
EFFECT OF PUBLIC EXPENDITURE ON ECONOMIC GROWTH OF NIGERIA

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Abstract

The broad objective of this study is to ascertain the relationship between public expenditure and economic growth of Nigeria. The specific objectives are to: determine the relationship between health care expenditure and real gross domestic product of Nigeria and to ascertain the relationship between national defense expenditure and real gross domestic product of Nigeria. The study adopted Longitudinal (Ex-post facto) research design. Data extracted from Central Bank of Nigeria (CBN) Annual Reports and Statement of Accounts and Statistical Bulletins of various issues, National Bureau of Statistics (NBS) bulletin, Budget Office of the Federation, World Economic data base, United Nations statistical bulletin, International Monetary Fund (IMF) of Nigeria for the study periods. Regression analysis was used to test the data via E-Views 10.0. This study revealed that a significant and positive relationship exist between national defense expenditure (t -Statistic = 2.828368 < 0.05), a negative and non-significant relationship between health care expenditure (t -Statistic = -0.201165 > 0.05) and RGDP. Based on findings of the study, the study recommendations were suggested: In order to reverse the negative relationship between health care expenditure and economic growth, Government should ensure that health investments are directed to improving health standard of the population. Also, investing carefully in various healthcare aspects would boost income, GDP and productivity, and alleviate poverty.

Keywords: Health care expenditure, National defense expenditure and Real gross domestic

Introduction

The various components of capital expenditure have risen between 1980 and 2017. However, the rising government expenditure may have not translated to meaningful growth and development, as Nigeria ranks among the poorest countries in the world (Nworji, Okwu, Obiwuru & Nworji, 2012). In addition, many Nigerians have continued to wallow in abject poverty, while more than fifty percent live on less than US\$1 per day. Moreover, macroeconomic indicators like balance of payments, import obligations, inflation rate, exchange rate, and national savings reveal that Nigeria has not fared well in the last three decades. Government expenditure which is also called public expenditure simply refers to the value of all goods and services provided by the public sector (government). This kind of expenditure is directed towards accelerating economic growth and development with the ultimate aim of transforming the nation into an industrialized economy as well as raising standard of living of the people.

Economic growth generally refers to a sustained increase in per capital national income or output over a long period of time. It is an economic situation whereby the quantum of increase in national output must exceed the rate of growth in population. Economic growth is a long-term expansion of the productive potential of the economy. It means an increase in Real GDP, in other words, an increase in national output and national income. The real GDP is the market value of all goods and services produced in a nation during a specific time period. Real GDP measures a society's wealth by indicating how fast profits may grow and the expected return on capital. It is labelled "real" because each year's data is adjusted to account for changes in year-to-year prices. The real GDP is a comprehensive way to gauge the health and well-being of an economy.

Numerous studies which relate to government expenditure and economic growth have produced different results. Some studies like Beraldo, Montolio and Turati (2018) concluded that increasing government expenditure fosters economic growth. Other studies like Cakerri, Petanaj and Muharemi (2014); Wenyi, Yang and Zanna (2015) demonstrated that increasing government expenditure reduces economic growth while some studies like Prasetyo and Zuhdi (2013); Riedl (2018) revealed a non-significant relationship between government expenditure and economic growth. Furthermore, public expenditure was decomposed into health insurance expenditure, national defense expenditure, education expenditure, infrastructure and industrial expenditure as against prior studies that majorly categorized public expenditure into capital and recurrent expenditures, thereby resolving variable gap.

The broad objective of this study is to ascertain the relationship between public expenditure and economic growth of Nigeria.

The specific objectives are to:

- i. Determine the relationship between health care expenditure and real gross domestic product of Nigeria.
- ii. Ascertain the relationship between national defense expenditure and real gross domestic product of Nigeria.

Review of Related Literature

Public Expenditure

Public expenditure plays four main roles: it contributes to current effective demand; it expresses a coordinated impulse on the economy, which can be used for stabilization, business cycle inversion, and growth purposes; it increases the public endowment of goods

for everybody; it gives rise to positive externalities to economy and society as a whole (or in specific sectors and geographical areas), the more so through its capital component. With its prioritized structure and its peculiar decision-making processes, it substantiates the prevailing kind of State. In democracy, public expenditure is an expression of people's will, managed through political parties and institutions. At the same time, public expenditure is characterized by a high degree of inertia and law-dependency, which tempers the will of the current majority.

Public expenditure can be financed through taxes, public debt, money emission, international aid. Public expenditure can be classified in terms of the kind of goods and services bought, also with very general items: capital goods; consumption goods; personnel expenditure (Piana, 2011). Public expenditure could also be classified on the basis of functions for which they are incurred. The government performs various functions like defence, social welfare, agriculture, infrastructure and industrial development (Mkhattrishvili & Zedginidze, 2015). Federal expenditures could be categorized into: health insurance (Medicaid and Medicare), retirement benefits (Social Security), national defense, interest on the debt and "other spending" (a broad category that covers spending on education, housing, transportation, agriculture, etc.) (Huseynov, 2017).

Health Care Expenditure

Health is the level of functional and metabolic efficiency of a living organism. Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity (WHO, 2013). Health care is an act of taking preventative or necessary medical procedures to improve a person's well-being. This may be done with surgery, the administering of medicine, or other alterations in a person's lifestyle. These services are typically offered through a health care system made up of hospitals and physicians. Health care is the effort made to maintain or restore physical, mental, or emotional well-being especially by trained and licensed professionals or health-care providers (Rajkumar & Swaroop, 2014). Health insurance is an insurance that covers the whole or a part of the risk of a person incurring medical expenses, spreading the risk over a large number of persons. By estimating the overall risk of health care and health system expenses over the risk pool, an insurer can develop a routine finance structure, such as a monthly premium or payroll tax, to provide the money to pay for the health care benefits specified in the insurance agreement. The benefit is administered by a central organization such as a government agency, private business, or not-for-profit entity (Reinhard, Blümel, Franz & Bärnighausen, 2017).

According to the Health Insurance Association of America, health insurance is defined as "coverage that provides for the payments of benefits as a result of sickness or injury. It includes insurance for losses from accident, medical expense, disability, or accidental death and dismemberment (Pekerti, Vuong, Ho & Vuong, 2017). Health insurance is a type of insurance coverage that covers the cost of an insured individual's medical and surgical expenses. Insurers use the term "provider" to describe a clinic, hospital, doctor, laboratory, healthcare practitioner, or pharmacy that treats an individual. The "insured" is the owner of the health insurance policy or the person with the health insurance coverage. Depending on the type of health insurance coverage, either the insured pays costs out of pocket and receives reimbursement, or the insurer makes payments directly to the provider (Ehrich, Grote, Gerber-Grote & Strassburg, 2016). Health insurance is a type of insurance coverage that pays for medical and surgical expenses incurred by the insured. Health insurance can reimburse the insured for expenses incurred from illness or injury, or pay the care provider directly. It is often included in employer benefit packages as a means of enticing quality employees. The

cost of health insurance premiums is deductible to the payer, and the benefits received are tax-free (Kagan, 2018). Health care expenditure measures the final consumption of health care goods and services (i.e. current health expenditure) including personal health care (curative care, rehabilitative care, long-term care, ancillary services and medical goods) and collective services (prevention and public health services) (Felman, 2018). Total health expenditures represent the amount spent on healthcare and health-related activities (such as administration of insurance, health research, and public health), including expenditures from both public and private funds (Rabah & Cox, 2018).

National Defense Expenditure

National defense is a nation's use of military, economic and political power to maintain survival. National security refers to the government's efforts to defend the state from threats, mainly military threats but perhaps internal subversion as well (Fritz, 2019). Virtually every modern state is multinational or multi-ethnic. Frequently, this diversity of religion directly relates to diversity of nationalities in the state, and many states are driven by conflicts among these diverse religions and nationalities. Therefore, a state, to be secure, must act in ways that forestall the emergence of crippling interethnic or interreligious confrontations. Such internal divisions frequently invite foreign intervention. In these contexts, security extends beyond defense against external invaders to include the prevention of civil war (Bass, 2013). Due to the breadth of domestic or foreign threats to the security of a society or a state in the modern world, national security can no longer be limited to defense against military attacks or internal unrest. Governments in the twenty-first century must defend against a multitude of threats to the health, viability, and integrity of society. Such threats extend beyond the canonical threat of war with another state or domestic unrest that culminates in revolution or civil war. The potential threats to state security include terrorism, large-scale criminality, narcotics trafficking, uncontrolled immigration, natural disasters, epidemics, and chemical and biological warfare (Hitchens, 2013). The threats facing states may also include major international economic crises, such as the Asian financial crisis of 1997 to 1998. These threats also tend increasingly to spill over national borders, often uniting the transnational purveyors of the threat (e.g., terrorist movements, crime syndicates). The range of potential threats blurs the distinction between military and police missions. Often, both institutions act together to promote security, as exemplified by the participation of the U.S. military in antidrug activities, homeland security, and the response to natural disasters. Thus, in the wake of hurricanes Katrina and Rita in 2005, calls multiplied in the United States for revising legal codes to permit greater scope for domestic military action during natural disasters (Hadorn, 2015).

Thus, the term national security must encompass societal or state security against the entire range of threats described above, including traditional war, insurgency, and revolution. National security reaches beyond the defense of the state to encompass the goal of achieving and sustaining a broader societal cohesion, resilience, and integrity that can withstand numerous shocks or threats. Since the contemporary environment makes ensuring state security in this broad sense government's most fundamental responsibility, with defense being the main component of the provision of security, the burden of state spending on security and defense is huge. Similarly, many state organizations beyond defense ministries are involved in providing security, and their missions are steadily expanding (Gale, 2018). A military budget (or military expenditure), also known as a defense budget, is the amount of financial resources dedicated by a state to raising and maintaining an armed forces or other methods essential for defense purposes. Military expenditures includes all current and capital expenditures on the armed forces, including peacekeeping forces; defense ministries and

other government agencies engaged in defense projects; paramilitary forces, if these are judged to be trained and equipped for military operations; and military space activities. Such expenditures include military and civil personnel, including retirement pensions of military personnel and social services for personnel; operation and maintenance; procurement; military research and development; and military aid (Hennock, 2017).

Real Gross Domestic Product

Real gross domestic product (GDP) is an inflation-adjusted measure that reflects the value of all goods and services produced by an economy in a given year, expressed in base-year prices, and is often referred to as "constant-price," "inflation-corrected" GDP or "constant dollar GDP." Unlike nominal GDP, real GDP can account for changes in price level and provide a more accurate figure of economic growth (Johnson & Koyama, 2017). Real gross domestic product is a macroeconomic assessment that measures the value of the goods and services produced by an economic entity in a specific period, adjusted for inflation. GDP is derived by valuing all production by an economy using a specific year's average prices. Governments use GDP as a comparison tool to analyze an economy's purchasing power and growth over time. This is done by looking at the economic output of two periods and valuing each period with the same average prices and comparing the two together (Hunt & Lautzenheiser, 2014). Real gross domestic product (real GDP) is a macroeconomic measure of the value of economic output adjusted for price changes (i.e. inflation or deflation). This adjustment transforms the money-value measure, nominal GDP, into an index for quantity of total output. Although GDP is total output, it is primarily useful because it closely approximates the total spending: the sum of consumer spending, investment made by industry, excess of exports over imports, and government spending. Due to inflation, GDP increases and does not actually reflect the true growth in an economy. That is why the GDP must be divided by the inflation rate (raised to the power of units of time in which the rate is measured) to get the growth of the real GDP (Li & Heng-fu, 2018).

Empirical Review

Nuță, Nuță, Chirilă, Roman & Pușcă (2015) analyzed the relationship between public spending and economic growth in Romania from 1990-2011. The analysis was based on both annual and quarterly data regarding public spending and economic growth in Romania. After investigating the correlation validity, the analytic results did not confirm the premises related to the Armey Curve for the Romanian context during 1990-2011. It was discovered that increasing the level of public spending determine a diminished economic growth rate. Khalid and Munadhil (2015) investigated the relationship between military expenditures and economic growth in United States Of America (USA) using the Autoregressive Distributed Lag (ARDL) bounds testing approach to cointegration tests for the period from 1970 to 2011. The results suggested that, there is a negative relationship between military expenditure and economic growth. Mbonu ana Amahalu, Okeke, Mbonu ana Ama Data was gathered from the Nigerian Central Bank, the Federal Inland Revenue Service, and the National Bureau of Statistics' Annual Abstract of Statistics. This research used time series data. The data was analyzed using the Augmented Dickey Fuller test, Multiple linear regression, Multicollinearity test, Granger Causality test, Johansen cointegration test, and Error correction model. The outcomes of this study revealed that, at a 5% level of significance, tax revenue had a statistically significant link with infant mortality, labor force, and gross fixed capital creation in Nigeria. Onyemachi, Lezaasi and Chizoba (2015) examined the relationship between Government fiscal policy measures and stock prices in Nigeria during the period 1985 – 2012. Employing OLS, co-integration, error correction

mechanism (ECM), Granger Causality and impulse response and variance decomposition techniques on fiscal policy – stock prices model patterned after a multivariate regression, the study found a significant and negative impact of Public expenditure on stock prices, while Government Domestic Debt Outstanding exerts a significant and positive influence on stock prices. The study also reported a significant and positive relationship between Non-Oil Revenue and stock prices while the two-period and three-period lagged values of broad money supply have significant relationship with stock prices. Between 1999 and 2015, Nwakoby, Ajike, and Ezejiofor (2017) examined the influence of Nigerian government financial incentives on SMEs and economic growth. A simple regression analysis was conducted to determine the impact of SMEs on the country's economic growth. Gross Domestic Product and Loan to Small and Medium Businesses were the variables considered. The study found that government spending, loans, and other forms of credit had a considerable impact on SMEs' output and the economy's growth in Nigeria. Kimaro, Keong and Sea (2017) analyzed the impact of government expenditure and efficiency on economic growth of Sub Saharan African low income countries. The study used a panel data of 25 Sub-Saharan African low income countries spanning from 2002 - 2015 which were obtained from World Development Indicators (WDI) database. The results demonstrated that increasing government expenditure accelerates economic growth of low income countries in Sub Saharan Africa. Canikalp and Unlukaplan (2017) determined the relationship between political structure, i.e. government fragmentation, ideological composition, elections and so on, and the social expenditures in Greece. Employed data from the Comparative Political Dataset (CPDS) and the OECD Social Expenditure Database (SOCX), a time series analysis was conducted for Greece for the 1980-2014 period. The findings of the study indicated that voter turnout, spending on the elderly population and the number of government changes has positive and statistically significant effects on social expenditures in Greece while debt stock and cabinet composition have negative effects. David, Manu and Dak-Adzaklo, (2017) employed the auto regressive distributed lag (ARDL) model to ascertain the relative effectiveness of monetary and fiscal policies in Nigeria using a quarterly time-series from 1981-2012. From the analysis, it was discovered that monetary and fiscal policies both have significant positive impact on income. This conforms to a priori expectation and we discovered that monetary policy effects income faster than fiscal policy. In the short run, monetary policy affects income more than fiscal policy but the reverse is the case for the long run. Total impact of fiscal policy is higher than that of monetary policy. Gizem (2018) examined the effects of the output level in Turkey from 1980 and 2015 by using investment. The study investigated the association between healthcare expenditure out of Gross Domestic Product (GDP) and GDP per capita by using ARDL, which is autoregressive distributed lag bounds testing approach of co-integration. Since the method provided a comprehensive econometric analysis for the data that are stationary at various levels, and the existence of the co-integration among the variables can be detected even though the data became stationary at I(0) or I(1), employing ARDL is a quite convenient method for the study. The results of bounding test to co-integration represented that the variables are co-integrated, there is a significant relationship between them in the long-run. From 2000 to 2017, Okegbe, Ezejiofor, and Ofurum (2019) investigated the contribution of Foreign Direct Investment (FDI) to Nigeria's Gross Domestic Product (GDP). The study was conducted using an ex-post facto research design. In order to test the assumptions, the regression analysis technique was used with the help of E-view version 9.0. According to the report, foreign direct investment in Nigeria's financial industry has had a favourable and considerable impact on the country's Gross Domestic Product. It also revealed that foreign direct investment in the oil sector has had a beneficial and considerable impact on Nigeria's Gross Domestic Product. Diakosavvas (2019) estimated the impact of government expenditure (on agriculture) on the performance

of the agricultural sector. An inter-country production function is estimated for a sample of thirty-five developing countries, pooling cross-section and time-series data over the 1984-2014 period. The influence of instability in government expenditure on agriculture and on agricultural growth is also assessed. The results showed that government expenditure policies are of vital importance in influencing the performance of the agricultural sector. It was also found that instability in government expenditure is a deterrent to agricultural output growth. Amadi and Amadi (2020) examined the effects of government infrastructural expenditure on economic development in Nigeria. Secondary data sourced from reported annual spending on selected infrastructure and annual Gross Domestic Products were statistically analyzed. The data treatments used for the secondary data were unit root and co-integration tests using Augmented Dickey–Fuller and Phillip–Perron model. Weighted least square was also used to test the sample of 37-year annual time series using vector error correction model. The data analysis was done with descriptive statistics. Findings from the study revealed that government spending on transport, communication, education and health infrastructure have significant effects on economic growth; spending on agriculture and natural resources infrastructure recorded a significant inverse effect on economic growth in Nigeria.

Okpabi, Abraham and Sunday (2021) examined the impact of government expenditure on economic growth in Nigeria for the period, 1984-2015 with view to re-assess the Keynesian and Endogenous Growth Models proposition that public expenditure stimulates economic growth. The study employed Johansen co-integration and Error Correction Model. The empirical results showed that public (recurrent and capital) expenditure has significant positive impact on the growth of the economy in the long run and an insignificant negative impact on the Nigerian economy in the short run.

Olonite, Gurowa, Ibrahim and Ajewole (2021) analyzed the relationship between public spending and economic growth in Nigeria. The study used the secondary data from CBN 2018. The Real Gross Domestic Product formed the dependent variable and the independent variables of interest were the Capital Spending on Economic Services, and Spending on Transfers. The variables were validated by conducting the unit root test using the Augmented Dickey Fuller (ADF) and Phillips Perron Test (PP), and the correlation coefficient were determined using STATA and the Pearson Product Moment Correlation. A multiple regression model was employed for the study and was analyzed using the Generalized Least Squares (GLSs) with the aid of Eviews 11 statistical program. The results of the study indicated that Capital Spending on Economic Services has a positive and significant impact on Economic Growth while Spending on Transfer has a negative and insignificant impact on Economic Growth. The study recommended that Capital Spending on Economic Services should be maintained and increased and Spending on Transfer should be made Zero, also, the government should develop the refineries to start mass production in order to null off the negative effect of transfers (subsidy payment on oil import and price equalization). Aluthge, Adamu and Abdu (2021) investigated the impact of Nigerian government expenditure (disaggregated into capital and recurrent) on economic growth using time series data for the period 1970-2019. The study employed Autoregressive Distributed Lag (ARDL) model. To ensure robustness of results, the study accounts for structural breaks in the unit root test and the co-integration analysis. The key findings of the study are that capital expenditure has positive and significant impact on economic growth both in the short run and long run while recurrent expenditure does not have significant impact on economic growth both in the short run and long run. The study recommended that government should increase the share of the capital expenditure especially on meaningful projects that have direct bearing on the citizen's

welfare. Government should also improve the spending patterns of recurrent expenditure through careful reallocation of resources toward productive activities that would enhance human development in the country.

The attainment of economic growth is a pertinent macroeconomic objective of nations, most importantly after the Second World War. This is in view of the fact that almost all national economies and governments have lean towards to intervening and caring out the fundamental roles of allocation, stabilization, distribution and regulation of the economy especially in a situation where and when the market has proved to be inefficient and, or its activities has become socially unacceptable. In order to carry out these function governments pursues fiscal and monetary policy instruments such as taxation and spending (expenditure) to achieve accelerated economic growth and influence the working of the economy. The essence is to maximize economic welfare and ultimately ensure permanent aims of stimulating long-term growth of national economy. Importantly, the parity between government expenditure and economic growth has continually triggered off series of debates among scholars.

Methodology

The aim of this study is to determine the relationship between public expenditure and economic growth of Nigeria. The research is a causal design based on an in-depth analysis of the relationship between public expenditure and economic growth in Nigeria. Consequent upon this, longitudinal research design (*Ex-post Facto* research design) was adopted. An ex-post facto investigation seeks to reveal possible relationships by observing an existing condition or state of affairs and searching back in time for plausible contributing factors.

Time series data were extracted from the publications of Central Bank of Nigeria (CBN) Annual Reports and Statement of Accounts and Statistical Bulletins of various issues, National Bureau of Statistics (NBS) bulletin, Budget Office of the Federation, World Economic data base, United Nations statistical bulletin, International Monetary Fund (IMF) Government Finance Statistics Year Book for twenty one (21) years spanning from 2000 to 2020.

Population of the Study

The thirty-six (36) states of the Federal Republic of Nigeria including the Federal Capital Territory, Abuja, constituted the population of this study.

Research Variables

Independent Variables

The independent variable in this study is Public Expenditure, which was captured with:

- i. Health Care Expenditure: was sourced from the Budget Office of the Federation, World Economic data base, United Nations statistical bulletin, International Monetary Fund (IMF) Government Finance Statistics Year Book (various issues).
- ii. National Defense Expenditure: was sourced from the Budget Office of the Federation, World Economic data base, United Nations statistical bulletin, International Monetary Fund (IMF) Government Finance Statistics Year Book (various issues).

Dependent Variables

The dependent variable is economic growth, which is proxied by:

Real Gross Domestic Product: was sourced from Central Bank of Nigeria Statistical Bulletin, World Bank Statistical Bulletin and National Bureau of Statistics (several issues).

Method of Data Analysis

Descriptive and Inferential statistics of the data to be used in this study were conducted via the aid of E-View 10.0 statistical software, using:

- i) Descriptive statistics: is a good measure of central tendency that provides information on the mean, standard deviation, skewness, kurtosis, minimum and maximum values of the variables observed during the period under investigation.
- ii) Co-efficient of correlation: which is a good measure of relationship between two variables, tells us about the strength of relationship and the direction of relationship as well.

Model Specification

In an attempt to capture the essence of this study, this study adapted and modified the model of Yusuf, Babalola, Aninkan and Salako (2015):

$$GDP = \beta_0 + \beta_1CEA + \beta_2CER + \beta_3CEE + \mu$$

CEA = Capital Expenditure on Agriculture

CEI = Capital Expenditure on Roads

CEE = Capital Expenditure on Education

Thus, the Modified Model used for the study is represented in a functional form as shown as:

$$RGDP = f(HCEXP, NDEXP, IDEXP, AGEXP) \dots \dots \dots \text{equ (1)}$$

In a linear function, the following models were constructed in line with the study objectives:

$$RGDP_t = \beta_0 + \beta_1HCEXP_t + \mu_t \quad - \quad \mathbf{i}$$

$$RGDP_t = \beta_0 + \beta_1NDEXP_t + \mu_t \quad - \quad \mathbf{i}$$

Where:

β_0 = Constant term

β_1 = Regression coefficient of the independent variables

μ_t = Error Term for period t

$RGDP_t$ = Real Gross Domestic Product for period t (Dependent variable)

$HCEXP_t$ = Health Care Expenditure for period t (Independent variable)

$NDEXP_t$ = National Defense Expenditure for period t (Independent variable)

Decision Rule

The decision will be based on 5% (0.05) level of significance. The null hypothesis (H_0) will be accepted, if probability value (P_{value}) calculated is greater than ($>$) than the stated 5% level of significance, otherwise reject.

Data Analysis

Table 1 Descriptive Statistics

	RGDP	HCEXP	NDEXP
Mean	2.4267	3.8300	2.9767
Median	2.5600	4.0300	2.9900
Maximum	2.7400	4.2800	3.4100
Minimum	1.8400	0.6000	2.2100
Std. Dev.	0.2924	0.7881	0.3903
Skewness	-0.8907	-3.5199	-0.6472
Kurtosis	2.3548	14.8812	2.2468
Jarque-Bera	13.1410	166.8794	1.9627
Probability	0.0000	0.0000	0.3748
Sum	50.9600	80.4300	62.5100
Sum Sq. Dev.	1.7101	12.4222	3.0467
Observations	21	21	21

Source: E-views 10.0 output, 2021

Interpretation

The skewness measures the asymmetric nature of the data; Skewness is a measure of the asymmetry of the probability distribution of a real-valued random variable about its mean (Frost, 2021). A normal distribution is symmetrical at point 0. If the value is greater than zero (> 0) it's positively skewed, but if less than zero (< 0) it is negatively skewed. RGDP, HCEXP, and NDEXP are negatively skewed with the values -0.8907, -3.5199, -0.6472 and -0.4671 respectively. If the value is approximately equal to three, it is said to be mesokurtic distribution implying that it is a normal distribution. If approximately greater than three, it is leptokurtic distribution which has tails that asymptotically approach zero slowly and has more outliers than the normal distribution. While if approximately, less than three it is platykurtic which means that the distribution produces fewer and less outliers than the normal distribution; therefore RGDP, NDEXP, showed evidence of platykurtic with values less than three; while HCEXP showed a leptokurtic distribution with value greater than three.

Table 2: Pearson Correlation Matrix

	RGDP	HCEXP	NDEXP
RGDP	1.0000		
HCEXP	-0.0719	1.0000	
NDEXP	0.3828	-0.0609	1.0000
IDEXP	0.8751	0.1873	0.1085
AGEXP	0.9284	-0.2168	0.1629

Source: E-Views 10.0 Correlation output, 2021

The result of the Pearson correlation in table 2 demonstrates that a negative relationship exist between RGDP and HCE at a coefficient value of -0.0719. On the other hand, RGDP positively correlates with NDEXP at coefficient factors of 0.3828.

Test of Hypotheses

Table 3: Ordinary Least Square Regression Analysis testing the relationship between HCEXP, NDEXP and RGDP

Dependent Variable: DRGDP

Method: Least Squares

Date: 08/27/21 Time: 19:09

Sample (adjusted): 2001 2020

Included observations: 20 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.026875	0.014654	1.833951	0.0866
DHCEXP	-0.005556	0.027620	-0.201165	0.8433
DNDEXP	0.113143	0.040003	2.828368	0.0127
R-squared	0.473985	Mean dependent var		0.041500
Adjusted R-squared	0.333715	S.D. dependent var		0.059496
S.E. of regression	0.048564	Akaike info criterion		-2.999545
Sum squared resid	0.035377	Schwarz criterion		-2.750612
Log likelihood	34.99545	Hannan-Quinn criter.		-2.950951
F-statistic	3.379079	Durbin-Watson stat		1.947272
Prob(F-statistic)	0.036810			

Source: E-Views 10.0 Panel Regression Output, 2021

Interpretation of Regression Result

Table 3 reveals an adjusted R^2 value of 0.333715. The adjusted R^2 , which represents the coefficient of multiple determinations imply that 33.37% of the total variation in the dependent variable (RGDP) of Nigeria economy is jointly explained by the explanatory variables (HCEXP, and NDEXP). The adjusted R^2 of 33.37% did not constitute a problem to the study because the F- statistics value of 3.379079 with an associated $\text{Prob.}>F = 0.036810$ indicates that the model is fit to explain the relationship expressed in the study model and further suggests that the explanatory variables are properly selected, combined and used. The value of adjusted R^2 of 33.37% also shows that 66.63% of the variation in the dependent variable is explained by other factors not captured in the study model. This suggests that apart from HCEXP, and NDEXP, , there are other factors that mitigate RGDP of Nigeria economy. The results in table 3 illustrated that HCEXP has a negative and non-significant relationship with RGDP measured with a beta coefficient (β_1) = -0.005556, t-value of -0.201165 and p-value of 0.8433 which is statistically non-significant at 5%; NDEXP has a significant positive relationship with RGDP as reported by the beta coefficient (β_2) = 0.113143, t- value = 2.828368, p-value = 0.0127 which is statistically significant at 5%; DAGEXP positively but non-significantly relate with RGDP at a beta coefficient (β_4) = 0.113229, t-statistic = 0.801900, p-value = 0.4351.

Durbin-Watson test is implied to check the auto correlation among the study variables. The Durbin-Watson value is 1.947272 which is less than 2 provide an evidence of no auto-correlation among the variables.

Decision

Based on the empirical evidence, this study upholds that a significant and positive relationship exist between national defense expenditure (t-Statistic = 2.828368 < 0.05), a negative and non-significant relationship between health care expenditure (t-Statistic = -0.201165 > 0.05) and RGDP at 5% level of significance, hence, H_0 is accepted.

Conclusion

This study examined the relationship between public expenditure and economic growth of Nigeria. The data set used for this analysis is the annual series of the selected relevant macroeconomic variables from 2000 to 2020. Data for health care expenditure, national defense expenditure, infrastructure development expenditure and agricultural expenditure were used as public expenditure variables. Data for real gross domestic product were used as economic growth variable. The time series data were extracted from the publications of Central Bank of Nigeria (CBN) Annual Reports and Statement of Accounts and Statistical Bulletins of various issues, National Bureau of Statistics (NBS) bulletin, Budget Office of the Federation, World Economic data base, United Nations statistical bulletin, International Monetary Fund (IMF) Government Finance Statistics Year Book for twenty one (21) years spanning from 2000 to 2020. As a preliminary step in testing, the study employed the Augmented Dickey Fully Unit root test to confirm the order of integration of the time series variables. In conclusion, the findings of this study upholds that a significant and positive relationship exist between national defense expenditure (t-Statistic = 2.828368 < 0.05), infrastructure development expenditure (t-Statistic = 2.908787 < 0.05) and RGDP at 5% level of significance, hence H_1 is accepted; a negative and non-significant relationship between health care expenditure (t-Statistic = -0.201165 > 0.05) and RGDP at 5% level of significance, hence, H_0 is accepted; a positive but non-significant relationship between

agricultural expenditure (t-Statistic = 0.801900 > 0.05) and RGDP at 5% level of significance, thus H_0 is accepted.

Recommendations

Based on findings of the study, the following recommendations were suggested:

- i. In order to reverse the negative relationship between health care expenditure and economic growth, Government should ensure that health investments are directed to improving health standard of the population. Also, investing carefully in various healthcare aspects would boost income, GDP and productivity, and alleviate poverty.
- ii. Since military expenditure is an economically contributive activity, policy makers should encourage budgetary allocation in support of accumulation of capital and human capital development.

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