Government Sectoral Expenditure and Economic Growth in Nigeria

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Abstract
This study examined government sectoral expenditure and economic growth in Nigeria. The study specifically focused on government expenditure on general administration, defense, internal security, education, and health effects on real gross domestic product. The study adopted the ex post facto research design and data were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin, spanning from 2000-2022. The unit root test using Augmented Dickey-Fuller (ADF) showed stationarity at 1(0), 1(1), and 1(2). The hypotheses were tested using the ARDL model. The results showed that government expenditure on general administration has a very small but highly significant positive effect on real GDP. Government expenditure on defense has an insignificant negative impact on real GDP. Government expenditure on internal security has an insignificant positive effect on real GDP. Government expenditure on education has a significant positive impact on real GDP. Government expenditure on health has an insignificant negative impact on real GDP. In summary, the findings across different sectors reveal varying impacts of government expenditure on economic growth. Based on these, the study recommends increase efficiency in general administration spending, the government should reassess and possibly reallocate funds from defense to other sectors that have a more direct and significant impact on GDP growth, such as education or infrastructure. The government should focus on internal security investments that specifically bolster economic activities. An increase education funding and investments should be made in both primary and higher education to ensure a well-educated workforce. Finally, reassess the allocation of health funds and strive to enhance the effectiveness of health expenditure to promote economic growth.

Keywords: *General Administration, Defense, Internal Security, Education, Health, Real Gross Domestic Product*

1.0 Introduction

Government expenditure is a key tool of fiscal policy that plays a critical role in the macroeconomy (Onabote, Ohwofasa, & Ogunjumo, 2023; Park & Meng, 2024). Authors have shown a link between government spending and economy growth across several contexts (Furceri & Sousa, 2011; Mankiw, 2019). The focus on utilizing government spending as a means to accelerate economic growth is driven by the market failure experienced in the 1920s (Onabote, Ohwofasa, & Ogunjumo, 2023). Economists have differing views on the role of government expenditure in the economy (Mose, 2020). Neo-classical economists believe that the crowding-out effect, which reduces the private sector's role in the economy, is important as it helps lower inflation (Yan, Yuan, & Xue, 2024; Park & Meng, 2024). They argue that an increase in public debt leads to higher interest rates, which in turn decreases output and inflation (Babu et al., 2014).

In response, the new Keynesians invoke the multiplier effect and contend that higher government spending will raise demand and accelerate economic expansion (Babu et al., 2014). In fact, the majority of contemporary economists concur that there are situations where higher levels of public spending are preferable and others in which lower levels of national spending would promote economic growth (Babu et al., 2014; Yan, Yuan, & Xue, 2024).

There will probably be very little economic activity if government spending is zero since it would be extremely difficult to enforce contracts, protect property, and build infrastructure. In other words, for the rule of law to function effectively in any economy, a certain level of government spending is necessary (Park & Meng, 2024). Improved infrastructure, healthcare, housing, education, increased agricultural production, and food security all contribute to an increase in people's standard of living (Loto, 2011).

The allocation of government sectoral expenditure plays a crucial role in shaping the economy and providing essential services to the public (Onabote, Ohwofasa, & Ogunjumo, 2023). Bose et al. (2007) and Baldacci et al. (2008) have demonstrated a strong positive influence of public capital expenditures on the economic growth of some emerging economies. This include expenditures in critical areas such as administration, defence, internal security, education, and healthcare.

In Nigeria, government expenditure has shown a consistent fluctuation in recent years. Though there has been a consistent rise in government spending without a proportional improvement in key development indicators (Onabote, Ohwofasa, & Ogunjumo, 2023). According to data from Statista (2024), the ratio of government expenditure to GDP was 12.52% in 2019, 12.1% in 2020, 12.56% in 2021, and 14.38% in 2022. This trend has sparked intense debate among scholars regarding the rationale behind the continual increase in annual government expenditure (Onabote, Ohwofasa, & Ogunjumo, 2023). As the country is currently experiencing severe infrastructure gaps as a result of cases of corruption and mismanagement of public finances, which have halted the possibility of proper project execution (Onifade et al., 2020). In addition, the demographic expansion has resulted in a greater demand on the

already inadequate social amenities due to changes in the dynamics of the demand for public services.

Firstly, there is still no consensus on whether government expenditure stimulates or constrains economic growth (Aluthge, Jibir, & Abdu, 2021; Nurudeen & Usman, 2010; Usman et al., 2011). Consequently, the ARDL model, a relatively new econometric technique, created by Pesaran, Shin, and Smith (2001), is used to examine the effects of the various sectoral spendings on economic growth.

Secondly, the fact that most research on the connection between economic growth and government expenditure is sector-specific (Abada & Manasseh, 2020; Ngobeni & Muchopa, 2022). This study differs from the prior one in that it breaks down the data using a multi-sector approach, including government spending on general administration, defence, internal security, education and health. Therefore, analyzing the impact of government spending on the economy and the disaggregated impact of such expenditure is essential for the design of fiscal policy (Mankiw, 2019). This approach differs from previous studies that focused on a single aspect of expenditure.

Against this backdrop, the specific objectives of the study are:

1. To determine the effect of government expenditure on general administration on real gross domestic product.
2. To examine the effect of government expenditure on defence on real gross domestic product.
3. To ascertain the effect of government expenditure on internal security on real gross domestic product.
4. To determine the effect of government expenditure on education on real gross domestic product.
5. To evaluate the effect of government expenditure on health on real gross domestic product.

2.0 Literature Review

2.1 Conceptual Review

2.1.1 Government Expenditure

Government expenditure includes the government's choices about how to distribute resources to affect the economy as a whole, is a crucial aspect of fiscal policy. It is a crucial instrument for regulating the economy since it allows policymakers to cool or boost economic activity. Government expenditure patterns are typically divided into two categories: recurrent and capital expenditures, as outlined by Mordi (2010). Recurrent expenditures refer to the government's spending on current goods and services such as labor, consumables, wages, and salaries. On the other hand, capital expenditures should not only encompass investments in infrastructure like roads, schools, and hospitals but also include any other expenses that could contribute to development. In simpler terms, recurrent expenditure is the money needed for the daily operations of government activities, while capital expenditure is the investment that adds to the state's assets. These categories are not separate, but rather connected. For example, capital expenditure often leads to recurrent expenditure because of the ongoing operational and maintenance costs of completed projects.

Fiscal policies often take the form of either contractionary or expansionary measures (Yasin, 2011). In a situation when the government wants to increase aggregate demand, it applies

expansionary fiscal policy. This is frequently seen when the government raises spending on initiatives in different economic sectors or reduces tax burdens, freeing up more disposable income for its people in addition to some transfer payments. The multiplier effect, which maintains that public expenditure could aid in stimulating private spending and addressing the issues related to economic recession, hence improving economic growth, is the main justification for this (Auerbach & Gorodnichenko, 2012).

Conversely, contractionary fiscal policies are aimed at reducing and controlling excessive aggregate demand. They are typically implemented when inflationary pressures are perceived as a significant threat to economic stability, and sometimes when government spending has reached levels that are crowding out private sector efficiency. In these scenarios, government expenditures are typically reduced through the use of austerity measures (Jaramillo & Cottarelli, 2012).

2.1.1.1 Government Expenditure on General Administration

The costs associated with general administration are those that are typically seen as agency overhead, or the price of general supervision, which the agency must pay in order to continue operating as a unit. Expenditures for HR development, productivity incentive benefits, and general management and supervision are a few examples of expenditures for general administration and support.

2.1.1.2 Government Expenditure on Defence

The issue of military expenditures is worldwide, and the primary goal of rising defence spending is to combat localised instability and the arms race (Haseeb et al., 2014). There is significant disagreement in the research regarding the relationship between defense spending and growth rates (Chang et al., 2001); one school of thought contends that defense spending has a net positive impact on economic growth (Benoit, 1973). The second group contends that growth will eventually be slowed down by a combination of lower investment and savings (Lipow & Antinori, 1995). Context-specific explanations ranging from positive to negative impacts are typically offered by the third group (Landau, 1996).

2.1.1.3 Government Expenditure on Internal Security

Based on historical data, there has been a significant increase in internal security spending since 1999, the year democratic governance began (Mbah, Agu, & Aneke, 2021). While there have been isolated instances of armed conflict, such as political upheaval and demands for resource management, the primary impetus for increased expenditure on internal security stems from the terrorist attacks carried out by Boko Haram rebels, which subsequently evolved into transnational terrorism. Rising sectarian and ethno-religious conflicts, widespread kidnappings for ransom, hostage-taking of employees of oil companies, crude oil pipelines and installations, vandalism, and ritual killings, among other incidents, all contributed to the growth in security expenditures (Peterside, 2014).

2.1.1.4 Government Expenditure on Education

The value of education extends beyond the needs of an individual and is essential for the expansion of society to the point of competency (Oktavianty, 2024). A region's competitiveness is also determined by its human resources, which are important because they can be used for a variety of tasks, including productive ones. As stated in Khanal (2023), spending on education

meets a number of needs, including (1) Recurrent expenditure on education refers to ongoing costs required for educational institutions to operate on a daily basis; and, (2) Capital expenditure on education includes spending on the physical infrastructure of educational institutions, such as the construction and maintenance of school buildings, laboratories, and libraries. The quality of a region's human resources also affects the HDI; in order to achieve a higher index, education must be equally accessible to all people, regardless of their ethnicity, religion, or nationality (Oktavianty, 2024).

According to Esmail (2020), countries can improve the performance of their human resources by allocating funds or resources towards human capital. This allows them to advance scientifically and technologically, innovate, and adapt to changing economic conditions, all of which enable their human resources to play a significant role in achieving economic development. Some of them even contribute to innovations that are used for generations.

The same conclusion is made in Okafor, Ogbonna, and Okeke (2017), which said that government funds allocated for education were able to promote the development of human capital, which is essential to the region's productivity, economic expansion, and elimination of poverty.

2.1.1.5 Government Expenditure on Health (GEH)

The government expenditure on health shows the amount of a government's overall resources that are allocated to health (Qehaja et al., 2023). It covers all capital and ongoing government spending on health at all levels, including public health, primary, secondary, and tertiary care; (i) health service delivery (preventive and curative), including public health and environmental protection activities; (ii) medical supplies, equipment, and vaccines; (iii) health personnel training and education (GEH); and (iv) government subsidies or payments to private organisations for healthcare services (Qehaja et al., 2023).

Many people now believe that productivity and innovation, for example, can have an impact on economic growth through the health sector (Ifa & Guetat, 2019). This is due to the fact that a nation's socioeconomic development level is highly influenced by its citizens' health (Abdul Wahab, Kefeli, & Hashim, 2018). Furthermore, by improving the health of the impoverished, who frequently cannot afford medical care, good health programmes also boost their welfare and productivity. From this vantage point, health care costs can be considered both an investment and a consumer product.

The majority of empirical research points to GEH as having a positive effect on economic growth. This is due to the fact that spending on healthcare can result in better health outcomes, which can raise incomes and productivity. More people gain from a nation's increased healthcare investments when it does so. The “health-led growth hypothesis”, put forth by Mushkin in 1962, contends that a nation's investment in healthcare is essential to its economic progress.

Aboubacar and Xu (2017) examined the influence of healthcare spending on economic growth in sub-Saharan Africa. Their findings revealed that healthcare expenditure has a substantial and beneficial effect on economic growth.

Yang (2020), investigated the impact of GEH on the economic growth of 21 developing countries between 2000 and 2016. He discovered a negative correlation between health expenditure and economic growth.

2.1.2 Economic Growth

Economic growth is reflected in SDG8 of the sustainable development goals (Ozili, 2024). It is the term used to describe an increase in the output of goods and services over a specific time period. For the measurement to be accurate, inflationary effects must be taken into consideration (Pasara & Garidzirai, 2020). A second way to define economic growth is the gradual increase in an economy's capacity to produce goods and services. It can be measured in nominal terms or in actual terms, which are inflated and adjusted. Gross national product (GNP) or gross domestic product (GDP) is the traditional measure of overall economic growth, however other metrics are often used (Omar et al., 2022).

GDP is considered the most precise indicator of economic growth as it reflects the total economic production of a nation. It encompasses all goods and services produced by companies within the country, regardless of whether they are sold domestically or internationally. GDP measures the overall output of a nation, excluding intermediate components used in the production process. Additionally, exports are included in GDP calculations as they are produced domestically. Real GDP is the most reliable indicator of growth. It eliminates the consequences of inflation. Real GDP is used to calculate the GDP growth rate (Dynan & Sheiner, 2018).

2.2 Theoretical Framework

2.2.1 Resource Mobilisation Theory (RMT)

RMT was developed by sociologists John D. McCarthy and Mayer N. Zald in the 1970s. A seminal article published in 1977 titled "Resource Mobilization and Social Movements: A Partial Theory" laid the foundation for the theory. RMT is a framework in sociology that outlines how social movements gather and utilize resources to achieve their goals. The theory explains social movements and collective action as a result of the strategic mobilization of resources such as money, labour, skills, and organizational structure. The theory suggests that successful social movements can effectively gather and utilize resources to achieve their goals. According to resource mobilization theory, social movements must develop the necessary resources to sustain and carry out their activities, including creating networks of support, attracting financial donations, gaining access to media channels, and building alliances with other groups or organizations.

2.2.2 Wiseman and Peacock Hypothesis

This hypothesis, derived from the seminal work of British economists Alan T. Peacock and Jack Wiseman in their study of public expenditure in the United Kingdom, offers critical insights into the dynamics of public finance and its implications for economic growth. Peacock and Wiseman's hypothesis centers around three primary concepts: the displacement effect, the inspection effect, and tax tolerance. These concepts elucidate how public expenditure patterns evolve in response to societal pressures and economic conditions, ultimately influencing economic growth.

i. **Displacement Effect:** This effect occurs when unanticipated social disturbances (e.g., wars, natural disasters, or economic crises) necessitate a significant increase in public

expenditure. These disturbances create a new level of government spending that persists even after the immediate need has subsided. The higher spending levels are maintained through increased taxation or borrowing, leading to a permanent shift in the public expenditure trajectory.

ii. **Inspection Effect:** The inspection effect refers to the heightened scrutiny and reevaluation of public expenditure following a displacement event. This scrutiny often results in a reallocation of resources and a more efficient use of public funds, as the government strives to balance the increased spending with available revenues.

iii. **Tax Tolerance:** Over time, citizens adapt to the higher levels of taxation required to support the increased public expenditure. This adaptation leads to a higher tolerance for taxation, which allows the government to maintain elevated spending levels without significant public backlash.

2.3 Empirical Review

Jmaii and Zaafouri (2024) studied how Tunisia's economic growth is impacted by international security. They use cointegration-bound tests based on ARDL to investigate the multidimensionality of global security. The results demonstrate that there is a substantial relationship between economic growth and the four security measures.

Onabote, Ohwofasa, and Ogunjumo (2023) conducted a study on the impact of government sectoral spending on human development in Nigeria. They analyzed annual data from 1986 to 2021 using the ARDL. The result showed no link between government sectoral expenditure and human development, in the short and long term.

Qehaja et al. (2023) investigated the association between public health spending and economic growth. They utilised yearly data spanning from 2000 to 2020 of Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, and Serbia. The data were gathered from the World Bank, National Statistical Offices, and Eurostat. The results of the regression analysis indicate that government spending on healthcare has a positive and statistically significant effect on economic growth.

Ozyilmaz et al. (2022) explored the relationship between health expenditures and economic growth in EU. The data spanned 27 EU countries analysed using the panel Fourier Toda-Yamamoto Causality test. The results show that, on a panel basis, health spending and economic growth have a bidirectional causal link. The Random Forest Method indicated that health spending had a favourable impact on economic growth, but the effect varied depending on the nation.

Ngobeni and Muchopa (2022) looked at how the value of agricultural production was affected by government spending in agriculture. The study specifically focused on government spending in agriculture from 1983 to 2019. The findings of the Johansen cointegration test show that the variables have a long-term relationship. The findings of the Granger causality test imply that government investment in agriculture does not raise the value of agricultural output.

Islam, Alsaif, and Alsaif (2022) investigated the impact of trade liberalisation on economic growth in the Kingdom of Saudi Arabia, taking into account labour force participation and government consumption as control variables. The study uses time-series yearly data from

1985 to 2019 and employs the Toda-Yamamoto Granger causality check and ARDL cointegration regression. The results showed that government consumption has a small but positive short-term impact on economic growth.

Mbah, Agu, and Aneke (2021) analysed internal security expenditure effect on economic growth in Nigeria. The autoregressive distributed lag (ARDL) model and quarterly time series data covering the first quarter of 1999 to the fourth quarter of 2019 were used in this investigation. The outcome demonstrates that, in the short term, GDP and internal security have a positive and significant association.

Popescu and Diaconu (2021) tested which of the Wagner and Keynes theories holds true in Romania by modelling the relationship between government spending and growth using data from 1995 to 2018. Despite applying Granger causality and the co-integration technique, the investigation was unable to provide proof of a sustained relationship between the variables of interest. Nonetheless, the analysis found a bidirectional causal relationship, indicating that growth and public spending are mutually reinforcing.

Onifade et al. (2020) analysed the impacts of government expenditures on economic growth in Nigeria. Annual time-series data from 1981 to 2017, were used for the empirical analysis with the ARDL. The long-run coefficients showed that government recurrent spending significantly hampered economic growth; while, government capital spending positively affect economic growth though negligible.

Abada and Manasseh (2020) evaluated the impact of government spending on economic growth in Nigeria using data from 1995 to 2018 and the OLS approach. Consequently, the study's conclusions showed, among other things, that government expenditure negatively affected Nigeria's growth during the period under examination.
Zhang, Zong, and Xiao (2020) evaluated the effect of public healthcare spending on economic development. Data from 31 Chinese provinces' panels were used to test a geographic Durbin model that covered the years 2005–2017. The study concluded that healthcare spending have a substantial positive impact on economic growth. The total and the direct effects of government healthcare expenditure are significantly positive.

Okere, Uzowuru, and Amako (2019) investigated the correlation between government spending and economic growth in Nigeria. The primary aim of the study was to analyze the influence of government expenditure on the economic growth of Nigeria. Data was obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin spanning from 1981 to 2016. The research utilized the Granger Causality method of econometrics and the error correction model (ECM) technique.

Haseeb et al. (2014) analysed the impact of defense expenditure on economic growth in Pakistan. ARDL and annual time series data covering the years 1980-2013 were used for the empirical inquiry. The empirical findings are consistent with a long-term negative correlation between defence spending and economic expansion.

Ando (2009) examined impact of defense expenditure on economic growth. Utilised panel data covering the years 1995-2003, for 109 nations, including 30 OECD countries. The findings

indicate that defence spending affects the pace of economic growth favourably in each of the 109 countries. The findings indicate that economic growth corresponds with increases in the defence industry.

3.0 Methodology

The research employs a longitudinal research design to investigate the relationship between government revenue and social and community services expenditure in Nigeria. The data for the study were obtained from the annual statistical bulletin published by the Central Bank of Nigeria (CBN) and covered the years 1999-2022. This time frame was chosen to ensure there was no missing data.

3.1 Methods of Data Analysis

The study conducts a unit root test and, for robustness, utilizes the Dickey-Fuller, Augmented Dickey-Fuller, and Philip-Perron Tests. However, as similar results were obtained from DF and P-P, the researchers presented ADF for brevity. The cointegration test include the Unrestricted Cointegration Rank Test (Trace and Maximum Eigenvalue). These tests help determine the number of cointegrating equations, which represent the long-term relationships between the variables.

3.1.1 Model Specification

Our model is specified according to the hypothesis.

$RGDP = f(GENA, DEFE, INSE, EDUC, HEAL, EXCR, INFL)$……Eq. (1)

Where: RGDP- Real GDP; GENA-General Administration; DEFE-Defense; INSE-Internal Security; EDUC-Education; HEAL- Health; EXCR-Effective Exchange Rate; INFL-Inflation. The ARDL model equation form for the dependent variable can be written based on the selected ARDL model.

The general ARDL model can be represented as:

$$RGDP_t = \beta_0+\beta_1 RGDP_{t-1}+\beta_2 GENA_t+\beta_3 DEFE_t+\beta_4 INSE_t+\beta_5 EDUC_t+\beta_6 HEAL_t+\beta_7 EXCR_t+\beta_8 INFL_t +\epsilon_t \quad \text{……Eq. (2)}$$

Where:

$RGDP_t$	is the dependent variable (real GDP) at time *t*
$GENA_t$	is the general administration expenditure at time *t*
$DEFE_t$	is the defense expenditure at time *t*
$INSE_t$	is the internal security expenditure at time *t*
$EDUC_t$	is the education expenditure at time *t*
$HEAL_t$	is the health expenditure at time *t*
$EXCR_t$	is the effective exchange rate at time *t*
$INFL_t$	is the inflation rate at time *t*
β_0	is the intercept (constant term)
β_{1-8}	are the coefficients for the IVs and CVs
ϵt	is the error term at time *t*

4.0 Data Analysis

4.1 Descriptive Statistics

Table 1: Descriptive analysis of the model variables

	RGDP	GENA	DEFE	INSE	EDUC	HEAL	EXCR	INFL
Mean	54337.44	473.3938	262.7502	308.2061	289.5529	177.2348	92.46495	13.07171
Median	58180.35	479.1763	272.3000	273.1412	325.1900	180.0000	85.13346	12.00000
Maximum	74752.42	992.2449	693.8514	770.2352	702.9787	437.5212	155.7536	23.80000
Minimum	25430.42	67.45500	43.40232	25.15467	39.88260	15.21808	58.24839	6.600000
Std. Dev.	16671.23	280.3297	214.4961	230.7907	209.5974	136.9430	27.06612	4.293781
Skewness	-0.367836	0.208272	0.676127	0.669922	0.541480	0.573722	1.140774	0.784913
Kurtosis	1.659018	2.051610	2.206431	2.332054	2.082610	2.089395	3.302999	3.212356
Jarque-Bera	2.241967	1.028247	2.355915	2.147946	1.930473	2.056420	5.076551	2.404888
Probability	0.325959	0.598025	0.307907	0.341648	0.380893	0.357647	0.079003	0.300459
Sum	1249761.	10888.06	6043.255	7088.741	6659.716	4076.400	2126.694	300.6493
Sum Sq. Dev.	6.11E+09	1728864.	1012188.	1171816.	966483.6	412574.7	16116.65	405.6042
Observations	23	23	23	23	23	23	23	23

Source: E-Views 11

Key: GENA-General Administration; DEFE-Defence; INSE-Internal Security; EDUC-Education; HEAL- Health; RGDP- Real GDP; EXCR-Effective Exchange Rate; INFL-Inflation.

Based on the statistical summary provided in Table 1 above, the mean of real GDP is approximately $54,337.44, with a standard deviation of $16,671.23. The data is slightly negatively skewed (-0.37) and has positive kurtosis (1.66), indicating that the distribution is slightly skewed to the left and has heavier tails than a normal distribution (i.e., platykurtic). The mean for GENA is 473.3938, with a standard deviation of 280.3297. The data has a slight positive skewness (0.21) and positive kurtosis (2.05), indicating that the distribution is slightly skewed to the right and has heavier tails than a normal distribution (i.e., platykurtic). The mean for DEFE is 262.7502, with a standard deviation of 214.4961. The data has a positive skewness (0.68) and positive kurtosis (2.21), indicating that the distribution is skewed to the right and has heavier tails than a normal distribution (i.e., platykurtic). The average for INSE is 308.2061, with a standard deviation of 230.7907. The data has a positive skewness (0.67) and

positive kurtosis (2.33), indicating that the distribution is skewed to the right and has heavier tails than a normal distribution (i.e., platykurtic).

The average for EDUC is 289.5529, with a standard deviation of 209.5974. The data has a positive skewness (0.54) and positive kurtosis (2.08), indicating that the distribution is skewed to the right and has heavier tails than a normal distribution (i.e., platykurtic). The average for HEAL is 177.2348, with a standard deviation of 136.9430. The data has a positive skewness (0.57) and positive kurtosis (2.09), indicating that the distribution is skewed to the right and has heavier tails than a normal distribution (i.e., platykurtic). The mean for EXCR is 92.46495, with a standard deviation of 27.06612. The data has a positive skewness (1.14) and positive kurtosis (3.30), indicating that the distribution is heavily skewed to the right and has heavier tails than a normal distribution (i.e., leptokurtic). The mean for INFL is 13.07171, with a standard deviation of 4.293781. The data has a positive skewness (0.78) and positive kurtosis (3.21), indicating that the distribution is skewed to the right and has heavier tails than a normal distribution (i.e., leptokurtic).

4.2 Normality Test

Based on the statistical summary provided in Table 1 above, the Jarque-Bera statistic tests whether the data follows a normal distribution.

The *p*-value of the J-B test for GENA is 0.598; the probability is higher than the significance level (0.05), the distribution of "General Administration" does not significantly deviate from normality. The *p*-value of the J-B test for DEFE is 0.307; the probability is higher than the significance level (0.05), the distribution of "Defence" is not significantly different from normal. The *p*-value of the J-B test for INSE is 0.341; the probability is higher than the significance level (.05), suggesting that the distribution of "Internal Security" is not significantly different from normal. The *p*-value of the J-B test for EDUC is 0.380; the probability is above the significance level, indicating that the distribution of "Education" does not deviate significantly from normal. The *p*-value of the J-B test for HEAL is 0.357; the probability is greater than the significance level, suggesting that the distribution of "Health" is not significantly different from normal. The *p*-value of the J-B test for EXCR is 0.079; though, the probability is relatively low, but still not below the conventional significance level. There might be some indication of deviation from normality, it's not strong enough to reject the null hypothesis for "Real Effective Exchange Rate". The *p*-value of the J-B test for INFL is 0.300; the probability is greater than the significance level, indicating that the distribution of "Inflation" is not significantly different from normal. In summary, based on the Jarque-Bera test results, none of the variables show significant deviation from a normal distribution at the conventional significance level.

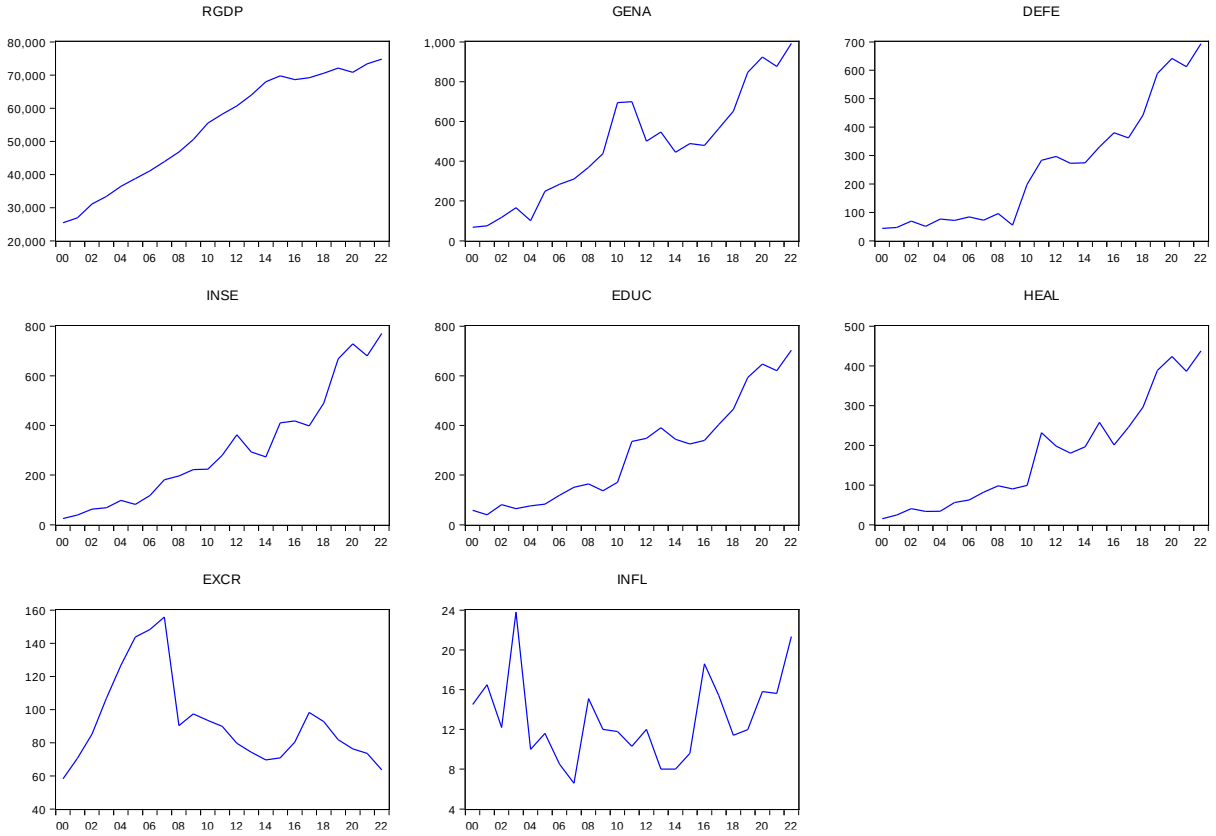

Figure 1: Graphs of the variables in the study

The line graphs representing various economic indicators over time showed that RGDP displays an upward trend over the years; GENA shows fluctuations with a general increasing trend; DEFE indicates a significant rise over time; INSE shows gradual increase, suggesting growing investment in internal security; EDUC also shows an increasing trend similar to INSE. The variable HEAL shows a steady rise over the years, indicating increased spending on health. The control variable EXCR shows volatility with peaks and troughs, reflecting changes in the exchange rate over time. INFL indicates highly variable, indicating periods of both high and low inflation. These charts seem to represent the trends in economic indicators for Nigeria over a span of years; 2000-2022.

4.3 Stationarity Test

A unit root signifies that the data is non-stationary, implying that the statistical characteristics of the series vary over time. The ADF test is an advancement of the original D-F is capable of dealing with more intricate forms of autocorrelation. Table 2 displays the unit root test results for the individual series.

Null Hypothesis (H_o): The variable X has a unit root

Alternate Hypothesis (H_1): The variable X has no unit root

Table 2: ADF test for model variables

Variable			ADF	Prob*
GENA	Level	1(0)	-0.366059	0.8991
	First difference	1(1)	-4.428502	0.0025

DEFE	Level	1(0)	0.907797	0.9936
	First difference	1(1)	-4.029616	0.0059
INSE	Level	1(0)	3.233367	1.0000
	Second difference	1(2)	-4.639312	0.0023
EDUC	Level	1(0)	0.747944	0.9904
	First difference	1(1)	-3.999641	0.0063
HEAL	Level	1(0)	0.100774	0.9583
	First difference	1(I)	-5.338308	0.0003
RGDP	Level	1(0)	-2.335719	0.1704
	Second difference	1(2)	-4.612398	0.0022
EXCR	Level	1(0)	-1.678500	0.4277
	First difference	1(I)	-3.895238	0.0079
INFL	Level	1(0)	-3.406153	0.0219

Source: E-Views 11

Table 2 above summarizes the results of the Augmented Dickey-Fuller (ADF) test for checking the stationarity of various model variables at different levels and differences. The variables GENA, DEFE, EDUC, HEAL, and EXCR are non-stationary at level (1(0)) but become stationary after the first difference (1(1)). This indicates they are integrated of order 1, I(1). The two variables INSE and RGDP are non-stationary at level (1(0)) and first difference (1(1)) but become stationary after the second difference (1(2)). This indicates they are integrated of order 2, I(2). The variable INFL is stationary at level (1(0)), indicating it is already stationary without any differencing.

4.4 Test of Hypothesis

Table 3: ARDL test for model variables

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LOG(RGDP(-1))	0.897084	0.012631	71.02455	0.0000
GENA	9.38E-05	2.61E-07	359.8588	0.0000
DEFE	-5.26E-05	5.72E-05	-0.918751	0.3750
INSE	3.70E-05	2.25E-05	1.642456	0.1245
EDUC	9.32E-05	2.42E-05	3.850955	0.0020
HEAL	-0.000289	0.000194	-1.486100	0.1611
EXCR	-0.000387	2.86E-05	-13.50465	0.0000
INFL	-0.002968	0.000297	-9.981247	0.0000
C	1.220459	0.130538	9.349460	0.0000
R-squared	0.997080	Mean dependent var		10.88200
Adjusted R-squared	0.995283	S.D. dependent var		0.319109
S.E. of regression	0.021917	Akaike info criterion		-4.511040
Sum squared resid	0.006244	Schwarz criterion		-4.064704
Log likelihood	58.62144	Hannan-Quinn criter.		-4.405897
F-statistic	554.8594	Durbin-Watson stat		2.071782
Prob(F-statistic)	0.000000			

Source: E-Views 11

The ARDL results provided indicate the relationship between the real GDP and various economic indicators. The R^2 value is 0.997; which indicates that approximately 99.7% of the

variability in RGDP is explained by the model. The Adjusted R^2 0.995 is slightly lower but still very high value, indicating 99.5% variability in RGDP even after adjusting for the number of predictors. The S.E. of Regression value is 0.021917, indicating the average distance that the observed values fall from the regression line. The F-statistic value is 554.8594, Prob(F-statistic) 0.00 indicates that the overall model is highly significant. The Durbin-Watson Stat value is 2.071 which suggests no autocorrelation.

Hypothesis One

H_1: There is a significant effect of government expenditure on general administration on real GDP.

GENA Coefficient = 9.38E-05, Std. Error = 2.61E-07, t-Statistic = 359.8588, Prob. = 0.0000. Thus, government expenditure on general administration has a very small but highly significant positive impact on RGDP. This suggests the rejection of the H_o and acceptance of the H_1 hypothesis.

Hypothesis Two

H_2: There is a significant effect of government expenditure on defense on real GDP.

DEFE Coefficient = -5.26E-05, Std. Error = 5.72E-05, t-Statistic = -0.918751, Prob. = 0.3750. Thus, government expenditure on defence has an insignificant negative impact on RGDP. This leads to rejection of the H_1 and acceptance of the H_o.

Hypothesis Three

H_3: There is a significant effect of government expenditure on internal security on real GDP.

INSE Coefficient = 3.70E-05, Std. Error = 2.25E-05, t-Statistic = 1.642456, Prob. = 0.1245. Therefore, government expenditure on internal security has an insignificant positive impact on RGDP. This leads to rejection of the H_1 and acceptance of the H_o.

Hypothesis Four

Ho_4: There is a significant effect of government expenditure on education on real GDP.

EDUC Coefficient = 9.32E-05, Std. Error = 2.42E-05, t-Statistic = 3.850955, Prob. = 0.0020. Therefore, government expenditure on education has a significant positive impact on RGDP. This suggests the rejection of the H_o and acceptance of the H_1 hypothesis.

Hypothesis Five

Ho_5: There is a significant effect of government expenditure on health on real GDP.

HEAL Coefficient = -0.000289, Std. Error = 0.000194, t-Statistic = -1.486100, Prob. = 0.1611. Thus, government expenditure on health has an insignificant negative impact on RGDP. This leads to rejection of the H_1 and acceptance of the H_o.

4.5 Discussion of Findings

There is a positive effect of government expenditure on general administration on real GDP. Research on the relationship between GENA and economic outcomes has shown mixed results. Jmaii and Zaafouri (2024) studied the broader impacts of international security, which encompasses administrative functions, on Tunisia's economic growth. They found a significant relationship between economic growth and global security measures, indicating the importance of administrative efficiency and security in economic development.

There is a negative effect of government expenditure on defense on real GDP. Haseeb et al. (2014) support the existence of long run negative relationship between defense expenditure and

economic growth. Shahbaz and Shabbir (2012) investigate the connection between Pakistan's economic expansion and military spending. They come to the conclusion that, from 1971 to 2009, there was a persistently negative association between these two factors. This suggests that high defense expenditures may impede economic expansion.

Conversely, Ando (2009) studied defense spending across 109 countries, including 30 OECD nations, from 1995 to 2003. The findings indicated that defense spending positively affects economic growth rates, showing that increased investment in the defense sector corresponds with economic growth across these nations.

There is a positive effect of government expenditure on internal security on real GDP. The short-term result's positive correlation with military spending and economic growth is consistent with research conducted in South-East Asia by Khidmat et al. (2018) and in Pakistan and India by Sheikh and Chaudhry (2016). Mbah, Agu, and Aneke (2021) focused on Nigeria, using quarterly data demonstrated a positive and significant short-term association between GDP and internal security expenditure, indicating that spending on internal security can stimulate economic growth in the short term.

There is a positive effect of government expenditure on education on real GDP. Alam, Singh, and Singh (2022) found that government expenditure on education in particular had a major beneficial long-term influence on GDP. Similarly, using VAR Okafor, Ogbonna, and Okeke (2017), document a positive impact of education spending on the HDI in Nigeria from 1986 to 2015. Popescu and Diaconu (2021) investigated the relationship between government spending and economic growth in Romania, providing a broader understanding of how different types of public expenditures, potentially including education, can influence economic growth. Their findings suggested a bidirectional causal relationship, indicating that public spending and economic growth are mutually reinforcing.

There is a negative effect of government expenditure on health on real GDP. Similarly, Alam, Singh, and Singh (2022) finds that government spending on health care had a major detrimental effect on GDP. Similarly, Okafor, Ogbonna, and Okeke (2017), using VAR finds a positive effect of health expenditure on the HDI in Nigeria from 1986 to 2015. In contrast, Qehaja et al. (2023) examined public health spending in several Balkan countries from 2000 to 2020. They found that government healthcare spending has a positive and statistically significant effect on economic growth, highlighting the economic benefits of investing in public health. Ozyilmaz et al. (2022) focused on health expenditures in the EU, analyzing data from 27 countries. Their results indicated a bidirectional causal link between health spending and economic growth. Furthermore, the Random Forest Method showed that health spending generally has a favorable impact on economic growth, although the effect varies by country. Zhang, Zong, and Xiao (2020) studied public healthcare spending in China across 31 provinces from 2005 to 2017. Their findings concluded that healthcare spending has a substantial positive impact on economic growth, with both total and direct effects being significantly positive.

5.0 Conclusion and Recommendations

The study concludes that government sectoral expenditure affects economic growth in Nigeria. The regression result suggests that expenditure on general administration (GENA) and education (EDUC) were significant predictors of RGDP. The control variables of exchange rate (EXCR) and inflation rate (INFL) were also significant predictors of Real Gross Domestic Product. The coefficients suggest that GENA and EDUC positively influence RGDP; while, EXCR and INFL have a negative impact. However, government expenditure on defense (DEFE), internal security (INSE), and health (HEAL) are not significant predictors in the model.

Based on this, the study recommends that:

1. **Increase Efficiency in General Administration Spending**: Although the positive impact may be minimal, the high level of importance indicates that well-managed administrative expenses can have a beneficial effect on economic growth. It is crucial for the government to prioritize enhancing the efficiency and effectiveness of administrative spending. This may include simplifying bureaucratic procedures, minimizing corruption, and increasing transparency and accountability in public administration. Allocating resources to digital governance and e-administration can result in cost savings and enhanced service delivery, thereby maximizing the impact of administrative spending on the economy. Conducting routine audits and performance evaluations is essential to guarantee efficient utilization of funds for general administration, ultimately fostering economic growth.
2. **Reassess Defense Spending**: Given the insignificant impact of defense expenditure on economic growth, the government should reassess and possibly reallocate funds from defense to other sectors that have a more direct and significant impact on GDP growth, such as education or infrastructure. Efforts should be made to increase the effectiveness of defense spending by prioritizing strategic investments that improve national security without unnecessary financial burden.
3. **Targeted Security Investments**: Although the impact is favorable, it is not substantial. The government should focus on internal security investments that specifically bolster economic activities, such as safeguarding critical infrastructure and establishing secure environments for businesses. By investing in community policing and social programs that tackle the underlying causes of insecurity, economic growth can be indirectly enhanced by fostering a stable and favorable environment for economic endeavors.
4. **Increase Education Funding**: Given the significant positive impact on economic growth, the government should prioritize and increase funding for education. Investments should be made in both primary and higher education to ensure a well-educated workforce. Emphasize the enhancement of educational standards and expanding educational opportunities, especially in areas that are lacking resources. This may involve allocating resources towards training teachers, improving infrastructure, and providing necessary educational resources. Ensure that educational initiatives are tailored to meet the demands of the current job market, encouraging the development of sought-after skills and nurturing a culture of innovation and entrepreneurship among students.
5. **Reevaluate Health Expenditures**: The government should reassess the allocation of health funds and strive to enhance the effectiveness of health expenditure to promote economic growth. This may include minimizing waste, addressing corruption, and ensuring that health spending directly enhances public health results. Investing in preventive health measures can lower long-term healthcare expenses and enhance the overall health of the population, ultimately leading to a more effective workforce. Enhance healthcare

infrastructure, particularly in rural areas, to ensure equitable access to quality healthcare, which can improve overall economic productivity.

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