA) in Imo state. Ruhago and Uzokwu (2023) argued that Universal health coverage remains a challenging pursuit around the world, even among the highest-income countries. Strengthening financial management capacity is important for attaining the three universal health care coverage (UHC) goals, quality service, and financial protection. In this regard, Nigeria and other developing countries introduced the Facility Financial Accounting and Reporting System (FFARS) in line with the introduction of the Direct Health Facility Financing (DHFF) project in primary health care (PHC) in 2017–2018. This idea aims at evaluating the functionality of the FFARS in management, accounting, and reporting funds received, disbursed and strengthening of public financial management in PHC facilities towards Sustainability development goal three which indicates a quality health care system. (Uzochukwu, Ughasoro, Etiaba, Okwuosa, Envuladu & Onwujekwe (2015).

The health care system in Nigeria is financed through different sources, including tax revenue, out-of-pocket payments, donor funding, and health insurance, both social and community engagement otherwise known as stakeholders' engagement. Financing agents in Nigeria include the federal government and its parastatals, state and local governments, and insurance companies. The government is responsible for the provision of quality health services to the citizens, but evidence suggests that households through out-of-pocket spending continue to be the major source of health financing in Nigeria. In 2013, out-of-pocket expenditure as a percentage of total health expenditure was 69.35% and out-of-pocket expenditure as a percentage of private expenditure on health was 95.8%. One of the efforts to address the poor population health status in Nigeria is the

introduction of the Basic Health Care Provision Fund (BHCPF) in 2018 and implementation in 2019. The BHCPF is a performance-based financing method designed to strengthen the PHC system for service delivery through more funding among other approaches. (Adewole, Bello, Okunola & Owoaje 2021).

Various sources of health financing inflows and funds allocation

1. Basic Health Care Provision Fund (BHCPF)
2. Impact Fund
3. Capitation Fund for drug purchases and utilization
4. National Health Insurance Authority (NHIA Reimbursement).
5. Grants by international donor partners; Global Fund
6. Donations from Good Spirited Individuals;
7. Statutory Allocation
8. Basket Funds
9. Internally Generated Revenue Funds (IGR) From PHCs
10. and other Services such as UK-aid through Marie Stopes and USAID-IHP interventions

The Basic Health Care Provision Fund (BHCPF) and other Revenue Sources at PHC

The Basic Health Care Provision Fund (BHCPF) is enshrined in the National Health Act 2014, as a means of financing PHC in 36 states of the federation and FCT in achieving Universal Health Coverage. Its implementation started with a Presidential launch in January 2019 following which N55.1 Billion was made available from the 2018 statutory allocation. (FMOH 2020). One of the efforts to address the poor population health status in Nigeria is the

introduction of the Basic Health Care Provision Fund (BHCPF) in 2018 and implementation in 2019. The BHCPF is a performance-based financing method designed to strengthen the PHC system for service delivery through more funding among other approaches. It purchases high-impact maternal and child health services through accredited public and private providers through decentralized facility financing. The BHCPF will provide additional revenue to fund primary healthcare services and help Nigeria to achieve universal health coverage (UHC). Its 1% pool of funds from the Consolidated revenue fund account (CRF) from the federation inflows without passing through unnecessary budgetary provisions by the national assembly. This fund is supported by National Health Act of 2014. However, this BHCPF usually comes monthly or quarterly for smooth running of PHC and sustenance of patients'/clients' inflows in four gateways.

The sources of financing for the Nigerian healthcare system were general tax revenue, out-of-pocket payments, social health insurance, private voluntary health insurance, community-based health insurance, and donor funding. Additionally, considering the statutory transfer of funds via the Basic Health Care Provision Fund (50% of the 1% consolidated revenue for strengthening the PHC) for essential drugs, vaccines, human resources and infrastructure maintenance, unused funds as a result of delayed release of funds, poor uptake or demand can be rolled over The Donor Funding This refers to financial assistance given to developing countries to support socioeconomic and health development and may be in the form of loans or of aid grants. The donor countries were given the target of 0.7% of their gross national product as Official Development Assistance (ODA) to developing countries.

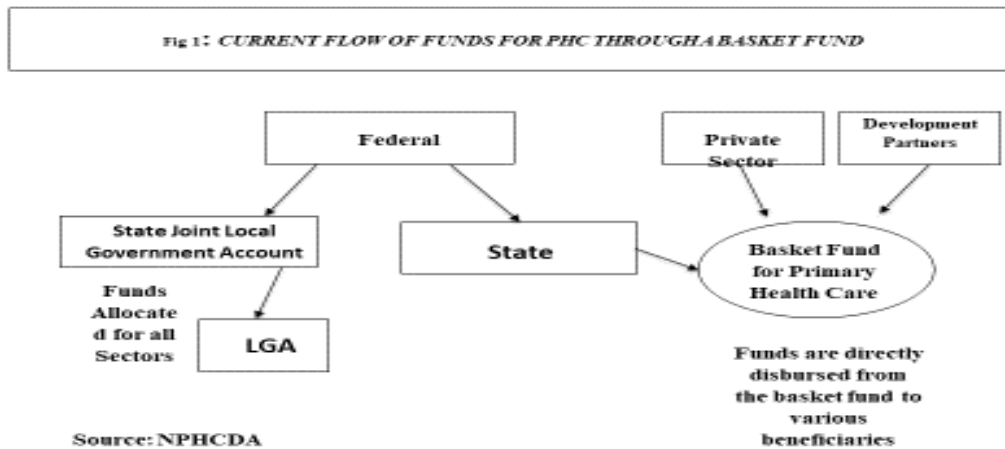
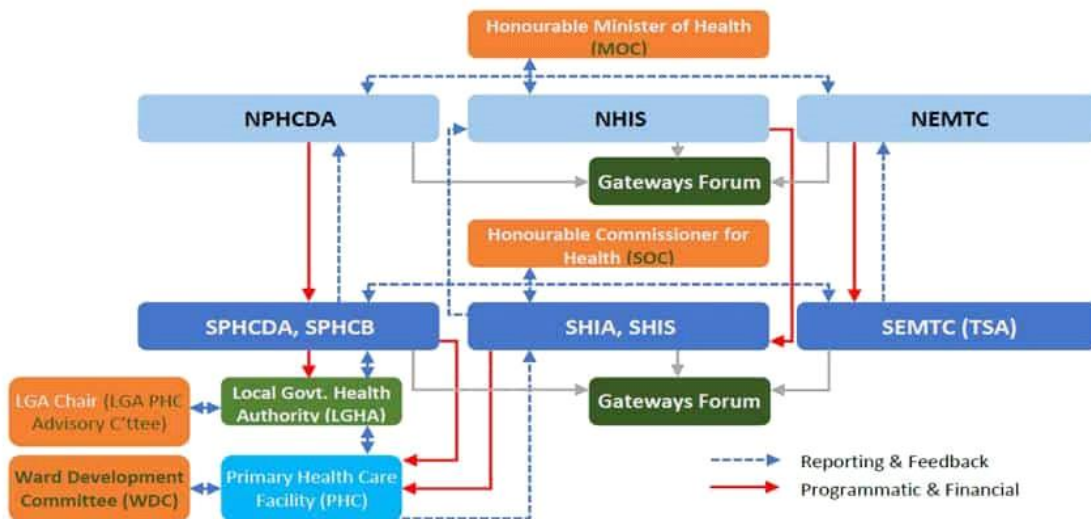


Fig 2. ORGANOGRAM OF THE GOVERNANCE STRUCTURE OF THE BHCPF



Source: Federal Ministry of Health and Budget office 2023

NPHCDA=National Primary Health care development Agency

NHIS=National Health Insurance Scheme

SPHCDA=State primary Health care Development Agency

SPHDB=State Primary Healthcare Development Board

SHIA=State Health Insurance Authority/Scheme

NEMTC=National Emergency Treatment Committee

Theoretical Framework of the Study

This study is underpinned by Accountability theory by Bandura (1977) and stakeholder theory and supported by Freeman in the 1980s

Accountability has been conceptualized in different ways Brinkerho (2018) and it is often related to several concepts In this study, we adopted the concept of responsiveness, responsibility, and effectiveness of accountability used by Boven to analyse the accountability of transnational institutions such as the European Union.(Bovens 2007).This theory implies that health management activities and functions relies on accountability and transparency If those health deliverables are accounted and reported the health system will be improved and strengthened, Accountability in health sector financing implies openness, fairness, honesty, transparency, utilization of

needed human resources for health and reporting. Hence, the theory of accountability matches with this paper. In Nigeria, accountability lies at the heart of various health systems strengthening efforts.

The stakeholder theory is a general theory in management and social science studies propounded by Freeman in the 1980s and has been the most common approach to economic, social and environmental researches. The theory revealed that managers owed a duty not only to the firm but also to the wider society and must meet contradictory demands by multifaceted. According to the proponents of this theory, every sector has the key players or actors' poor regulator. At tertiary level secondary and primary level of health facilities, the stakeholder engagement involves the Officer in-charge (OIC), ward Development and Facility management committees (WDC, FMC) health clerk, government agencies community and Local health and environmental officers in our respective PHCs domain.

Empirical Review

Ahonkhai, Osuji & Erhijakpor (2023). Critically examined government health expenditure (GHE) and health sector (HS) performance from 1981 to 2021. The findings showed mixed integration in the research variables. The analysis used time series data from the Central Bank of Nigeria Statistical Bulletin, World Bank Development Indicator, Nigeria's budget, CPIA database, and World Medical Association Report. The analysis found that government health domestic spending and income per capital enhanced LE and reduced newborn mortality Saliu, Enimola, & Zakariya (2023). This study also examined firm value sequel to the firm characteristics of listed Healthcare Enterprises within the Nigerian context. The goal is to determine how the selected firm characteristics influence value of Nigerian healthcare enterprises. Ex-post facto design was employed to conduct this study; and this involved the application of panel data. and was analyzed using panel data regression. Firm size was found to have positive impact on the firm value of listed Enterprises in the Healthcare Sector of Nigeria. The study also discovered that liquidity had a negative substantial impact on the

firm value, implying that having too much liquidity is detrimental to the firms' value. It was found that financial leverage has a significantly negative impact on firm value. Additionally, Adeniyi & Abiodun (2011) carried a study and discovered that health expenditure has a strong relationship with Nigerian economic growth. According to the authors, if funds are properly channeled and appropriately expended to both recurring and capital projects in health, the existence of a positive relationship between health care and economic growth will be expanded. Adeniyi and Abiodun Ibukun and Osinubi (2020) looked at the relationship between environmental quality, economic growth, and health spending in 47 African countries and discovered that economic growth has a positive and inelastic effect on health spending. Anowor, Ichoku, and Onodugo (2020) used GDP capital to investigate the relationship between health financing and economic growth performance. Their research found that private and public health-care spending have a positive effect on economic performance, with a long-run correlation between health-care spending and output per capita in the ECOWAS region. Olayiwola & Olusanya (2021) investigated the relationship between health financing and Nigerian economic growth and found that domestic private health expenditure has a significant positive growth effect on Nigerian economic growth. Okwuosa (2010) investigated the impact of public healthcare expenditure and the health sector performance

METHODOLOGY

The researcher adopted *ex-post facto* design in the study. This design used because the researcher is dealing with secondary data. Furthermore, *ex-post facto* design is used when researcher is trying to ascertain the cause and effect of the relationships that exist between two variables. The population of the study is longitudinal in nature from quantitative perspective. The target population for the study is focused on the entire public expenditures data listed in the bulletin as recognized by the National Bureau of Statistics, Nigerian Exchange Group (NGX)) within the short sample frame of (2010-2022). Hence the study

targeted population was generated from CBN data listed as per 4th quarter of 2022 and Budget office of the federation as at 2022. Multiple regression was used to test the stated hypotheses one to three. The econometric model previously employed by Uzochukwu & Okwuosa (2021), who empirically examined the impact of the healthcare spending and performance of health system in Nigeria, was applied in this study. The econometric model of this study, which had earlier been reviewed in the preceding section were adapted and modified below:

For the stated hypotheses 1, the model is stated as follows;

$$BHC_{PF} = F (REXP, CAPEX, TEXP) \dots\dots\dots 3.1$$

The mathematical regression model for the equation above is transformed to the econometric model: thus:

$$BHC_{PF} = \beta_0 + \beta_1 REXP_t + \beta_2 CEXP_t + \beta_3 TEXP_t + e_t \dots\dots\dots 3.2$$

Where:

- BHC_{PF} = Basic Health care provision fund
- REXP = Recurrent expenditure
- CEXP = Capital expenditure
- TEXP = Total Expenditure
- β₀ = Intercept
- β₁.β₂ = Parameter estimates
- e = error terms
- t = period

Table 1: Unit root test result

ADF Test @ Level			ADF Test @ 1 st Difference		ADF Test @ 2 nd Difference	
Series value	ADF	P-	ADF	P-value	ADF	P-value
BHC	-2.256728	0.4290	-3.941574	0.0388	-	-
RHEX	0.334118	0.9966	-1.998891	0.5522	-	-
CHEX	-6.580287	0.0005	-	-	-	-
THEX	-2.739375	0.2369	-4.999409	0.0045	-3.986866	0.0394

Source: researcher’s computation 2024 (E-views)

The test for stationarity conducted using the Augmented Dickey Fuller Test (ADF) approach to unit root testing shows that the data on the dependent variable (BHC) and the independent variables except the capital healthcare expenditure (CHEX) did not achieve stationarity

PRESENTATION AND ANALYSIS OF RESULT

The Unit Root Test

The unit root test is used to test for stationarity of model series. Granger & Newbold (1974) argued that regression analysis between two non-stationary time series could produce spurious or nonsense result. This means that one could find statistically significant relationship whereas *a priori* there should be none. Stationary time series are important because if a time series is non-stationary; its behavior can only be investigated for the time period under consideration. However, each set of time series data will therefore be for a particular period. As a result, it is not promising to generalize it to other periods. Therefore, the prediction of such (nonstationary) time series may be of little practical value. It is therefore necessary to ascertain that the dependent variable (basic health care provision – BHC) and the independent variables (health expenditure) series are stationary using the Augmented Dickey-Fuller (ADF) unit root test.

Decision rule: the series is stationary if the ADF t-stat is greater than the 5% critical value or if the p-value is less than 5% level of significance (i.e, p-value < 0.05). summary of the unit root test result on the variables is presented in the table below:

@ level, hence they were subjected to first differencing. The basic healthcare (BHC), recurrent healthcare expenditure (RHEX) achieved stationarity at first differencing. However, the total healthcare expenditure (THEX) was stationary at second differencing.

Differencing is done when the data set fails to be stationary @ level; stationarity is concluded if the ADF statistic is greater than the 5% critical

value or if the probability value (P-value) is less than (0.05). Hence, stationarity and integration was achieved at order 1(0), 1(1) and 1(2).

Descriptive Test

Table 2: Selected descriptive statistical summary

	BHCPF	CHEX	RHEX	THEX
Mean	18.54640	165.5544	225.3988	1359376.
Std. Dev.	1.087544	1.166872	1.017837	1.036239
Skewness	0.552798	0.422520	0.581109	1.902435
Kurtosis	1.354681	2.253440	2.600586	1.130153
Jarque-Bera	2.619613	0.847630	1.006854	12.67639
Probability	0.000872	0.000545	0.004456	0.001767
Observations	16	16	16	16

Source: researcher's computation 2024 (E-views)

Table 1 above shows the descriptive statistical summary of the dependent and independent variables. In percentage, the basic healthcare provision fund (BHCPF) been the dependent variable stood at 18.54%. This indicates a poor performance index. The average capital healthcare expenditure (RHEX), recurrent healthcare expenditure (RHEX) and the total healthcare expenditure (THEX) in the period under review stood at 165.55 billion naira, 225.40 billion naira and 1359.38 billion naira respectively.

For series where there is cointegration, it is recommended to run the cointegration test to ascertain a long run tendency among the model variables. Stationary series are assumed to be cointegrated, this means that there is evidence of a long-run relationship between stationary series in a model. Hence, the Bounds approach to cointegration was employed because the series was integrated at mixed order at 1(0), 1(1), and 1(2), the decision rule is:

Decision rule: there is cointegration (long-run relationship) if the trace statistic is greater than the 5%critical value.

The result is shown below:

The Cointegration Test of long run relationship

Table 3: Bounds test result

ARDL Bounds Test				
Included observations: 15				
Null Hypothesis: No long-run relationships exist				
Test Statistic	Value	K		
F-statistic	4.087027	3		
Critical Value Bounds				
Significance	I0 Bound	I1 Bound		
10%	2.72	3.77		
5%	3.23	4.35		
2.5%	3.69	4.89		
1%	4.29	5.61		

Source: researcher's computation using E-views 2024

From Table 3, the test statistic of the Bounds test of long-run relationship provides evidence of a long-run relationship in the model at 5% level of significance, thereby leading to the rejection of the null hypothesis of no long-run relationship and acceptance of the alternative. There are three

ways to decide on the acceptance or rejection of the null hypothesis of no long run relationship when using the Bounds approach to cointegration: if the F-stat is greater than the 5% critical value for the upper bound 1(1), the null hypothesis is rejected and the alternative that there is long-run relationship is accepted; if the

f-stat falls below the critical value for the lower bound 1(0), there is no cointegration, hence no long-run relationship; and if the f-stat falls between the lower bound 1(0) and the upper bound 1(1) the test is considered inconclusive. Following the result as in Table 3 above, the obtained f-stat of 4.087027 is greater than the critical value for the upper bound 1(1) at a 5% level of significance ($4.087027 > 3.23$), hence it is concluded that there is evidence of long-run relationship in the model.

Table 4: ARDL Regression result

Dependent Variable: BHC				
Method: ARDL				
Sample (adjusted): 2009 2023				
Included observations: 15 after adjustments				
Dynamic regressors (0 lag, automatic): RHEX CHEX THEX				
Fixed regressors: C				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
BHC(-1)	0.597053	0.282620	2.112566	0.0608
RHEX	1.004539	0.075922	3.059786	0.0035
CHEX	3.105912	0.101058	3.048026	0.0013
THEX	1.161006	0.051106	2.625077	0.0059
R-squared	0.750605			
Adjusted R-squared	0.650847			
S.E. of regression	1.091086			
Log likelihood	-58.77443			
F-statistic	7.524251	Durbin-Watson stat		2.007687
Prob(F-statistic)	0.004586			

Source: authors computation 2024 (Eviews).

The empirical value of the adjusted coefficient of determination (Adjusted $R^2 = 0.650847$) shows that 65.09% of the total variations in Nigeria's healthcare provision is accounted for by variations in the government healthcare expenditure (recurrent healthcare expenditure, capital healthcare expenditure, and the total healthcare expenditure), while the remaining 34.91% is attributed to the output of other intervention efforts from non-government and donor agencies, as well as out-of-pocket healthcare expenditure.

The f-stat value (7.5240) shows that the overall regression is statistically significant, this is indicated by the p-value (0.004). It also indicates there is a joint influence of the explanatory variables on the explained variable.

Estimation of Healthcare Expenditure and Performance of Healthcare System

The model variables (capital healthcare – CHEX, recurrent healthcare expenditure – RHEX, and the total healthcare expenditure – THEX) were stationary and integrated at order 1(0), 1(1) and 1(2). Following econometric procedures, the autoregressive distributed lag is to be applied to estimate the model. The regression result is presented below:

Evaluation of the hypotheses

The broad objective of this study is to determine the relationship between Government Health Expenditures and healthcare system performance in Nigeria. The test of hypotheses proceeds thus:

Hypothesis One

H_{01} There is no significant relationship between Government capital expenditure on health and basic health care provision fund (BHCPF) in Nigeria.

Decision Rule:

If the p-value of the parameter estimate of capital healthcare expenditure series (CHEX) is less than 0.05, reject the null hypothesis, otherwise do not reject.

The parameter estimate of (CHEX) is (3.105912) while the p-value of the parameter estimate (0.0013), this is less than (0.05), hence the study hereby rejected the null hypothesis and concluded that there is a significant positive relationship between Government capital expenditure on health and basic health care provision fund (BHCPF) in Nigeria.

Hypothesis Two

H0₂: There is no significant relationship between the Government recurrent health and basic health care provision fund (BHCPF) in Nigeria.

Decision Rule: If the p-value of the parameter estimate for government recurrent healthcare expenditure (RHEX) is less than 0.05, reject the null hypothesis, otherwise do not reject.

From the result in Table 4, the parameter estimate is (1.004539), while the p-value of the parameter estimate is (0.0035). This is less than (0.05), hence the study hereby rejected the null hypothesis and concluded that there is a significant positive relationship between Government recurrent on health basic health care provision fund (BHCPF) in Nigeria.

Hypothesis three

H0₃: There is no significant relationship between the Government total expenditure on health and the basic health care provision fund (BHCPF) in Nigeria

Decision Rule: If the p-value of the estimated coefficient of the total healthcare expenditure (THEX) is less than 0.05, reject the null hypothesis, otherwise do not reject.

As indicated in Table 4 above, the coefficient of the total health expenditure variable (THEX) is (1.161006) while the p-value of the parameter is (0.0059) The p-value is less than the 5% significance level(0.05), hence the study hereby in line with the decision rule rejected the null hypothesis and concluded that there is significant positive relationship between Government total expenditure on health and basic health care provision fund (BHCPF) in Nigeria.

Summary of Findings

This research work investigated the relationship between Government Health Expenditures and healthcare system performance in Nigeria. Related conceptual, theoretical and empirical literature were reviewed. The study modelled the basic healthcare provision and the government health expenditure variables disaggregated into recurrent healthcare expenditure, capital healthcare expenditure, and total healthcare expenditure.

From the unit root test, the variables were initially not stationary at level except the capital healthcare expenditure variable, at the first difference the recurrent healthcare expenditure and the basic healthcare provision (dependent variable) were stationary. Only the total healthcare expenditure was stationary at the second difference; hence the variables were integrated of order 1(0), 1(1), and 1(2). The result of the cointegration test using the bunds approach confirmed a long run sustainable relationship in the model, government healthcare expenditure and healthcare system performance can converge in the long run. The entire regression plane is statistically significant as shown by the F-test, indicating joint influence of the model explanatory variables.

From the regression result (autoregressive distributed lag - ARDL), the adjusted coefficient of multiple determination (the adjusted R² 0.650847) shows that 65.08% of the total variations in the healthcare system performance is attributable to the influence of government healthcare expenditure variables while the remaining 34.92% is attributed to the variables (other healthcare activity variables) omitted from the model of the study. The addition of more and more variables into a model necessitates the use of the adjusted coefficient of determination. The summary of the major findings of the study are:

- There is significant positive relationship between Government capital expenditure on health and basic health care provision fund (BHCPF) in Nigeria. The parameter estimate of (CHEX) is (3.105912) while the p-value of the parameter estimate (0.0013)
- The study also found that there is significant positive relationship between

Government recurrent on health basic health care provision fund (BHCPF) in Nigeria. The parameter estimate is (1.004539), while the p-value of the parameter estimate is (0.0035).

- Further, it was found that there is significant positive relationship between Government total expenditure on health and basic health care provision fund (BHCPF) in Nigeria. The coefficient of the total health expenditure variable (THEX) is (1.161006) while the p-value of the parameter is (0.0059).

Conclusion

The study investigated the relationship between Government Health Expenditures and healthcare system performance in Nigeria. The specific objectives of the study were: to determine the relationship between capital expenditure on health and basic health care provision fund (BHCPF); to determine the relationship between recurrent expenditure on health and basic health care provision fund (BHCPF); and to evaluate the relationship between total expenditures on health and basic health care provision fund (BHCPF). The study adopted the *ex pos* factor design, employing the autoregressive distributed lag (ARDL) method in the data analysis. Based on the findings, the study concluded that there is a significant positive relationship between Government Health Expenditures and healthcare system performance in Nigeria

Recommendations

Based on the outcome of the various tests carried out and the hypothesis evaluated, this research therefore makes the following recommendations:

The government should increase the recurrent expenditure on health care provision by employing more medical personnel as well as increasing the 1% of CRF to at least 5%. This would help to improve the performance of the healthcare system.

There is a need to improve the capital expenditure on healthcare by way of equipping the available ones and remodelling them to meet international standards and best practices. This would help to curtail foreign medical tourism and improve the performance of the Nigerian healthcare system.

Development partners should also contribute by empowering facilities through global funds and interventions to aid government recurrent spending on health

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