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GOVERNMENT CURRENT HEALTH EXPENDITURE AND ECONOMIC GROWTH IN NIGERIA

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Abstract

This study investigated the impact of government current health expenditure on economic growth in Nigeria from 2000 to 2020. Using the Fully Modified Ordinary Least Squares (FMOLS) regression technique and the Granger causality test, the study assessed the effect of health expenditure on economic growth and the direction of causality between the two. The results showed that current health expenditure had a positive and significant impact on economic growth. Additionally, the study found a unidirectional causality from health expenditure to economic growth, with no feedback effect. Regarding the control variables, per capita income and credit to the private sector were found to significantly enhance economic growth, while the exchange rate and inflation rate had a deterring effect, though the exchange rate was not significant. Based on these findings, the study recommended that the government increase health expenditure to improve health outcomes, which would in turn boost productivity and spur growth. It also emphasized the importance of raising per capita income and facilitating access to credit for the private sector, alongside maintaining exchange rate and price stability.

1. Introduction

Globally, the health status of a population is critical to a nation's overall well-being and sustainable economic growth. Health refers to the general condition of both the mind and body, beyond merely the absence of illness, injury, or disability. Poor health makes it difficult for individuals to engage in economic activities, and even if they attempt to do so, productivity is likely to be inefficient. This highlights the need to prioritize health issues (Bilgili et al., 2021). Numerous studies have emphasized that advancements in the health sector are crucial

for fostering Human Capital Development (HCD) in various economies. According to Udeorah, Obayori, and Onuchuku (2018), improved national health leads to an outward shift in the labor supply curve and increased labor productivity, which in turn boosts output and investment in human capital. As a result, public health expenditure significantly impacts human capital development, ultimately enhancing productivity and skill development across key sectors such as commerce, education, agriculture, and mining (Li, et al, 2022)..

Conventional wisdom asserts that health is wealth and a prerequisite for enhanced productivity and overall economic growth, as access to quality healthcare is a fundamental human need. People place a high value on health because, while wealth and power may enable individuals to acquire material goods that improve their lives, health cannot be purchased. Although individuals and countries—especially in developing regions often trade health for other commodities, health itself is not a marketable good, though health services can be bought and sold (WHO, 2018). This underscores the fact that preserving health is undeniably the most essential good, forming the foundation for all other aspects of life. Health is deeply connected to people's sense of well-being, holding greater significance than material wealth. As Chen and Chen (2021) explained, without good health, nothing else—whether money or material possessions—holds value.

In Nigeria, government expenditures in the health sector, both recurrent and capital spending, have fluctuated significantly over the years. For example, capital expenditures decreased from ₦7.3 million in 1970 to ₦6.88 million that same year. However, in 1973, it rose to ₦16.40 million and further increased to ₦136.00 million by 1983, before falling sharply to ₦51.10 million in 1984. This decline was attributed to the government's focus on other sectors, leading to the neglect of capital health expenditures. By 1990, capital spending rose to ₦257.00 million but dropped again to ₦137.60 million in 1991, before increasing to ₦188.00 million in 1992. The upward trend continued, with expenditures reaching ₦586.2 million in 1993, ₦17,717.42 million in 2003, ₦33,396.97 million in 2005, and ₦34,647.9 million in 2007. More recently, health expenditure increased from ₦79.63 billion in 2016 to ₦147.90 billion in 2017. Between 2019 and 2021, health spending rose from ₦1,190.71 billion to ₦1,329.78 billion in 2020 and ₦1,477.77 billion in 2021 (Aregbesola, 2021; CBN, 2021).

National productivity and overall economic growth of any nation is the function of the health of such a nation. The improvement and extension of healthcare delivery in Nigeria have been constrained by gaps in financing, its contribution is still marginally low whereas the extent of its impact on economic growth is undermined, and the desired results have not been met. As a result, debate in the literature has been inconclusive. For example (Udeorah, Obayori, & Onuchuku, 2018; Sethi, Mohanty, Das, & Sahoo, 2020; Yang, 2020) opined that government health expenditure improves economic growth while in contrast (Raghupathi & Raghupathi, 2020; Hao, Tang, Zhu, & Jiang, 2021.) argued that government health expenditure has not spur economic growth, This is particularly worrisome as several questions have been raised on the situation and which, the study intends to answer within its scope and context. What is the effect of health expenditure on economic growth and what is the direction of causality between current health expenditure and economic growth is the thrust of this study.

The rest of the paper is structured s follows in section 2 the literature review is addressed. Section 3 deals with the methodology. Empirical findings are discussed in section 4 while the conclusion and recommendations are explained in section 5.

2 Literature Review

2.1 Conceptual Framework

Concept of Health Expenditure

Health is a fundamental driver of economic growth and development (Ewurum, Mgbemna, Nwogwugwu & Kalu, 2015). This is so evident in the sense that healthy nations produce more output than unhealthy nations. In the same vein, Grossman (1972), termed health as a durable stock producing healthy time as an output for both market and non-market activities that give utility and income respectively. The WHO Constitution of 1948 defined health as a state of complete physical, social, and mental well-being, and not merely the absence of disease or infirmity. Health is, therefore, seen as a resource for everyday life, not the objective of living. Barro (1996) defined health is an engine of economic growth and productive capital. A country benefits much more from healthy citizens, the reason being that a healthy population brings about higher growth rates in the economy than the other way round. Furthermore, health is a factor that determines growth potentials in a country. Now, for this study, health is seen as an engine of economic

growth and productive asset in the form of human capital which was given by (Barro, 1996).

Health spending measures the final consumption of health care goods and services including personal health care and collective services. Health financing is a critical component of the health system. For it is the synthesis of the financing and spending flows recorded in the operation of a health system, right from funding sources to distribution. Therefore, the concept of health expenditure, as defined by WHO report (2006), is the sum of general government health expenditure and private health expenditure each year, calculated in national currency units in current prices. The concept of health expenditure (public) consists of recurrent and capital spending from government (central and local) budgets, external borrowings, and grants (including donations from international agencies and nongovernmental organizations), and social (or compulsory) health insurance funds (WHO, 2018).

Concept of Economic Growth

Generally, the concept of economic growth is semantically the mixture of "economic" and "growth". Economics is the management of the factors of production. And growth is an increase in size, number, value, or strength. But from an economic perspective, "economic" and "growth" are jointly used together to mean a positive change in the standard or quality of life of the people. Balami (2006), postulates growth is a steady process which involves raising the level of output of goods and services in the economy. Jhingan (2003), further explained that growth is related to a quantitative sustained increase in a country's per capita output accompanied by an expansion in manpower and volume of trade. This implies that economic growth is the sustained increase in an economy's output followed by other factors that influence growth such as infrastructural development, technological advancement as well as human capital development

Economic growth is the increase in the inflation-adjusted market value of the goods and services produced by an economy over time; it is measured as the percentage rate of increase in the real gross domestic product (IMF, 2012). In the same vein the World Bank (1993), identified economic growth as more rapid output and productivity in growth; and by growth, it, therefore, implies the expansion of a country's potential GDP.

2.2 Theoretical Review

Some theories have attempted to explain the role of government spending (human capital development) in the growth process. This study will draw the opinions of such theories as to the endogenous and exogenous growth models. But we would first of all look at the theory of healthcare demand and healthcare supply. The theory of demand is based on the assumption that the individual is capable of making a rational choice between alternative bundles of goods and services to maximize his utility. Here, the idea of demand in the health market is different from that of the ordinary market, the consumer's knowledge of his actual state of health and the effect of an alternative treatment on that state is likely to diverge from the conventional assumption of the consumer's theory (theory of demand). The consumer in the health market does not possess

the knowledge and freedom that the consumer in the ordinary market exhibits.

Sustainable growth depends on levels of human capital whose stocks increase as a result of better education, improved level of health, and new learning/training procedures.

According to a study by Phelps and Newhouse (1974), who modeled the behavior of utilitymaximizing individuals whose expenditure on healthcare is covered by a simple form of insurance. In their analysis of the demand for healthcare, the consumer is covered for a fixed percentage of health care. Thus:

Using CP_u per unit of healthcare

Where C = proportion of the cost of care.

P_u = market prices

They explained that for each unit of healthcare, a consumer requires an input of time (t) valued at an opportunity cost (W) per unit.

Therefore, they arrived at the total cost of healthcare as;

$CP_u + W_t$per unit of time and the demand for healthcare is given by;

$Dh = f (CP_u + W_t)$. where;

Dh = demand for health

CP_u = money cost of health care

W_t = time cost of healthcare

Health care demand is concerned with the relationship between the quantity of healthcare demanded and its price. Much of the recent progress in healthcare demand research is due to the theoretical insights of Grossman (1972). Essentially, Grossman's proposition is that the demand for healthcare is a derived demand. He assumed in his work that the level of health of an individual is

endogenous which depends on the resources allocated to its production as well as its maintenance. Health is demanded as an argument in the direct utility function of the individual as both a source of utility in itself and as capital or investment good since it determines the amount of time available to the individual for the production of other goods and services. He opined that the demand for health stresses that the shadow price of health depends on many other factors other than price which include; effect of consumer's time and insurance. Generally, the demand for

healthcare implies that as there is a reduction in the cost price of healthcare, this will also influence the consumer's demand for healthcare. This means that as the cost of healthcare in an economy decreases overtime, the demand for healthcare by the people of that country will increase beyond the level it was when the cost of healthcare was high. For the more, an economy increases its expenditure on the health of its population, the more the demand for healthcare by the population because of cost reduction through policy implementation.

Grossman (1972), concluded that health is a durable stock that produces an output of a healthy time. This theory is of great importance as it falls in line with the study, as it demonstrates the relevance of government expenditure on health

Law of increasing State Activities

Wagner's a great economist starts by looking at his country first he looks at other nation in the world. The name of the theory was from one economist who lived in Germany (1835-1917) Adolph Wagner. Wagner propounds the theory by studying the pattern of growth of government expenditures' he also looks at the nature of the public sector in terms of size and further states that:

- Expansion of the role states play generally resulted in a rise in the public spending in terms of governance or the general control of the entire economy.
- Growth in industrialization would lead to rising pressure on the political leadership on the need for social infrastructures with also move for the rise in wages to enhance the conduct of industry.
- An expansion in government expenditures can be greater than the proportional rise in the level of countries national income this will result in a relatively wide public sector (Danladi, Sale, & Elisha, 2019).

The Peacock and Wiseman's Hypothesis (1891-1955)

Alan Peacock and Jack Wiseman carried fresh study based on Wagner's theory They examined government spending from 1891 to 1955 in the United Kingdom. They discovered that Wagner's theory still holds.

In addition, They mentioned that:-

- An increase in government spending largely depends on revenue generation. Over the years, economic growth leads to an increase in governments revenue, this help to expand increase government spending.
- A large gap exists between the expectations form by citizens on government expenditure and the accepted tax level. Thus, governments cannot run away from the demands made by citizens on various services, in the situation, that the revenue generation is rising at a constant rate.
- In addition, Peacock and Wiseman mentioned that government raises tax rates, and tax structure to raise additional money for additional defence spending in times of war, by when the war is over, the citizens will be used to the tax rate and tax revenue used in wartime and it will continue as usual. Thus, a rise in government revenue collection lead to rising in public spending (Danladi et al., 2019; Orji, Ogbuabor, Okeke, & Anthony-Orji, 2018).

The Theory of Public Expenditure by Musgrave (1910-2007)

In (1964), Musgrave propounded the theory of public expenditure. He discovers that the need for government services is in three stages of per capita income experience changes in the income elasticity of demand. Musgrave opined that when the per capita income is low the need for government services will be low because the income will be channelled to meet basic needs. In the situation that the per capita income increases above the low level, the demand for public services like security, electricity, health, water, transport and education begin to increase, hence, moving public expenditure on these items to rise. Musgrave notice that, when the per capita income is high, there will befall in the government sector growth rate since most primary needs are provided, in most advanced countries (Danladi et al., 2019).

This theory is quite imperative, however, it has a strong shortcoming, the size of government expenditure cannot be forecasted in later stages. It is not always the case that the share of the government sector further falls during later stages. Because the pattern of private consumption changes because of increasing per capita income in the later industrialization stages, the public share might rises also to satisfied the growing need for government services like health, social security, education, and infrastructure, and. It, therefore, depends on the income level and the individual needs of the citizens if the government share increases or fall.

In addition, it is also always difficult to identify one single level of development for any economy in particular. In underdeveloped countries like Nigeria, different levels can be seen simultaneously: Whereas in towns and cities the economy might be placed in a higher level of development, villages and ghettos are still often far behind and are situated in the lower level of development.

2.3 Empirical Framework

Canbay, & Kırca, (2022), conducted a study on the relationship between health expenditure (HEXP) and income (INC) growth in developing countries. He used the panel data for 16 developing countries and found out that there is rising health expenditure per capita in all countries in the panel. The results also revealed that health expenditure per capita grows rapidly than the capita income growth rate for these countries. The causality test showed that in Europe, Middle East, and African countries no causality found whereas, two-way causality is found for Czech and Russia, one-way causality exists from HEXP to INC and is found for Hungary and South Africa. A oneway causality exists form INC to HEXP for Greece, Poland, UAE, and Indonesia. Empirically, the result indicated income, to a great extent explained the variation of health expenditure in the countries under study. Therefore, it is evident that the role played by health expenditure in Nigeria has not been given proper attention.

Li, Chang,Wang, & Zhou, (2022). concluded using regression analysis that gross capital formation, total health expenditure, and labour force productivity are important determinants of economic growth in Nigeria. The result showed that public health expenditure has a vital relationship with the

growth and development of any nation. In summary, all the studies on the nexus between the health expenditure and economic growth reviewed suggest a positive and significant effect of health care expenditure on economic growth. The extent of the impact, however, depends on the magnitude of the public budgetary allocation to the health sector. It is revealed from the review that developed nations have a stronger robust impact than the developing nations, which implies that the amount of funds allocated to the health sector by the developing countries does not meet the benchmark and standard set by WHO.

Also, Ahmed, Naser, and Deam (2016) confirm that health outcomes, public expenditure, income level on government stability, health, and corruption have a long-run relationship. They employed an ARDL to examined the impact of Malaysian public expenditure on health and governance on health outcomes. Their study covered 1984 to2009. However, the results further revealed health outcomes in the short and long run is affected by corruption. The studies recommended a focus on the imperative of health programs and checking the corruption rate in the country.

In addition, Fullman et al. (2018) employed Pearson's moment correlation to examined the impact of public spending on social service in Nigeria (health sector performance) (2000-2013). The study sourced secondary data from CBN statistical bulletins, World Bank, and the Nigerian Budget. Infant mortality rates and life expectancy were proxies for health sector performance correlates against public expenditure. The results show that public expenditure has negatively and statistically significant that is a rise in government allocation in the health sector will result in a fall in children death t rate. However, a statistically insignificant but weak correlation exists between public spending on health and general life expectancy. Thus, it was suggested that government need to increases allocation in the sector and called for private sector funding of health, this will serve as their corporate and social responsibility in the society to promote growth and development.

However, Onisanwa, Sunday, and Adaji (2018) confirm a contrary result that government spending on health was negatively related to life expectancy and under-five mortality as the governance variable was used. This was a result of the high rate of corruption and embezzlement of public health funds in Nigeria. The study employed both OLS and the two-stage least

squares to examine the effectiveness of public spending on health and governance in Nigeria. Time series data on government health expenditure, corruption index, Children less than five years death rate and the general life expectancy were proxy for the variable. The study concluded that reducing children death rate and raising general life expectancy in Nigeria will be unachievable if the level of stealing of public funds does not check to the minimal level. These mixed results from the literature necessitate this study.

3 Methodology

Data

The study investigates the effect of government current health expenditure in Nigeria. The period covers 2000 to 2020. The time frame for the study was due to availability of data. The variables used for this study includes growth rate of GDP, current health expenditure, exchange rate, credit to private sector and inflation rate. The sources of data was from World Bank's World Development Indicators (WDI) database (https://databank.worldbank.org/source/world-development-indicators).

Model

In the literature, several researchers have examined the effect of government health expenditure on economic growth. However, for this study we employed the model specified by ()Udeorah, Obayori, & Onuchuku, (2018). with a slight medication. The functional form of the model takes the form:

$$GDPgr = f(CHE, PCI, CPS, EXR, INF,) \quad (1)$$

Where:

GDPgr = Growth rate of Gross Domestic Product,

CHE = Current Health Expenditure

PCI = Per Capita Income

CPS = Credit to Private Sector

EXR = Exchange Rate

INF = Inflation Rate.

In mathematical form, equation one is re – specified as follows:

$$GDPgr_i = \beta_0 + \beta_1 CHE_t + \beta_2 PCI_i + \beta_3 CPS_t + \beta_4 EXR_t + \beta_5 INF_t + \varepsilon_i \quad (2)$$

Equation 2 is transformed to logarithm form as follows:

$$logGDPgr_i = \beta_0 + \beta_1 logCHE_t + \beta_2 logPCI_i + \beta_3 logCPS_t + \beta_4 logEXR_t + \beta_5 logINF_t + \varepsilon_i \quad (3)$$

On apriori we expect $\beta_1 > 0,\ \beta_2 > 0,\ \beta_3 > 0,\ \beta_4 < 0,\ \beta_5 < 0$

4 Results and Discussion

Unit Root Test

Presented in Table ` above is a test for the presence of unit root in each of the variables used in the model. Unit Root Test is a test to ascertain if the variables used in this model are stationary or non-stationary series. The unit root tests are conducted in this study following the Augmented Dickey-Fuller (ADF) procedure. The ADF results reveal that all the variables are not stationary at level at 5% significance level. This is indicated by each of their p-values being greater than 0.05 and each of their ADF test statistics being less than the 5% critical value. Since the decision rule is to reject the null hypothesis that a variable has unit root (i.e. the variable is a non-stationary series) if p-value is less than significance level (or if t-statistic is greater than the 5% critical value) and accept null hypothesis if otherwise, the result clearly suggests a failure to reject null hypothesis at level for all variables. However, the result reveals each of variables became stationary at first difference I(1).

Table 1: Augmented Dickey Fuller Unit Root Test

VARIABLES	STATIONARY	t-statistic	Crit. Val. At 5% level	P-value	Order of Integration
logGDPgr	At level	-2.093759	-2.971853	0.2484	I(1)
	At First Diff.	-3.920912	-3.012363	0.0075	
logCHE	At level	-1.646293	-2.971853	0.4465	I(1)
	At First Diff.	-5.438575	-3.004861	0.0002	
logEXR	At level	-0.753019	-2.976263	0.8163	I(1)
	At First Diff.	-4.185758	-3.710482	0.0217	
logPCI	At level	-2.490332	-2.963972	0.1277	I(1)

	At First Diff.	-6.682118	-2.967767	0.0000	
logCPS	At level	-1.789069	-2.967767	0.3782	I(1)
	At First Diff.	-9.876654	-2.967767	0.0000	

Source: Author's Computation, 2022.

Regression Analysis

Table 2. shows the presents the Fully Modified Cointegrating regression results of the impact of government current health expenditure on economic growth along with some control variables. The reported R-squared of the model shows that the model explains about 81.5% of variations in economic growth in Nigeria. This indicates that the model is in good fit. The result was supported by the higher adjusted R-squared value.

As shown in the table, government current health expenditure impacted positively on economic growth and was significant. This conforms with apriori expectation in that increase in government expenditure should spur growth of any economy. Specifically form the outcome, an increase in government current health expenditure by 1 percent will raise economic growth in Nigeria by 0.763 percent. The significance of this result at 5% indicate that current health expenditure of the government is an important factor that determine economic growth in Nigeria. The findings is in line with studies by (Li, Chang, Wang, & Zhou, 2022; Chaabouni, & Saidi, 2017; Sethi, Mohanty, Das, & Sahoo, 2020; Yang, 2020; Udeorah, Obayori, & Onuchuku, 2018).

Apriori expectation of per capita income and economic growth was also confirmed. The reported result shows that an increase in per capita income by 1 percent will increase economic growth by about 0.856%. The result was significant which shows that per capita income is a major determinant of economic growth in Nigeria. The study supported the findings of (Eregha, & Mesagan, 2020; Canbay, & Kırca, 2022)

Credit to private sector shows a positive impact on economic growth. The result conforms with theoretical apriori expectation. Based on the result, increasing credit to private sector by 1% will increase economic growth by approximately 0.627%. The result was significant at 1%. This indicate that access to credit to private sector is an important factor that determine economic growth in Nigeria. The findings is

in line with (Nwani & Omoke, 2020; Alenoghena, Saibu, & Adeoye, 2020)

Exchange rate impacted negatively on economic growth from the result. Specifically, a percentage point increase in exchange rate in the economy reduces economic growth by 0.063%. The result however was not significant. This shows that exchange rate though affected economic growth inversely is not a major factor that determines economic growth over the period studied. This findings supported the outcome by (Olamide, Ogujiuba, & Maredza, 2022; Uche, & Nwamiri, 2022; Karahan, 2020).

Inflation rate impacted negatively on economic growth from the outcome of the empirical result. Specifically, a percentage point increase in inflation rate in the economy reduces economic growth by 0.035%. The result however was significant. This shows that inflation rate is a major determinant of economic growth in Nigeria for the period studied. The findings is in line with studies by (Ijaz, 2021; Onwubuariri, Oladeji, & Bank-Ola, 2021; Adaramola, & Dada, 2020; Nene, Ilesanmi, & Sekome, 2022).

Table 2. Fully-Modified Least Squares Cointegrating Regression – logGDPgr

Variable	Coefficient	Std. Error	t-statistic	p-value
logCHE	0.762	0.346	2.199	0.04
logPCI	0.656	0.258	2.540	0.03
logCPS	0.627	0.113	5.530	0.00
logEXR	-0.063	0.064	-0.983	0.33
logINF	-0.035	0.011	-3.182	0.00
C	1.960	0.502	3.904	0.00
R-squared	0.814			
Adjusted R-squared	0.792			

Source: Author's Computation, 2022.

Granger Causality Test

To determine the direction of causality between current health expenditure and economic growth, the granger causality test was carried out and the result is presented in Table 3. The result shows a one way causality running from current health expenditure to economic growth and not vice versa. Therefore, we concluded that in Nigeria, current health drives economic growth.

Table 3: Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
logGDPgr does not Granger Cause logCHE	20	0.93213	0.4035
logCHE does not Granger Cause logGDPgr		3.49246	0.0417

5 Conclusion and Recommendation

The study investigated the effect of government current health expenditure on economic growth in Nigeria for the period 2000 to 2020. The variables used are GDP growth rate, current health expenditure, per capita income, exchange rate, inflation rate and credit to private sector. After confirming the existence of stationarity of all the variables, the fully modified Ordinary Least Square regression estimation techniques along with the granger causality test was used in determining the effect of current health expenditure on economic growth and the direction of causality between both. The conclusion reached are as follows: First, current health expenditure impacted positively on economic growth and was significant. Also, current health expenditure drives economic growth and no feedback effect. In terms of the control variables, while per capita income and credit to private sector enhances economic growth and was significant, exchange rate and inflation rate deter economic growth, although exchange rate was not significant. Based on the conclusion, the study recommended as follows: First, government should increase her expenditure on health so as to give healthy health outcome and hence improve productivity which will spur growth. Per capita income and easy access to credit to private sectors is also important while ensuring exchange rate and price stability.

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