



EFFECT OF DOMESTIC PUBLIC INVESTMENT IN HEALTH ON THE ECONOMIC GROWTH OF NIGERIA

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Abstract

This study aimed at determining the effect of domestic public investment (DPI) in health on economic growth in Nigeria. In line with the objectives set out in the study, the indices used were government spending in health for the period 1999 - 2019. Data for the study was extracted from the Central Bank of Nigeria statistical Bulletin and the causality relationship between domestic public investment and economic growth in Nigeria was also evaluated. The theoretical frameworks adopted for the study were neoclassical growth theory and Endogenous growth theory. Data were presented and analyzed using linear regression with the application of Ordinary Least Squares (OLS) technique and Granger causality technology. The findings showed that domestic public investment in health does not have positive and significant effect on economic growth in Nigeria. The findings also revealed that there is no causality relationship between domestic public investments and economic growth in Nigeria. The study therefore concluded that government expenditures on health sector have not been fully utilized and recommended that Government capital spending in the health sector is better managed in order to raise the nation's production capacity and revitalize integrated services delivery towards a quality equitable and sustainable healthcare.

Key words: Health Sector, Domestic Public Investment, Economic Growth

Introduction

Investment is seen as the nucleus of an economy as it plays a crucial role in the models of economic growth (Menber, 2015). Most developing economies depend largely on public investments to resolve several economic problems. As opined by Imoisi, Abuo & Sogules (2015), public investments come with a lot of benefits such as job creation, increase in per capita income, reduction in the level of poverty and increase in standard of living.

Investment in health ensures improvement in the wellbeing (reduces mortality rate) of the citizens, healthy environment and ultimately a robust workforce. Investment in the health sector in Nigeria since the democratic dispensation from 1999 has not been encouraging. Health care services have remained poor and as the population continues to grow, emerging health dynamics are equally occurring at the same rate (Idowu, 2014). The implication of this is that the health system must adapt to the prevailing circumstances. However, Nigeria's health sector, as it is, cannot cater for its growing population much less keep pace with rapid changes within the sector. The health sector is facing a human resource crisis of some sorts. The World Health Organization (WHO, 2013) classifies Nigeria among the 44% of nations that have less than 1% of physicians per 1000 population. Currently, Nigeria is yet to prioritize the implementation of its National Health Act (NHA) passed in 2015 which provides for a 1% Consolidated Revenue Fund (CRF) money set aside to provide basic health packages for her citizens. Besides the National Health Act (NHA), African Union countries in 2011, pledged to set a target of allocating at least 15% of their annual budgets to improve the health sectors within their borders. Currently, the health budget in Nigeria has always fallen short of the delineated level or threshold as allocations to the health sector at the federal level, relative to the budget size, continue to decline, falling from a high 5.97% in 2012 to 4% in 2018 (Onigbinde, 2018).

Domestic public investment in the health sector has generated a lot of interest in recent times. Most developed countries invest substantial proportions of their budgetary allocations on healthcare provision as they see their residents' health status as a major driver for economic growth (Soludo, 2006). As opined by Abada & Ugwunta (2016), the country has not come close to her goal of developing and transforming the society to the standard as developed countries as effective health services still remain out of the reach of many communities. It should also be noted that despite the increase in public investments on health provision in Nigeria, its contribution to human health is still very low (Imoughele and Ismaila, 2013).

Aim of the Study

The aim of this study is to evaluate the effect of domestic public investment in health on economic growth in Nigeria and this was guided by the following research question:

How does domestic public investment in health affect economic growth in Nigeria?

In line with the problem statement and specific objective, the following null hypothesis was formulated:



Ho. Domestic public investment in health does not have a positive and significant effect on economic growth in Nigeria.

Review of Related Literature

Public Investment and Poverty Reduction

Public investment is basically known as investment from government resources, domestic or foreign, with the objective of development of various sectors of the economy. Provision of public infrastructure like roads, bridges, hospitals, schools, irrigation systems, rural electrifications and technical promotion (training) is generally done using public instrument (Kanu, Ozurumba & Anyanwu, 2014.)

Public investment has a role of being the mastermind of promoting private investment and achievements by society, through provision of appropriate surroundings so that they could contribute in their ways (Adekunle & Aderemi 2012). For example, construction of access roads and public markets enable private investors achieve better performance, thereby triggering further growth of the economy (Kalu & Mgbemena 2015). Construction of schools and hospitals, training of teachers, Doctors, Nurses, Engineers etc provide the opportunity for the society to improve their conditions in the relevant sectors of the economy.

One of the reasons for Nigeria's high level of poverty, unemployment and unsustainable growth is that technical know-how and skills usually come with foreign physical capital which is yet insufficient for diverse and varied requirements of Nigeria's growth (Adams 2009).

Public investment – such as education, public health and infrastructure are a fundamental element of pro-growth budget that seeks to address the problems of slow growth, and lack of consistent full employment (Bakari 2017).

Many public investments have a broad economic impact by enabling more people to participate in the economy and benefit from economic growth (Epaphra & Massawe, 2016).

Domestic Public Investment in Health and Economic Growth

Public investment is the expenses that government incurs for its own maintenance, society and overall economy. It is evident that Nigeria, over the years, spent huge amount of money with a view to improving its health system (Meroyi, 2018). Nigeria has joined the world in seeking improvement in the health status of her citizens as can be seen from the various government policy intervention and investments in the development of the health sector. The realization of these efforts can be observed from the increase in budget allocation of the health sector by the successive Nigerian regimes since her return to democracy in 1999 (Yusuf, 2016).

Incidentally, Nigeria is still among the developing nations with poor health outcomes and its attendant problems (Onisanwa, 2014). Public investments by the Nigeria government in the health sector are recorded at three different levels: primary, secondary, and tertiary. At the primary level, health services are at the door step of communities where preventive, curative, and pre-referral cases are provided. At the secondary level, there are general hospitals that provide medical, laboratory and specialized health services; while the tertiary level of health service provision is the highest health care in the country with facilities such as teaching hospitals and federal medical centres which are equipped with high technology for special health services that enable them serve as resource centres for knowledge generation (WHO, 2013).

It should however be noted that despite the increase in public expenditure on health provisions in Nigeria, the contribution of this to human health is still marginally low (Oni, 2014).

It is worthy to note that economic growth differentials between developed and developing countries are attributable to ill health and low life expectancy (WHO, 2005). It is also an established fact that developed countries invest substantial proportions of their budgetary allocations on health care provisions as they are convinced that their residents' health can be a major driver for economic growth. Since the wealth of any nation is hinged on health, no investment made in respect of health by any nation is considered too much. Public investment in health therefore is so important as both a source of human welfare and a determinant of overall economic growth.



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Empirical Review

Ilegbinosa, Michael & Watson (2015) in the study ‘Domestic Investment and economic growth in Nigeria from 1970-2013: An econometric analysis’, examined the impact of Domestic investment on economic growth in Nigeria using annual time series data from 1970 -2013. The result showed that increase in government expenditure on social services reduced economic growth for the period studied.

Nelson, Dumani, & Ekokeme (2018) examined the ‘effect of government social expenditure on economic growth in Nigeria (1981-2016)’, using three explanatory variables (health, education and social services) and found out that there is a positive relationship between domestic public investment in health and economic growth.

Ozigbu, Ezekwe, and Moris (2018) analyzed the ‘size and growth of public investment in Nigeria: Implications for real sector development; employing autoregressive distribution lag (ARDL) model. The result revealed that investment in human capital formation such as healthcare delivery and education provide greater opportunity for agricultural development which invariably leads to economic growth.

Oni (2014) in his work; ‘Analysis of the growth impact of health expenditure in Nigeria’, evaluated the impact of health expenditure on economic growth in Nigeria using multiple regression analysis. The findings showed that gross capital formation and total health expenditures are important determinants of economic growth in Nigeria.

Ogungbenle, Olawumi & Obasuyi (2013) analyzed the relationship existing among ‘life expectancy, public health spending and economic growth in Nigeria: A vector Autoregressive (VAR) model’ and the result of the study revealed that there is a bi-directional causality between public investment in health and economic growth in Nigeria.

Mathew (2011) in the study, 'Human capital investment and economic growth in Nigeria: the role of education and health', looked at human capital investment and economic growth in Nigeria. The study made use of the Unit Root and Augmented Dickey Fuller (ADF) tests and found out that there is a negative relationship between government expenditure on health and economic growth.

Umoru & Yaqub (2013) examined 'private and public health capital expenditures in Nigeria: an empirical test of the relationship'. The researchers performed an empirical test of the relationship between private and public health expenditures in Nigeria and came out with the result of complementarity of inputs between public and private health expenditures in Nigeria which is an indication that government health investment plans crowd in private health investment spending. The result revealed that the effect of governments spending on health is insignificant and negative.

Bakare & Olubokun (2011) investigated that relationship between health care expenditure and economic growth in Nigeria: an empirical study. Ordinary least squared multiple regressions analytical method was used. The data analysis showed a significant and positive relationship between healthcare expenditures and economic growth.

Idowu (2014) examined 'the impact of health on Economic growth in Nigeria'. The researchers used co integration and Granger causality techniques in analyzing quarterly time series data of Nigeria for the period 1995-2009. The study revealed that investment in health has a positive and long run effect on economic growth which stands to reason that, a high level of economic growth can be achieved by investing in the health sector.

Imoughele and Ismaila (2013) studied the 'determinants of public health care expenditure in Nigeria: an error correction mechanism approach'. The study empirically examined the determinants of public health expenditure in Nigeria using the error correction techniques and time series data from 1986-2010. The findings showed that health expenditure is a major determinant of Gross domestic product growth.



Research Design.

This study adopted an *Ex post Facto* research design. The data collated were analyzed using linear regression with the application of Ordinary Least Squares (OLS) technique and Granger causality technology. Data analysis was carried out with the aid of E-views 10.0 statistical software.

Model Specification

In this research, domestic public investment in health sector serve as the independent variable while economic growth captured with real gross domestic product serve as the dependent variable.

The model specified the equation for estimation as follows:

$$RGDP_t = f(DPH) \dots (1)$$

The model is expressed in implicit and explicit forms below:

In Implicit Form: $RGDP = f(DPH)\dots\dots\dots (1)$

Explicit: as econometric equation;

$$RGDP_t = \beta_0 + \beta_1 DPH + \mu, \dots\dots\dots(2)$$

Where,

f = Functional Relationship

DPH = Domestic Public Investment on Health Sector

β = The Parameter of the independent variable to be estimated.

μ = Stochastic Error Term

t = Time Period

Presentation and Analyses Of Data

Data Presentation

YEAR	GDP (₦' Billion)	DPH (₦' Billion)
1999	5307.360	16.64000
2000	6897.480	15.22000
2001	8134.140	24.52000
2002	11332.25	40.62000
2003	13301.56	33.27000
2004	17321.30	34.20000
2005	22269.98	55.66000
2006	28662.47	62.25000
2007	32995.38	81.91000
2008	39157.88	98.22000
2009	44285.56	90.20000
2010	54612.26	99.10000
2011	62980.40	231.8000
2012	71713.94	197.9000
2013	80092.56	179.9900
2014	89043.62	195.9800
2015	94144.96	257.7000
2016	101489.5	200.8200
2017	113711.6	245.1900
2018	127736.8	296.4400
2019	144210.5	388.3700

Source: Central Bank of Nigeria (CBN) Statistical Bulletin, 10.

Note:

GDP = Gross Domestic Product

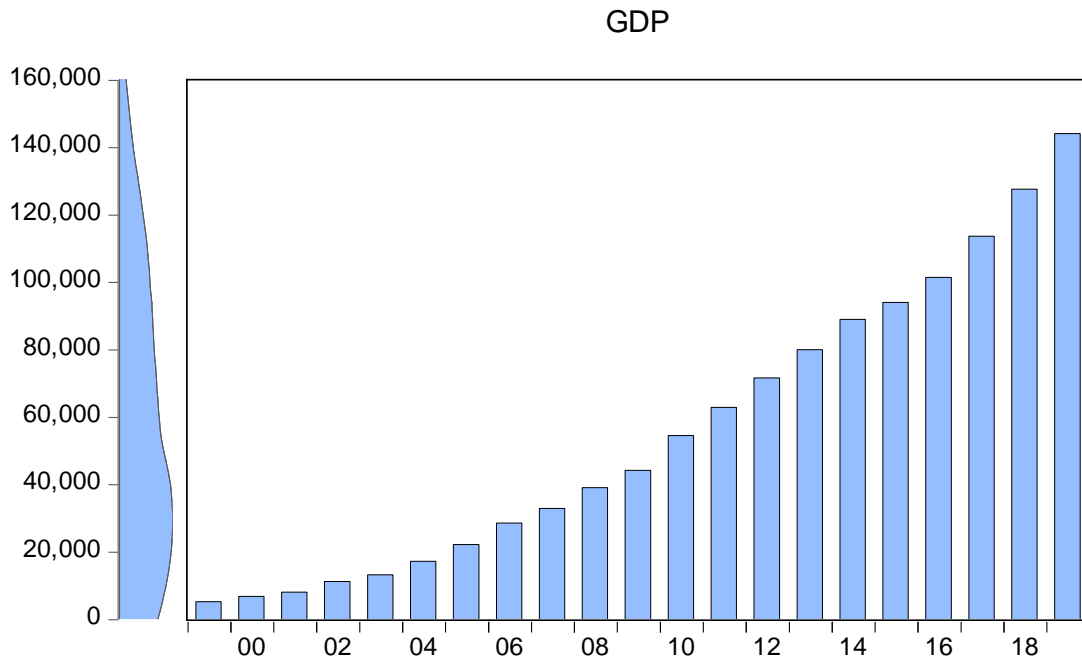
DPH = Domestic Public Investment on Health Sector

The data above is a time series secondary data covering the variable under study. The data are ranging from 1999 to 2019. They were extracted from the Central Bank of Nigeria (CBN) statistical bulletin 2019.

Graphical Analysis

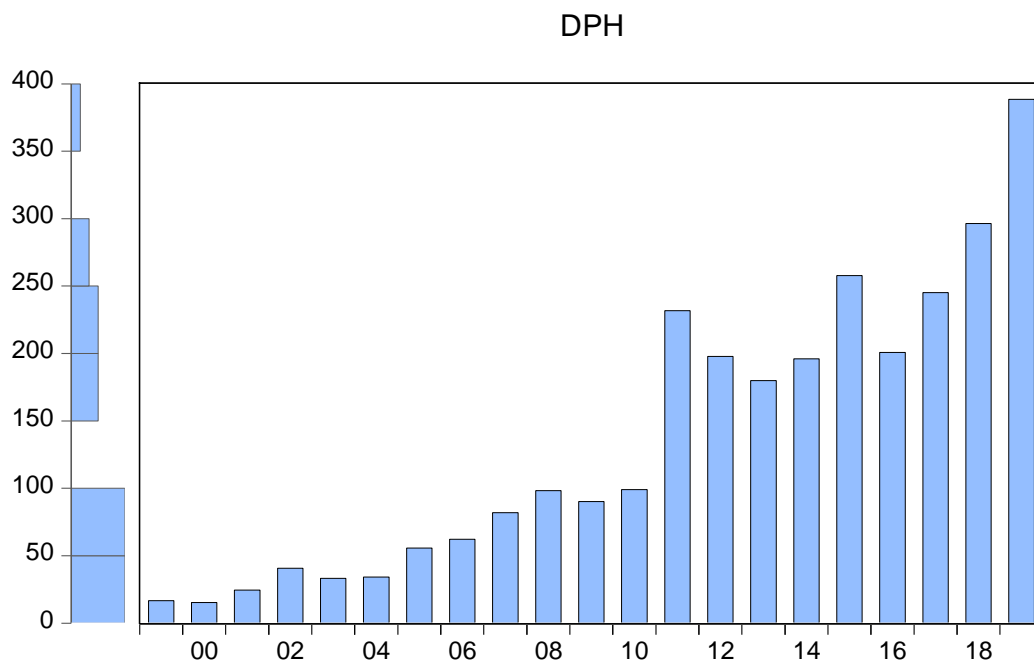
This section of the analysis is focused on carrying out a graphical analysis of the health sector. This was done to show and demonstrate the trend of the variable for the period under study.

Figure 1



Source: Author's Computation Using E-views

Figure 2



Source: Author's Computation Using E-views

Descriptive Data Analysis

	GDP (N'BN)	DPH (N'BN)
Mean	55685.79	135.5238
Median	44285.56	98.22000
Maximum	144210.5	388.3700
Minimum	5307.360	15.22000
Std. Dev.	43111.23	107.2115
Skewness	0.528294	0.673235
Kurtosis	2.075657	2.465371
Jarque-Bera	1.724441	1.836461
Probability	0.422223	0.399225
Sum	1169402.	2846.000
Sum Sq. Dev.	3.72E+10	229886.1
Observations	21	21

Source: Author's Computation Using E-views 10.

The descriptive statistics was computed to evaluate the statistical characteristics of the selected time series. The table above reveals the mean, median, standard deviation, Skewness, Kurtosis, Jarque-Bera, Sum of Square deviation, etc of the data. A striking observation is that the mean values of economic growth rate GDPGR between 1999 -2019 yielded ₦55685.79 billion and the mean of DPH is



₦135.5238 billion. The probability value of the variable reveals that the variable is normally distributed. The Skewness and Kurtosis of the variable clearly shows that the Jarque-Berra has a normal residual distribution.

Regression Analysis

Dependent Variable: LOG(GDP)

Method: Least Squares

Date: 10/26/20 Time: 15:14

Sample: 1999 2019

Included observations: 21

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4.455583	0.177048	25.16601	0.0000
LOG(DPH)	-0.027309	0.094240	-0.289782	0.7759
R-squared	0.897318	Mean dependent var	10.52609	
Adjusted R-squared	0.796424	S.D. dependent var	1.026086	
S.E. of regression	0.061356	Akaike info criterion	-2.509302	
Sum squared resid	0.056468	Schwarz criterion	-2.210867	
Log likelihood	32.34767	Hannan-Quinn criter.	-2.444534	
F-statistic	1115.712	Durbin-Watson stat	0.753990	
Prob(F-statistic)	0.000000			

Source: *Researcher's Computation Using E-views 10.*

Interpretation of the Numerical Coefficients

From the regression analysis, it can be clearly seen that the numerical coefficient of public investment on health sector (DPH) yielded a negative numerical value at the magnitude of -0.027309. This result clearly reveals that there is a negative relationship between DPH and economic growth in Nigeria for the years under analysis. It empirically means that an increase in DPH by 1% will undeniably lead to an average decrease in economic growth by 0.027309. This does not conform to economic a priori expectation but reveals and exposes the deplorable state of our health sector.

Test of Hypothesis Two

Domestic public investment in health does not have a positive and significant effect on economic growth in Nigeria.

Presentation and Analysis of Result

Table

Variable	Coefficient	P-value
DPH	-0.027309	0.7759

Source: Main Regression Output

Decision Rule

The decision rule is to reject the null hypothesis if the probability is less than 0.05 and accept the alternative hypothesis. However, if the probability is greater than 0.05, we accept the null hypothesis and reject the alternative hypothesis.

Decision

Table clearly shows that the probability value of DPH yielded 0.7759 which is greater than 0.05. This therefore compels the acceptance of the null hypothesis for hypothesis two. Hence; domestic public investment in health does not have a positive and significant effect on economic growth in Nigeria.

Summary, Conclusion and Recommendations

Domestic public investment in health does not have a positive and significant effect on economic growth in Nigeria ($p\text{-value} = 0.7759 > 0.05$, $\beta = -0.027309$). The analysis compels the acceptance of the null hypothesis as the probability value of domestic public investment in health (DPH) yielded 0.7759 which is greater than 0.05.

This study has been able to determine the effect of domestic public investment in health on Nigerian economic growth. Summary of findings clearly revealed that domestic public investment in health has a negative and insignificant impact on economic growth in Nigeria. The conclusion that can be drawn from this is that over the years under analysis, government expenditures on the aforementioned sector have not been well utilized.

In the light of the findings of this study, it is therefore recommended that Government capital spending in the health sector is better managed in order to raise the nation's production capacity and revitalize integrated services delivery towards a quality, equitable and sustainable healthcare.



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