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EFFECT OF GOVERNMENT SPENDING AND INFLATION ON NATIONAL OUTPUT IN NIGERIA

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ABSTRACT:

This study has examined what effect government spending and inflation have national output in Nigeria. Secondary data was used for analysis which was obtained from the Statistical Bulletin of the Central Bank of Nigeria 2022 (Real Sector and Public finance) and world bank data. In scope, this study covered the period 1981-2022. Time series data used in the model were those of gross domestic product (GDP), annual general inflation rates and components of government expenditure including capital and recurrent. Real GDP was used as the variable to measure national output, public expenditure, classified into capital and recurrent expenditure served as variables of government spending and annual inflation rates was used for inflation. To measure relationship between national output and public spending, Real GDP was the dependent variable; capital and recurrent components of public expenditure and inflation rate were the independent variables. Multivariate Analysis of Variance (MANOVA) model using IBM SPSS Statistical package was applied for analysis, based on the perceived causal relationship between government spending, national production output and inflation. Results of the analysis showed that capital and recurrent expenditure have strong positive association and significant correlation with national output while inflation rate has a positive but insignificant relationship with national output for the study period. Based on findings, it is recommended that government should use expenditure as a fiscal policy instrument to influence economic productivity and pursue macroeconomic objectives by paying special attention to expenditure components that impact more on national output and that productivity alone should not be used as an economic tool to control inflation as there is positive but insignificant relationship between both variables.

1. INTRODUCTION

Over the years, government spending in Nigeria has yearly been on the rise. According to Nurudeen et al. (2021), developing economies like Nigeria always crave for high government presence and expenditure as a result of huge infrastructural gap for industrial take off. The subject of dependency and/or relationship between government spending and economic growth, which is based on national output, has been continually researched across the globe.

So far, results have been inconclusive as consensus has not been reached on the subject. In some studies, findings show relationship exists and in other cases, they conclude that relationship does not exist. Government expenditure plays an important role in determining the level of national income; providing the right needs for potential output and sustaining the welfare of every economy, given that the main macroeconomic objective of every country is to sustain high economic growth with low inflation (Liu, Hsu & Younis, 2008). In both developed and developing countries, there is a concern for raising living standards overtime, but this need is much more pronounced in developing countries, given the extent and depth of poverty in these countries.

Increasing government expenditure has a long run detrimental effect on inflation because the various modes of financing government expenditure, such as tax revenues, government borrowing (local and external) and borrowing from the central bank could have negative effects. According to the Keynesians school of thought, one of the principal causes of high rates of inflation in developing economies is excessive government spending (Fasewa and Aderinto, 2023). Excessive government spending raises aggregate demand over supply, thereby causing prices to rise. National output refers to the result of the total economic activity in a country or region in a given period of time usually one year. **Schaffer (2012)** defined national output as the total market value of all final goods and services produced and sold during a particular year. Production of goods and services requires the utilization of resources known as factors of production which also are measure in monetary terms. In public Finance, expenditure of government in the creation of goods and service is regarded to public expenditure otherwise known as government spending. The economy of a nation comprises the public sector and the private sector. Each sector mobilizes its resources for the creation of goods and services that meet their respective objectives. However, the aggregate production by both sectors within a particular year becomes the national output. Then again, in Nigeria the economic activities of the public sector may significantly influence those of the private sector being that general economic landscape and policies are determined by the public sector as well the regulation of the private sectors through various agencies of government. Government is the greatest spender and well as the regulator of private sector activities in Nigeria. Many scholars support a large public expenditure on the ground that it puts money into circulation, increased investment and employment and reduces tax averseness. However, public expenditure has some obvious economic consequences. For instance, when the state enters the market for factor inputs or labour, it stimulates unhealthy competition with the private sector firms for these same materials or labour services. As such, the government becomes the largest purchaser of goods and services because of its widespread activities, as hitherto evidenced in Nigeria".

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Moreso, Inflation has been a problem and a subject of hot debate in economies across the globe. In recent times, the rate of rise in inflation has been on overdrive in Nigeria that individuals, entities and governments are concerned about it and its determinants.

Inflation as an economic problem has become of great attention to researchers and policy makers all over the world. This is why many studies have been undertaken on the subject and yet much is left to be done to better understand it so as to fashion policies that will control inflation and improve the welfare of the people of a country. Based on some theories, there is a perceived causal relationship between national output, government spending and inflation. This study seeks to further provide evidence and insights on the nature and extent of relationship that may exist between variables of economic productivity, public expenditure and inflation in Nigeria.

1.1 Objectives of the Study

This study tests Wagner's hypothesis that public expenditure increases as national income rises and Neo-Keynesian Theory of Money that a change in public expenditure (productivity) or nominal money supply is expected to produce inflation. Therefore, the objectives of this study are:

1. To determine the effect of government spending on national output
2. To examine the relationship between inflation and national output.

1.2 Hypotheses

The following hypotheses is formulated for this study:

H_{01} : Government spending has no significant effect on national output

H_{02}: There is no relationship between inflation and national output.

2. LITERATURE REVIEW

2.1 Conceptual review

2.1.1 National Output

The national output refers to the value of output produced by an economy during the course of a year. National output, also called national product, represents the market value of all goods and services produced by firms in a country and produced by the public sector intervention to supply goods and services that are not supplied by the private sector, such as defence, roads, and bridges; merit goods such as hospitals and schools, and welfare payments and benefits including unemployment and disability benefits. National product can be determined by either of two approaches-the income approach or the expenditure approach. Therefore, national output is also referred to as national income. It can be measured as gross

or net product (income). Variables like Gross Domestic Product (GDP), Gross national Income (GNI) and Net National Income (NNI) are used representing national output for various purposes.

The government's spending may be increased or decreased as an instrument of fiscal policy, with the goal of stimulating or slowing the economy's macroeconomic activity. All monetary outlays made by any branch or level of government in a country are considered public expenditures. Put another way, it is the money the government spends to keep things like the economy ticking along. Using this method, the government may have a significant impact on people's lives (Ologbenla, 2022). Government spending programs are voted on and approved by lawmakers before being implemented by the executive branch. Operating costs and capital investments are the two main types of government spending (Abu & Abdullahi, 2010; Olaleye et al., 2021). Capital expenditure on the other hand is for the long term and do not need to be renewed each year. Also called "social capital," they include spending on physical assets like roads, bridges, hospital buildings, and equipment. Government spends for various reasons:

i. To achieve improvements in the supply-side of the macro-economy, such as spending on education and training to improve labor productivity.
ii. To provide subsidies to industries that may need financial support for either their operation or expansion.
iii. For market failure reasons, the private sector is not able to meet such provide some essential products and services, hence, the public sector plays a crucial part in lending necessary support as well as ensuring the supply of such products and services.
iv. To help redistribute income and promote social welfare.

Inflation is the long-term increase in prices of services and goods due to the devaluation of the currency which is usually impact on the consumer by eroding their purchasing power. There are different kinds of inflation depending on the cause. The inflation which results from excess aggregate demand is called the demand fall inflation; the cost push inflation comes from upward movement in the cost of production. Especially in developing economies inflation could be imported, open and seasonal inflation. Inflation is the incessant rise in the general price level in an economy; it is a key trepidation for policymakers (Bawa, Abdullahi & Ibrahim, 2016). Even when macroeconomic shocks are non-existent, inflation exhibits the propensity of making a replica of itself from one phase to the other (Campêlo & Cribari-Neto 2003). Inflation is a conventional macroeconomic snag bedeviling both developed and less developed nations. Over the past decades, this phenomenon has been on the increase in developing economies and Nigeria is not an exception. In Nigeria, several factors have been recognized to be accountable for causing inflation.

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2.2 Theoretical Review

Wagner (1883) law also known as the law of increasing state of activity states that as the per capita income of a country rises, the share of public spending to gross domestic product also rises - which signifies direct positive relationship between them. It is the observation that as public expenditure increases as national income rises. According to Wagner's law, the growth in public expenditure over time should be greater than growth of national output. National output is determined by national income. Therefore, in an economy, national output equals national income. Aluthge et al. (2021) in "Impact of Government Expenditure on Economic Growth in Nigeria, 1970-2019" puts it differently that industrialization-driven growth in per capita income incentivizes government to increase its expenditures with direct bearing on social welfare (education, health, etc.), which in turn encourages industries to produce more goods and services as aggregate demand goes up. Increased industrial production finally raises aggregate output.

According to Jibir et al. (2019b), this was the case in the world economy before the Great Depression of 1930s that exposed the failure of the classical system. On the contrary, the government is needed to correct short-term distortions in an economy and to create socially optimal direction for growth and development of a country (Ram, 1986). Government also exists so as to provide basic services such as health, education, communication, transportation, among others, through expenditures which have an impact on the wellbeing of citizens and business environment for the private sector. Importantly, Wagner's law viewed that public expenditure is a consequence rather than cause of national income hence; it plays no role in generating national income. While Keynes viewed that public expenditure is a cause rather than effect of national income therefore can be used to heighten economic activities.

In the same vein, many theories exist relating to national output and inflation. The quantity theory of money is the oldest surviving economic doctrine which associated the general level of prices to changes in quantity of money in circulation (Totonchi, 2011). This means that the level of money supply determines the inflationary or non-inflationary level of an economy. Totonchi (2011) reported that monetarists employed the familiar identity of exchange equation of Fisher. That is Quantity theory of Money (Fisher version). MV = PT Where: M = money supply; V = velocity of circulation; P = price level; T = transactions. T is believed to measure output and as such is often substituted for Y (national income). The above equation must hold (MV = PY), that is, the rate of expenditure must equal the value of output. However, they argue that it is unwarranted increases in the money supply that manifest in inflation.

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2.3 Empirical Review

Ndanshau and Mdadila (2023) in their study "Government Expenditure and Economic Growth Nexus in Tanzania" investigated how government consumption impacts upon economic growth in Tanzania for the period 1967 – 2020. Autoregressive Distributed Lag (ARDL) bounds cointegration test revealed that economic growth and government expenditure were cointegrated, given the conditioning factors; and, revealed a small but statistically significant positive long run effect of government size on economic growth. In Nigeria, similar recent study was also carried out by Yusuf et al.(2023). In their paper "An empirical investigation of government expenditure on economic growth: evidence from 1981-2021" employed Autoregressive Distributed Lag (ARDL) model for data analysis. Nurudeen et al.(2021) in their study of relationship between growth and expenditure: an examination of Wagner's law in Nigeria, discovered through analysis based on regression model that a positive and significant relationship between the series, which implies that increase in economic activity will increase government spending, thus the study concludes in favour of applicability of Wagner's law to the Nigerian Economy.

Chandana, Adamu and Musa (2021) ascertained the impact of Nigerian government expenditure (disaggregated into capital and recurrent) on economic growth using time series data for the period 1970-2019. The paper employs 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.

Ologbenla (2022) examined the relationship between inflation and government spending in Nigeria for the period 1985 to 2017. The secondary data variables in consideration are government spending (GEXP), inflation rate (INF), exchange rate (EXR) and broad money supply (MS2) and they were soured from CBN Statistical Bulletins. The result indicated that there is a long-run and short-run bilateral causal relationship between inflation and government spending. The regression estimate based on the short run and long run VECM showed that inflation rate has a positive significant influence on government spending in Nigeria over the study period. Money supply is positively related with government spending in the recent years. Meanwhile exchange rate over the study periods showed a significant reduction in government spending in Nigeria in the recent years because a rise in exchanger rate reduced the value of naira and hence affect the government expenditure negatively.

Olaiya et al. (2012) examined the relationship between GDP growth, government expenditure, and inflation in Nigeria from 1970 to 2010, using co-integration analysis and a trivariate causality test. They demonstrated the existence of a correlation between the factors throughout time. According to their findings, government expenditure causes economic growth in both the short and long terms, but the relationship between government spending and inflation is only linear in the short term. These results suggest that inflation in Nigeria responds to both government expenditure and economic development. This study lends credence to the idea of implementing measures to rein down government expenditure in an effort to reduce inflation. To counteract the slowdown brought on by the government's spending cutbacks, Nigeria should reduce lending rates in order to persuade private investors to infuse money into the economy. Stable prices inspire investment and entice foreign capital; therefore lowering the inflation rate is critical for economic growth.

Ebong, et al (2016) examined the impact of capital and recurrent expenditure on economic growth in Nigeria over the period 1970-2012 using VECM. The result reveals that capital expenditure on infrastructures positively and significantly influences economic growth in both short and long runs. Onifade, et al (2020) using ARDL model and 1981-2017 Nigerian data, discovered that recurrent expenditure negatively impacts on national output whereas capital expenditure, albeit insignificantly, positively affects GDP. The findings of these studies have validated the propositions of Barro's (1990) endogenous model that productive expenditures have the potentials to boost level output and economic growth rate in both short and long runs.

Eze and Nweke (2017) in their study "Assessment of the Effect of Inflation on Nigeria's Economic Growth: Vector Error Correction Model Approach" observe using Vector Error Correction Model that inflation affects Nigeria's economic growth negatively and insignificantly. More so, it was shown in the results that government investment expenditure and total export have significant and negative effect on real GDP. The results also indicate that private sector investment expenditure has significant and positive influence on real GDP. Similarly, the results of the Granger causality test revealed no causation between inflation rate and real GDP.

Meixi (2022) in his study "Relationship between GDP and Inflation Rate" using regression analysis to test the relationship between GDP and inflation rate found that Inflation and per capita real GDP are moving in opposite ways.

Summarily, the empirical studies reviewed on the relationships between government expenditure and national output; national output and inflation are mixed and inconclusive.

some variations in findings could be attributed to peculiarity in fiscal principles of specific countries over time. But largely, differences in methods of analysis adopted and the categorization of public expenditures impacted on the differing results and conclusions.

3. MATERIAL AND METHOD

The study employed annual secondary data series on the selected relevant macroeconomic variables for the period 1981 to 2022. The choice of this scope was influenced by availability of data. Data on Public Expenditure (Capital and Recurrent) and inflation rate is used for the independent variables, while data on Gross Domestic Product (GDP) is used to represent the dependent variable. Data on GDP was sources from CBN Statistical Bulletin-Real Sector (2022), and Public Expenditure was sourced from the CBN Statistical Bulletin-Public Finance (2022). Inflation data was obtained from World Bank statistics for the relevant period. Real GDP (calculated on constant prices using 2010 as the base) was adopted as against nominal GDP being that it has been adjusted for the effect of inflation and will present a more realistic result of change in output over time. Data analysis was carried out using IBM SPSS Statistics.

Multivariate Analysis of Variance (MANOVA) was used for analysis of data. This choice was informed by its capacity to handle cases where there is more than one independent variable as in this study, time series modelling and finding the cause-and-effect relationship between variables. MANOVA analysis output also includes relevant statistics that enhance further analysis and evaluation. Variables that enter the model are gross domestic product (GDP) as dependent variable, recurrent expenditure, capital expenditure and inflation as independent variables as already explained above. Estimates of model coefficients are evaluated for partial and joint significance of their effects on government spending. The Bases of evaluation are the t- and F-statistics respectively at 0.05 level of significance and relevant degrees of freedom.

Explanatory power of the model, as a measure of goodness of fit, is determined using the coefficient of determination (R-Square and adjusted R-Square). These statistics enhance insight into the extent to which the various national output explain government spending in Nigeria for the period under review.

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Model Specification

From Wagner's theoretical perspective, the model says that government spending depends on national output.

Public expenditure is divided into capital and recurrent expenditure. Following Cobb-Douglas production function as the aggregate production function of the economy with the equation:

$Yt = f(Kt+g1t+g2t)$ ……*equation 1.*

Introducing the effect of national output on inflation, we have:

$Yt = f(Kt+g1t+g2t+inf)$……*equation 2.*

where Y is the level of output, K is the available private capital, g1 and g2 are government expenditure components, inf is inflation rate and t is the time period.

Again, following Barro (1990), Devarajan et al., (1996) and Gemmell et al. (2016), we leave out private capital as a separate argument in the production function. Like other studies, we consider controlling for other relevant variables in the model. Government expenditure components are capital and recurrent expenditures. There are several of variables measuring national output-GDP, GNP, NNI, etc. For this study, GDP was adopted. GDP is the weighted disaggregated components of government expenditure. This enhances determination of the respective partial relationships with, and effects of government spending during the study period. Thus, the model is linearly expressed as follows:

$GDP = \lambda 0 + \lambda 1CE + \lambda 2RE + \lambda 3INF + \mu$. . . ……*equation 3.*

where λ0 = Intercept of the regression line. It depicts the level of government spending at zero.

λi(i = 1, 2,) = coefficient or of weights of the components of government expenditure. CE represents Capital Expenditure while RE stands for Recurrent Expenditure. INF represents inflation rate. μ is stochastic variable to accommodate the influence of other variables not included in the model.

4. RESULT AND DISCUSSIONS

4.1 Data Analysis

IBM SPSS Statistics was adopted for analysis for its efficiency in data processing and robustness in data analysis capabilities. Multivariate Analysis of Variance (MANOVA) using IBM SPSS tests main effects, covariance, dependence, data error and model fitness especially in cases where there are two or more independent variables like this study.

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Table 1

Data Presentation

STATISTICS	Recurrent Expenditure (Recex)	Capital Expenditure (Capex)	Inflation (Infl)
R-square	.675	.553	.107
Adjusted R-square	.667	.541	.084
P-Value/Sig Value	.000	.000	.035
F-ratio	83.134	49.396	4.777

Interpretation of results:

MANOVA analysis showed that the effect on RGDP of recurrent expenditure (RECEX), capital expenditure (CAPEX) was significant but that of inflation (INFL) was insignificant, *F=83.134, p=.000; F=49.396, p=.000; F=4.77, p=.035* respectively. It also revealed that there is RGDP correlates with RECEX, CAPEX, and INFL at *adjusted r-squared of 66.7%, 54.1% and 8.4%* respectively.

Summary of results above has provided sufficient evidence to reject both null hypotheses since results show that government spending and inflation associate with national output.

The result showed that:

i. national output (GDP) is significantly affected by government spending at both capital expenditure and recurrent expenditure components. Thus, while there is significant relationship between national output and government spending, recurrent expenditure (RE) is a bit more correlated to GDP than capital expenditure. This supports wagner's law (1883) and also agrees with the findings of Yusuf et al, (2023), Magaji (2019) and Udoffia and Godson (2016).
ii. Results equally show that although there is a positive relationship between inflation and national output, such relationship was statistically insignificant.

CONCLUSION AND RECOMMENDATIONS

In this study the effect of national output on government spending in Nigeria for the period 1981-2022 was examined. Based on existing literature, researchers are yet to reach an agreement on the subject matter. This study however has contributed to the research effort by showing that significant relationship exists between government spending (components of which are capital and recurrent expenditure) and national output. Again, there is a positive but not significant relationship between inflation rate and national output. This agrees with Jeremiah and Emmanuel (2015).

Arising from this study, the following recommendations are advanced:

1. It is recommended that government should use expenditure as a fiscal policy instrument to influence economic productivity and pursue macroeconomic objectives by improving government spending in activities that are impact national output. Further research study may be conducted to disaggregate capital and recurrent spending of government into their functional categories of Administration, Social and Community Services, Economic Services and Transfers, so as to determine the extent of their individual responses to national output.
2. Government should not entirely rely on output variable in efforts to control inflation but by using money supply and interest rate, exchange rate measures to address inflation rate issues. Economic productivity (national output) may be used to complement the other inflation control measures for better results.

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