ADFJ ISSN 2522 – 3186.

African Development Finance Journal

VOLUME 7 (V)

Moderating effect of Public Debt on the Relationship between Public Spending on Transfers and Economic Growth in Nigeria

Mahmood Omeiza ADEIZA

Suleiman A. S. ARUWA

Ismaila Olotu ABDULLAHI

Moderating effect of Public Debt on the Relationship between Public Spending on Transfers and Economic Growth in Nigeria

By: Mahmood Omeiza ADEIZA[1], Suleiman A. S. ARUWA[2] and Ismaila Olotu ABDULLAHI [3]

Abstract

Despite government's effort to improve fiscal frameworks in Nigeria, economic growth has been slower than expected. To ascertain the contribution of public spending on transfers to this condition, this study investigates the relationship between public spending on transfers and economic growth, and tests the moderating role of public debt on the relationship. With data sourced from the Central Bank of Nigeria (1981-2022), the study supported its descriptive statistics with the Generalized Method of Moments (GMM) technique, and estimated that though public spending on transfers has a positive impact on economic growth, this impact is influenced by public debt. The findings suggest that public spending on transfers and prudent public debt management can stimulate economic growth, hence, the study recommendations for strategic fiscal accountability via improved public debt management, and more efficient public spending on transfers.

Keywords: *Economic Growth, Fiscal Accountability, Public Debt, Public Spending on Transfers*

Introduction

Despite empirically identified relationships between public spending on transfers and economic growth, challenges such as inefficient spending, and insufficient revenue mobilization persist within government in Nigeria. Addressing these challenges presents opportunities for enhancing the effectiveness of public spending on transfers in driving economic growth. As Nigeria attempts to shift its reliance towards non-oil exports as the primary source of revenue and foreign exchange earnings, the government is making efforts to spend wisely in a manner that awakens the nation's vulnerable economy. To do this, the government needs to balance its spending priorities to address imminent challenges. Transfers, including social welfare programs and subsidies, can have a direct impact on the economy by increasing aggregate demand and reducing poverty. However, the effectiveness of these transfers depends on the efficacy of their allocation and the overall fiscal framework.

Fiscal Accountability is required to enhance efficient fund allocation and prevent corruption, and misappropriation. Hence, this study investigates the performance of public spending on transfers as a stimulus for economic growth using federal indices and secondary data from the Central Bank of Nigeria (1981-2022) which provides a comprehensive understanding of the relationship between public spending and economic growth. The study focuses on public spending on transfers, economic growth

[1] *Department of Accounting, Usmanu Danfodiyo University, Sokoto PMB 2346 Sokoto – Nigeria, E-mail: mudillicious@gmail.com, mahmood.adeiza@udusok.edu.ng*

[2]*Department of Accounting, Nasarawa State University, Keffi PMB 1022 Keffi – Nigeria, E-mail: aruwasas@gmail.com, aruwasas@nsuk.edu.ng*

[3]*Department of Accounting, Nasarawa State University, Keffi PMB 1022 Keffi – Nigeria, E-mail: ismailaolotu@nsuk.edu.ng*

(using GDP as a proxy), and total national public debt. The data is grouped into two panel categories: unstable governance period (1981-1999) and stable governance period (2000-2022). This allows for an examination of the relationship between the variable within the context of fiscal accountability.

By and large, this study contributes to the understanding of the complex relationship between public spending, economic growth, and public debt in Nigeria, providing insight into the effectiveness of fiscal accountability in driving economic growth. The findings of this study have implications for policymakers, researchers, and stakeholders seeking to enhance fiscal accountability and promote economic growth in Nigeria.

Research Problem

The relationship between public spending on transfers and economic growth remains unclear due to conflicting findings in existing studies. While some studies suggest a positive impact (Asiagwu et. al., 2023; & Nworji et. al., 2012); Jibir et al. (2023) implied a short-term negative impact and a long-term positive; Adegboyo and Olaniyan (2021), hinted that there was a negative impact; though, Duruibe et. al. (2020) denoted an insignificant impact; and yet all these highlight a unidirectional relationship from public spending on transfers towards economic growth. Furthermore, these studies examine the relationship in isolation, neglecting the potential moderating effect of public debt. This study addresses this gap by investigating the interplay between public spending on transfers, economic growth, and public debt, with a focus on the moderating role of public debt in Nigeria.

There is apparent poor performance of annual public spending as a stimulus for economic growth in Nigeria. Despite efforts to depart from old fiscal frameworks, there is a perceived inadequacy in achieving the desired fiscal shift (World Bank, 2022). In addition, contemporary literature reveals empirical gaps in the examination of the relationship between public spending on transfers and economic growth (Ohiaeri, 2020). Therefore, there is a need to appraise Nigeria's fiscal accountability by re-examining the relationship between public spending on transfers and economic growth with a focus on the moderating effect of public debt. This is to: compare the relationship between public spending on transfers and economic growth during stable and unstable governance periods: decipher the direction of the relationship between public spending on transfers and economic growth: investigate the moderating effect of public debt on the relationship between public spending on transfers and economic growth: as well as ascertain the statistical significance of the relationship. Consequently, the objectives and hypotheses of the study are as follows.

Research Objectives

The study sets upon two objectives, to:

(a) Assess the relationship between Public Spending on Transfers and Economic Growth in Nigeria.

(b) Determine influence of Public Debt on the relationship between Public Spending on Transfers and Economic Growth in Nigeria.

Research Questions

(a) What is the nature of the relationship between Public Spending on Transfers and Economic Growth in Nigeria?

(b) How does Public Debt influence the relationship between Public Spending on Transfers and Economic Growth in Nigeria?

Research Hypothesis

H_{01}:   There is no significant relationship between Public Spending on Transfers and Economic Growth in Nigeria.

H_{02}:   Public Debt does not significantly influence the relationship between Public Spending on Transfers and Economic Growth in Nigeria.

Significance of the Study

This study contributes to the understanding of the complex relationship between public debt, public spending on transfers, and economic growth, providing useful understanding for policymakers and researchers in the field of accounting and public finance: the nature of insights for improving the effectiveness of non-developmental public spending in Nigeria; understanding the role of public debt, its policies, and the practical recommendations offered to policymakers attempting to enhance fiscal accountability to improve economic growth; as well as, monitoring trends in non-developmental public spending over time. All in a bid to understand how sourced government resources can be utilized with better efficacy to the benefit of the economy.

Literature Review

Theoretical Literature Review

A combination of Agency, Public Choice, and Systems theories are used to explore the complex relationships between Nigeria's economic growth, public debt, and public spending on transfers. This framework enables policymakers to make informed decisions, leading to more rational and impactful policies that foster macroeconomic improvements. By integrating these theories, this study provides an all-inclusive knowledge about effective fiscal management and economic development strategies regarding the relationship between public debt, public spending on transfers, and economic growth in Nigeria.

Agency Theory highlights the principal-agent relationship in decision-making, emphasizing the need to align citizens' interests with government actions (Bernhold & Wiesweg, 2021). It stresses designing incentive structures and monitoring systems to achieve optimal public debt levels that support economic growth (Syafriadi, et al., 2023; Eisenhardt, 1989). Public Choice Theory (PCT) examines government decision-making, revealing that policymakers act in their self-interest (Jacobs, 2016). Hence PCT stresses that: public debt and public spending on transfers must be regulated to improve or sustain economic growth (IMF staff, 2023); while warning that politicians' short-term focus can lead to excessive public debt and inefficient allocation of resources (Boccia & Lett, 2024; Gallagher, 1993). Systems Theory views societies and organizations as interconnected systems with shared objectives (Foster, 2017; Kast & Rosenzweig, 1972) thus, illuminating the complex relationships among variables, providing insight into the potential ripple effects of changes in one aspect throughout the entire system.

Empirical Literature Review

According to Jibir, et al. (2023), the quest to speed up economic growth in Nigeria to meet up with developed economies by achieving certain macroeconomic objectives made government think of how to increase public spending efficiency in the provisions of public goods because of the perception that public spending is critical for national progress and prosperity. From the time series data of 1981 to 2021, Asiagwu, et al. (2023) studied, they affirm that public spending is largely significant in impacting economic growth because of a long-run relationship between public spending components and GDP. In the study by Onifade, et al. (2020), it was discovered that public debt and recurrent sub-components of public spending on transfers have significant negative effects on economic growth, while capital sub-components of public spending on transfers had a slight but positive long-term effect on economic growth suggesting that massive recurrent spending on administration, economic services, social and

community services, and transfers do not support economic growth.

In view of the peculiar nature of Nigeria's economy, which has a large population, vast natural resources, but yet experiences slow economic growth despite continuous public debt accumulation, this study is motivated to use time-series analyses covering the period 2000 to 2022 examine and predict patterns within Nigeria's economy from the observations on public debt, economic growth, and public spending on transfers. In the realm of public finance in Nigeria, the relationship between GDP and public spending on transfers is illuminated by recent empirical studies. Asiagwu, et. al. (2023) opined that GDP serves as a reliable predictor of public spending on transfers. However, Adegboyo and Olaniyan (2021) provide a contrasting viewpoint, suggesting that public spending on transfers act as a hindrance to economic growth in Nigeria. Nworji, et al. (2012) introduce a different idea by identifying the capital expenditure sub-component of public spending on transfers as having an insignificant positive impact on growth, while emphasizing the significant positive effect of the recurrent sub-component on economic growth, advocating for increased allocation to this aspect.

Adding to the complexity, Jibir, et al. (2023) contend that public spending on transfers initially retards economic growth in the short term but significantly contributes to growth in the long run. On the other hand, Duruibe, et al. (2020) present a different perspective, stating that public spending on transfers exhibits a positive yet statistically insignificant relationship with economic growth. This intricate empirical framework prompts a comprehensive re-evaluation of the role and impact of public spending on transfers in the Nigerian economic context. In connection to the divergent empirical findings, it is observed that fiscal accountability in Nigeria is weak, primarily due to the inefficient utilization of funds for financing government activities (Jibir et al., 2023). This is in spite of the federal government's effort to transition from traditional fiscal frameworks (World Bank, 2022). Thus, making the need for prioritizing targeted expenditures more pronounced, wherein the government turns to borrowing to finance such expenditures.

Methodology

The Generalized Method of Moments (GMM) is the primary statistical technique used for data analysis due to its: effectiveness in addressing endogeneity and heteroskedasticity; versatility in empirical research (minimizing differences between observed and predicted moments, and providing robust parameter estimates); and ability to correct data for measurement errors. This ensured robust parameter estimates even with overlapping relationships between the study variables. This study employs an ex-

post facto design to evaluate panel data from 1981 to 2022, obtained from the Central Bank of Nigeria's Statistical Bulletins on Public Finance (CBN, 2022a) and Real Sector (CBN, 2022b) while adopting the classification of public spending by functions of government (COFOG). Public spending on transfers according to COFOG in Nigeria is unique having both capital and recurrent sub-components (CBN, 2022a). Data collection involved systematic extraction and compilation of relevant information, ensuring accuracy and consistency. This approach aligns with the study's objective of examining the relationship between public debt, public spending on transfers, and economic growth in Nigeria.

Definition and Measurement of Variables

The study variables denominated in Naira are taken at their nominal values due to the same macroeconomic factors affecting them. Public debt (PD) is measured as total national public debt, combining federal and state governments' debt, to provide a comprehensive view of Nigeria's overall indebtedness. This choice is supported by the study's objectives, scope, and data availability Public spending on transfers (PSTRF) is measured as the total amount disbursed by the federal government for transfer obligations, including grants, national contingencies, pension, and public debt repayments. Economic growth (EG) is represented by Gross Domestic Product (GDP) as a proxy, which serves as a crucial indicator of Nigeria's economic health and vitality. GDP offers a holistic representation of the economic landscape, capturing both public and private sector contributions.

Analytical Framework

The study's analytical framework was reinforced by descriptive statistics, unit root tests, and co-integration tests to ensure data reliability and validate model specifications thus, enhancing the validity of the outcomes and facilitating a comprehensive examination of the relationships between public debt, public spending on transfers, and economic growth in Nigeria. STATA 15.0 (version 2) was used for data analysis, with a decision rule to accept the null hypothesis if the p-value exceeds 0.05. The GMM model is specified to test the hypotheses formulated based on research questions, guiding the interpretation of statistical significance.

GMM Model Specification

The 4 equations below represent the GMM model specification with the first depicting objective 1 and the latter 2 depicting objective 2:

  i. $EG = \alpha_{0TRF} + \alpha_{1TRF} PSTRF + \epsilon_{TRF}$

  ii. $PSTRF = \alpha_{0EG} + \alpha_{1EG} EG + \epsilon_{EG}$

    iii.   EG $= \beta_{0PSTRF} + \beta_{1PSTRF}\ PSTRF + \beta_{2PSTRF}\ PSTRF*PD + \epsilon_{PSTRF}$

    iv. $PSTRF = \beta_{0EG} + \beta_{1EG}\ EG + \beta_{2EG}\ EG*PD + \epsilon_{EG}$

In these equations:

i. PSTRF represents Public Spending on Transfers which, is also both a dependent and an independent variable depending on the objective;

ii. EG specifies Economic Growth as both a dependent and an independent variable depending on the objective;

iii. PD indicates Public Debt as a moderating variable (an independent variable) with both a direct effect on EG, and an indirect effect on EG through PSTRF;

iv. α_0, β_0 designate the regression intercepts in the simple and multiple linear regression models, respectively, representing the predicted value of the dependent variable when all independent variables are set to zero, as well as provide valuable information about the baseline or starting point of the dependent variable when all independent variables are held constant;

v. α_1, β_1, β_2 symbolize the regression coefficients (or slopes) which measure the relationship (in quantity and direction) of the independent variables (predictors) over dependent variable (outcome), where:

    a. α_1 is an intercept term of the regression equation, which indicates the value of the dependent variable when all independent variables are zero, and can also represent a baseline value or an initial starting point for the dependent variable,

    b. β_1 is a coefficient depicting the slope of the first independent variable (predictor) in the regression equation by means of measuring the change in the dependent variable for a one-unit change in the first independent variable, holding all other independent variables constant hence, it quantifies the effect of the first predictor on the outcome variable, and

    c. β_2 is also a coefficient representing the slope of the second independent variable (predictor) in the regression equation by means of measuring the change in the dependent variable for a one-unit change in the second independent variable, while keeping all other independent variables constant thus, it quantifies the effect of the second predictor on the outcome variable; and

i. ϵ signifies the error terms (residuals) of various variables, which are the differences between the observed values of the dependent variable and the predicted values obtained from the regression model to provide insight into how well the model fits the data and whether there are any patterns

or systematic errors remaining in the model by capturing the unexplained variation in the dependent variable and providing information about the model's accuracy and reliability: for the dependent variable, the error terms represent the difference between the actual observed values and the predicted values obtained from the regression equation by capturing the extent to which the model fails to explain the variation in the dependent variable, while in the case of the independent variables, the error terms represent the unobserved factors (measurement error, omitted variables, or random fluctuations) that influence the dependent variable but are not accounted for in the model.

Empirical Results and Discussions

Descriptive Statistics

The descriptive statistics play a crucial role in providing insights into the characteristics of the data. The descriptive statistics summarize the main features of a dataset using measures such as mean, median, and standard deviation to provide a comprehensive overview of the data distribution, central tendency, and variability. By analyzing descriptive statistics it helped provide information about the behavior of the data set used for the study. Tables 1, 2, and 3, express the data set via the descriptive statistical parameters being observed with regards to the study variables across different governance periods, and highlight the impact of fiscal accountability (depicted by governance stability) on economic performance.

Table 1: Descriptive Statistics for Panel Data with combined Governance Periods

Variable	Obs.	Mean	Std. Dev.	Min	Max	Variance	Skewness	Kurtosis
PD	42	7,614.80	11,323.75	13.52	46,250.37	128,000,000.00	1.97	6.10
PSTRF	42	1,005.14	1,554.78	3.86	6,953.00	2,417,354.00	2.25	7.86
EG	42	41,474.85	55,932.01	139.31	202,365.00	3,130,000,000.00	1.34	3.70

Source: Author's Fieldwork (2024) using STATA 15(v2).

Table 2: Descriptive Statistics for Panel Data of Unstable Governance Period

Variable	Obs.	Mean	Std. Dev.	Min	Max	Variance	Skewness	Kurtosis
PD	19	644.23	801.68	13.52	3,372.18	642,685.10	2.13	8.04
PSTRF	19	62.29	63.62	3.86	222.03	4,047.49	0.93	2.95
EG	19	1,520.17	1,851.33	139.31	5,482.35	3,427,437.00	1.09	2.55

Source: Author's Fieldwork (2024) using STATA 15(v2).

Table 3: Descriptive Statistics for Panel Data of Stable Governance Period

Variable	Obs.	Mean	Std. Dev.	Min	Max	Variance	Skewness	Kurtosis
PD	23	13,373.11	12,720.65	2,204.72	46,250.37	162,000,000.00	1.27	3.50
PSTRF	23	1,784.02	1,760.62	225.15	6,953.00	3,099,789.00	1.60	4.85
EG	23	74,480.89	57,530.61	7,062.75	202,365.00	3,310,000,000.00	0.65	2.38

Source: Author's Fieldwork (2024) using STATA 15(v2).

The descriptive statistics in Tables 1-3 show that mean figures for public debt (PD), public spending on transfers (PSTRF), and economic growth (EG) are higher during the stable governance period (2000-2022) compared to the unstable governance period (1981-1999). The combined data (1981-2022) has higher standard deviations than the mean, indicating dispersed data points. However, during the stable governance period, data points are closer together, indicating less variability and greater economic stability. The range of values across governance periods highlights varying fiscal behaviors and financial management. All observations have a positive skewness, indicating concentrated data points in earlier years with significantly higher values later. This suggests potential financial growth but raises concerns about managing higher debt levels.

Similarly, the kurtosis of the combined data indicates a leptokurtic distribution, with fatter tails and sharper peaks than a normal distribution. This implies more extreme values, both high and low, occur more frequently. Kurtosis values above 3.0 suggest greater stability in the combined data, but categorized data during unstable governance periods exhibit higher kurtosis, indicating increased financial volatility. Generally, these descriptive results suggest that stable governance periods are associated with: higher borrowing and spending, higher economic growth, and greater economic stability. In contrast, unstable governance periods are associated with just the opposite.

Graphical Trends in Public Debt, Public Spending on Transfers, and Economic Growth

Graphical representation of Nigeria's Public Debt, Public Spending on Transfers and Economic Growth indicate a relationship and similarity between all variables. Public Spending on Transfers (see Graph 2) mimics Public Debt (see Graph 1) though Economic Growth (see Graph 3) mirrors the entire relationship. Worthy of note is the 1999 to 2006 period, with significant rises (1999 to 2004) and declines (2005 and 2006) in both Public Debt and Public Spending on Transfer figures while Economic Growth continuously climbed. This suggests government could reduce both debt and spending on transfers without limiting economic growth. Also, other periods of decline in public spending on transfers (2002

and 2014) show a continuous rise in economic growth, pointing towards opportunities for more efficient spending.
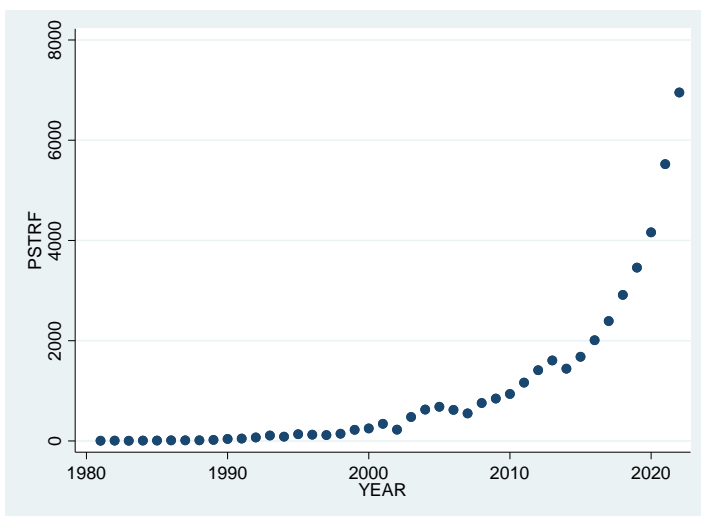
Graph 1: Trends in the Public Debt Data

This graph provides insights into the distribution and variability of public debt in billions of naira across different governance periods from 1981 to 2022.
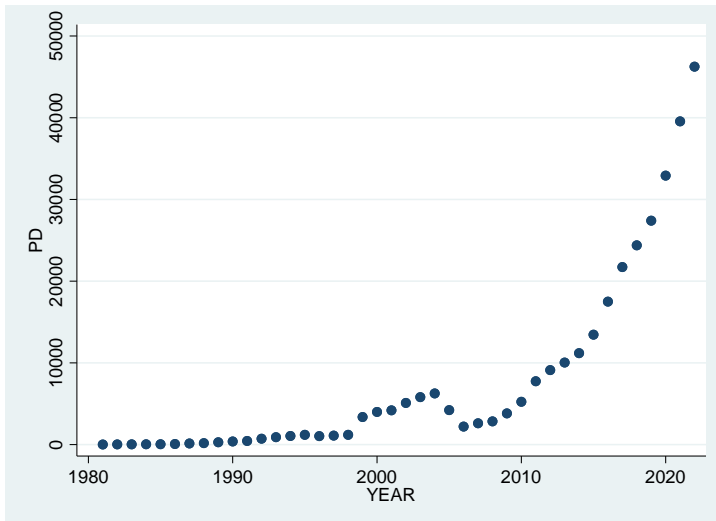
Source: Author's Fieldwork (2024) using STATA 15(v2).

**Graph 2: Trends in the Public Spending on Transfers Data**

The graph below provides insights into the distribution and variability of public spending on transfers in billions of naira across different governance periods from 1981 to 2022.

Source: Author's Fieldwork (2024) using STATA 15(v2).

Graph 3: Trends in the Economic Growth Data

The graph below provides insights into the distribution and variability of economic growth (GDP figures) in billions of naira across different governance periods from 1981 to 2022.
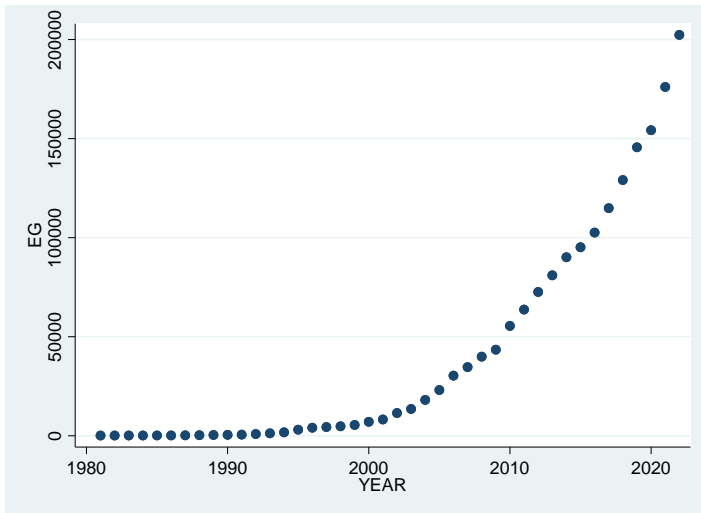
Source: Author's Fieldwork (2024) using STATA 15(v2).

Table 4: Descriptive Statistics for Public Debt

Data Period	Obs.	Mean	Std. Dev.	Min	Max	Variance	Skewness	Kurtosis
Combined	42	7,614.80	11,323.75	13.52	46,250.37	128,000,000.00	1.97	6.10
Unstable Governance	19	644.23	801.68	13.52	3,372.18	642,685.10	2.13	8.04
Stable Governance	23	13,373.11	12,720.65	2,204.72	46,250.37	162,000,000.00	1.27	3.50

Source: Author's Fieldwork (2024) using STATA 15(v2).

In Table 4, the mean public debt is significantly higher during stable governance periods (2000-2022) compared to unstable governance periods (1981-1999), indicating a greater willingness to borrow during more stable times. This may be due to factors like better economic conditions, improved investor confidence, or a more proactive fiscal policy. In addition, standard deviation is significant and variable, indicating volatile rises in debt levels over time.

The distribution of the data is notable, with a skewness of 1.97 suggesting a right-skewed distribution and more observations of higher debt levels compared to lower ones. The kurtosis of 6.10 indicates a leptokurtic distribution, implying more extreme values than expected, reflecting potential periods of

high and low public debt accumulation or reduction. Furthermore, the separate data for unstable and stable governance periods show significant differences in debt growth and volatility, with an over 24,840% growth in public debt during unstable periods as compared to a 1,997% growth during stable periods.

Table 5: Descriptive Statistics for Public Spending on Transfers

Data Period	Obs.	Mean	Std. Dev.	Min	Max	Variance	Skewness	Kurtosis
Combined	42	1,005.14	1,554.78	3.86	6,953.00	2,417,354.00	2.25	7.86
Unstable Governance	19	62.29	63.62	3.86	222.03	4,047.49	0.93	2.95
Stable Governance	23	1,784.02	1,760.62	225.15	6,953.00	3,099,789.00	1.60	4.85

Source: Author's Fieldwork (2024) using STATA 15(v2).

Comparing the data for public spending on transfers (see Table 5) it is observable that it significantly varies across different governance periods. The mean spending on transfers is higher during the stable governance period (₦1,784.02 billion) compared to the unstable governance period (₦62.29 billion) and the combined period (₦1,005.14 billion). Additionally, the standard deviation is higher during the stable governance period, indicating greater variability in spending. The range of spending on transfers is also wider during the stable governance period, with a minimum of ₦225.15 billion and a maximum of ₦6,953.00 billion.

This also suggests that the distribution of public spending on transfers is skewed to the right, indicating a longer right tail and more extreme values. The skewness is more pronounced during the stable governance period (1.60) compared to the unstable governance period (0.93) just as the kurtosis values indicate that the distribution of public spending on transfers has heavy tails, with more extreme values during the stable governance period (4.85) when compared to the unstable governance period (2.95).

Table 6: Descriptive Statistics for Economic Growth

Data Period	Obs.	Mean	Std. Dev.	Min	Max	Variance	Skewness	Kurtosis
Combined	42	41,474.85	55,932.01	139.31	202,365.00	3,130,000,000.00	1.34	3.70
Unstable Governance	19	1,520.17	1,851.33	139.31	5,482.35	3,427,437.00	1.09	2.55
Stable Governance	23	74,480.89	57,530.61	7,062.75	202,365.00	3,310,000,000.00	0.65	2.38

Source: Author's Fieldwork (2024) using STATA 15(v2).

Table 6 presents the economic growth figures which vary significantly across different governance periods. The mean economic growth is higher during the stable governance period (₦74,480.89 billion) compared to the unstable governance period (₦1,520.17 billion) and the combined period (₦41,474.85 billion). The data also shows high variability, with a higher standard deviation during the stable governance period.

The distribution of economic growth is moderately skewed to the right, indicating a longer right tail. The kurtosis values suggest that the distribution has heavier tails than a normal distribution, with more extreme values during the combined period. The stable governance period has fewer outliers and a distribution closer to normal. The unstable governance period has some heavy tails suggesting increased variability as a potential for extreme values being common.

Results of Diagnostic Tests

The diagnostic tests assessed the validity and reliability of the chosen statistical model. These metrics provide insights into the data and the performance of the model. The diagnostic tests also ensured that the assumptions underlying the model are met and helped identify any issues that may affect the model's performance. By conducting the diagnostics tests (unit root tests and co-integration test), the results provided additional meaning to the relationships between the study variables.

In the case of the study Unit Root Tests (see Table 7), all the null-hypotheses in relation to the variables are accepted being that all the p-values are above 0.05, evidencing the effect of the panel classification. Thus, the non-stationarity in individual variables (presence of unit roots) implies that, the study variables are influenced by time-dependent structures and shocks which have persistent effects.

Table 7: Results of Unit Root Tests

Variable	Method	Statistic	p-value	Conclusion
EG	Inverse chi-squared(4)	0.0000	1.0000	Non-stationary data
	Modified inverse chi-squared	-1.4142	0.9214	Non-stationary data
PD	Inverse chi-squared(4)	0.0039	1.0000	Non-stationary data
	Modified inverse chi-squared	-1.4128	0.9211	Non-stationary data
PSTRF	Inverse chi-squared(4)	0.0061	1.0000	Non-stationary data
	Modified inverse chi-squared	-1.4121	0.9210	Non-stationary data

Source: Author's Fieldwork (2024) using STATA 15(v2).

In the cointegration test (see Table 8), it is observed that, there is a long-term equilibrium relationship between the variables (economic growth, public debt, and PSTRF). In other words, changes in public debt could have a lasting impact on economic growth or PSTRF, and vice versa. The Cointegration between economic growth and the other variables indicates that: movements in public debt and PSTRF have a stable, long-term relationship with economic growth. Policy changes reflected in any of these variables could thus affect economic growth in the long run.

Table 8: Results of Cointegration Test

Test	Type	Statistic	p-value	Conclusion
Cointegration	Augmented Dickey-Fuller (ADF)	-1.5010	0.0667	Stationary

Source: Author's Fieldwork (2024) using STATA 15(v2).

Hence, Economic Growth when cointegrated with any of the other variables, shares a common trend over time (see again, Graphs 1, 2, and 3). Structural reforms reflected in the variables could have persistent effects on economic growth despite individual non-stationarity, thus, the variables move together over time. This denotes long-term equilibrium relationships which, is crucial for economic modeling and policy-making, as it highlights the interdependencies between the variables how changes in one can have prolonged effects on others.

Presentation of Results from the GMM Model

Below are the results describing the relationships between the variables. The L1. Coefficients represent the lagged effects of the dependent variables on themselves, which are included to address endogeneity and serial correlation. Importantly, the chi^2 value may depict the fitness (or otherwise) of the model but does not indicate the strength (or otherwise) of the relationships between the variables. Generally, the results confirm that the GMM model used is suitable. In the first equation as suggested by a very large chi^2 value (37992.89) with a probability (0.0000) less than 0.05, and in the second equation as suggested by the chi^2 value (8806.04) and a probability of 0.0000 which is also less than 0.05. The third and fourth equations also confirm the GMM model suitability suggested by a chi^2 of 38650.77 with a probability of 0.0000, as well as a chi^2 value of 17937.26 and probability of 0.0000, respectively.

Table 9: GMM Result with respect to Objective 1:

Variables	Coef.	z-statistic	p-value	Chi^2	Probability
Dependent (EG)					
Independent (PSTRF)	2.8144	5.00	0.0000	37992.89	0.0000
L1.	1.0238	56.32	0.0000		
Variables	**Coef.**	**z-statistic**	**p-value**	**Chi^2**	**Probability**
Dependent (PSTRF)					
Independent (EG)	-0.0038	-3.07	0.0020	8806.04	0.0000
L1.	1.4153	26.32	0.0000		

Source: Author's Fieldwork (2024) using STATA 15(v2)

Table 9 provides the details of results with respect to objective 1. The first equation (the impact of PSTRF on EG) is explained by a positive coefficient (2.8144) suggesting that PSTRF has a positive impact on EG. Thus, every ₦1 of PSTRF during the period, is responsible for an increase in EG of about ₦2.81 during the same period. The z-statistic (5.00) and p-value (0.0000) suggest that this effect is statistically significant. In addition, EG is more significant during the stable governance period because L1./z index (56.32) is positive, and equally significant as confirmed by its p-value (0.000) showing that the positive difference (1.0238) between the panels is statistically significant.

In the second equation, the impact of EG on PSTRF is explained by a negative coefficient (-0.0038) suggesting that EG has a negative impact on PSTRF for which every ₦1 of EG during the period, is responsible for a PSTRF decrease of less than ₦0.01 during the same period. The z-statistic (-3.07) and p-value (0.0020) suggest that this effect is statistically significant though negative. In addition, PSTRF is equally more significant during the stable governance period because L1./z index (26.32) is positive, and significant as confirmed by its p-value (0.000) showing that the positive difference (1.4153) between the panels is statistically significant as well.

Table 10: GMM Result in respect of Objective 2

Variables	Coef.	z-statistic	p-value	Chi^2	Probability
Dependent (EG)					
Independent (PSTRF)	11.3888	4.28	0.0000	38650.77	0.0000
Independent (PSTRFPD)	-0.0001	-3.30	0.0010		

L1.	0.8938	20.60	0.0000		
Variables	**Coef.**	**z-statistic**	**p-value**	**Chi^2**	**Probability**
Dependent (PSTRF)					
Independent (EG)	0.0029	2.30	0.0220	17937.26	0.0000
Independent (EGPD)	2.6900	7.32	0.0000		
L1.	0.6845	6.41	0.0000		

Source: Author's Fieldwork (2024) using STATA 15(v2).

The results with respect to objective 2 (see Table 10) reveal that in the third equation, the impact of PSTRF on EG is explained by a positive coefficient (11.3888). This suggests that PSTRF has a positive impact on EG such that every ₦1 of PSTRF during the period, is responsible for an increase in EG of about ₦11.39 during the same period. The z-statistic (4.28) and p-value (0.0000) also suggests that this effect is positive and statistically significant. In the second equation, the impact of PSTRFPD on EG is explained by a negative coefficient (-0.0001) suggesting PSATRFPD has negative impact on EG and for which, every ₦1 of PSTRFPD during the period, is responsible for an EG decrease of about ₦0.00 during the same period, and the z-statistic (-3.30) and p-value (0.0010) confirms this negative effect as statistically significant. In addition, EG is more significant during the latter governance period because L1./z index (20.60) is positive, and equally significant as confirmed by its p-value (0.000) showing that the positive difference (0.8938) between the panels is statistically significant.

In the fourth equation, the impact of EG on PSTRF is also explained by a positive coefficient (0.0029) suggesting that EG too has a positive impact on PSTRF implying that, every ₦1 of EG during the period, is responsible for a PSTRF increase of about ₦0.01 during the same period with a z-statistic (2.30) and p-value (0.0220) suggest that this effect is positive and statistically significant. In the fourth equation, the impact of EGPD on PSTRF is also explained by a positive coefficient (0.0000) suggesting that EGPD too has a positive impact on PSTRF for which, every ₦1 of EGPD during the period, is responsible for a PSTRF increase of about ₦0.00 during the same period – with a z-statistic (7.32) and p-value (0.0000) suggesting that while this effect is positive, it is also statistically significant. In addition, PSTRF is equally more significant during the stable governance period because L1./z index (6.41) is positive, and significant as confirmed by its p-value (0.000) showing that the positive difference (0.6845) between the panels is also statistically significant.

Empirical Findings

From the results with respect to objective 1, there is observed a positive unidirectional relationship between public spending on transfers and economic growth with public spending on transfers having a significant positive impact on economic growth, while economic growth has a relatively small negative impact on public spending on transfers. Nevertheless, from the result with respect to objective 2, it is observed that there is a positive bidirectional relationship between economic growth and public spending on transfers, with public spending on transfers having a stronger impact on economic growth. In addition, public spending on transfers moderated by public debt has a negative impact on economic growth, while economic growth moderated by public debt has a positive impact on public spending on transfers.

The study outcome indicates instances of a positive unidirectional relationship between public spending on transfers and economic growth, as well as a positive bidirectional relationship between the two. However, the introduction of public debt as a moderating variable reveals that public spending on transfers during the period studied had a negative impact on economic growth when public debt is high, while economic growth has a positive impact on public spending on transfers under the same conditions.

There are moderating effects identified in view of the impacts of public debt on the relationships between economic growth and public spending on transfers. Comparing Interpretations from results on objective 1 and 2, these effects are that: public spending on transfers moderated by public debt has a negative impact on economic growth as per objective 2, which is not observed in the case of objective 1; and economic growth moderated by public debt has a positive impact on public spending on transfers as per objective 2 which again, is not observed from objective 1. These findings present significant implications for policymakers, highlighting the need for fundamental shifts in fiscal accountability (fiscal sustainability - improvements in public debt practices and spending efficiency) and broader implications for economic growth.

Conclusions, Recommendations and Policy Implications

For Fiscal Accountability, the positive relationship between public spending on transfers and economic growth suggests that policymakers should prioritize targeted spending on transfers to stimulate economic growth but at the same time, the moderating effect of public debt highlights the need for fiscal discipline and sustainable debt management to avoid negating the positive impacts of public spending on transfers. In the case of Public Debt Practices Improvements, the findings suggest that policymakers

should implement prudent public debt management strategies to minimize the negative impacts of public debt on economic growth. This may be diversifying revenue sources, improving debt servicing efficiency, and ensuring that public debt is used to finance productive investments that stimulate economic growth.

On Broader Implications for Economic Growth, the study findings underscore the importance of considering the interrelationships between public spending on transfers, public debt, and economic growth in policymaking. Policymakers should prioritize a balanced approach that combines targeted public spending on transfers with sustainable public debt management to achieve sustainable economic growth. Hence, with proper fiscal discipline and sustainable debt management in Nigeria, policymakers should be able to apply public spending on transfers to stimulate economic growth.

Recommendations

It is hereby recommended that policy makers should:

(a) Prioritize Targeted Public Spending on Transfers – such as social welfare programs, subsidies, and transfers that support low-income households and vulnerable populations. This recommendation is consistent with the positive relationship between public spending on transfers and economic growth observed from the interpretations of both study objectives.

(b) Implement Prudent Public Debt Management Strategies – to minimize the negative impacts of public debt on economic growth. This recommendation is consistent with the moderating effect of public debt observed in the interpretation of objective 2.

Policy Implications

Policymakers can harness the positive impacts of public spending on transfers on economic growth while minimizing the negative impacts of public debt as follows:

(i)   Prioritization of targeted public spending on transfers should entail monitoring and evaluation, as well as strategies for economic growth:

(a)   Monitoring and Evaluation: policymakers should establish robust monitoring and evaluation frameworks to track the impact of public spending on transfers and public debt on economic growth, while ensuring policies are adjusted accordingly.

(b)   Economic Growth Strategies: policymakers should generally adopt (or specifically develop) economic growth strategies that complement public spending on transfers, such as investing in

human capital, infrastructure, and innovation to provide stimulus for economic growth while reduce reliance on debt financing.

(ii)   Implementation of prudent public debt management strategies concerns two key issues:

(a)   Fiscal Discipline: policymakers should ensure fiscal discipline by maintaining a sustainable debt-to-GDP ratio, diversifying revenue sources, and improving debt servicing efficiency to minimize the negative impacts of public debt on economic growth.

(b)   Debt Management: policymakers should implement prudent public debt management strategies, such as borrowing for productive investments that stimulate economic growth, and avoiding debt financing for non-essential expenditures.

References

Adegboyo, S. O., and Olaniyan, N. O. (2021). The Viability of Public Expenditure in stimulating Economic Growth in Nigeria (Mediating on the Role of Public Sector). *Acta Universitatis Danubius Oeconomica, 17*(1), 70-86.

Ahmad, E., Albino, M. A., and Singh, R. J. (2005). Subnational Public Financial Management: Institutions and Macroeconomic Considerations. Macroeconomics eJournal, *2005*(108), 26.

Asiagwu, H., Ugherughe, J. E., and Ezeabasili, N. V. (2023). Disaggregated Analysis of Public Expenditure and Economic Development on the Nigerian Economy. (D. Smith, Ed.) *International Journal of Management and Entrepreneurship Research, 5*(1), 41-56.

Asif, M., Itoo, H. H., and Dar, J. A. (2021). On the environmental effects of development and non-development expenditure in India: Evidence from an asymmetric ARDL model. The Journal of International Trade & Economic Development, *31*(6), 835-859.

Bernhold, T., & Wiesweg, N. (2021). Principal-agent theory: Perspectives and practices for effective workplace solutions. In A Handbook of Management Theories and Models for Office Environments and Services.

Boccia, R., & Lett, D. (2024). Curbing Federal Emergency Spending: Government Spending Grows with Excessive and Wasteful Emergency Designations. Cato Institute. http://www.jstor.org/stable/resrep56959

CBN. (2022a). Statistical Bulletin (Public Finance). Central Bank of Nigeria. https://www.cbn.gov.ng/out/2022/std/2021%20statistics%20bulletin_public%20finance.xlsx

CBN. (2022b). Statistical Bulletin (Real Sector). Central Bank of Nigeria. https://www.cbn.gov.ng/Out/2023/STD/2022%20Statistical%20Bulletin_Real%20Sector.xlsx

Duruibe, S. C., Chigbu, E. E., Ejezube, E. E., and Nwauwa, P. G. (2020). An Evaluation of Public Expenditure and Economic Growth in Nigeria Using the Sectorial Economic Function Approach. *European Scientific Journal, 16*(7), 142-156.

Dynan, K., and Sheiner, L. (2018, August). GDP as a Measure of Economic Well-being. Hutchins Center on Fiscal and Monetary Policy, pp. 1-53.

Eisenhardt, K. M. (1989). Agency Theory: An Assessment and Review. *The Academy of Management Review*, *14*(1), 57–74. https://doi.org/10.2307/258191

Foster, T. A. (2017). *Budget Planning, Budget Control, Business Age, and Financial Performance in Small Businesses* (PhD Dissertation ed.). Minneapolis, Minnesota, United States of America: Walden Dissertations and Doctoral Studies Collections.

Freebairn, J. W., & Corden, W. M. (2013). Vision Versus Prudence: Government Debt Financing of Investment. Public Economics: National Budget, Melbourne Institute Working Paper No. 30/13, 21.

Gallagher, M. (1993). A Public Choice Theory of Budgets: Implications for Education in Less Developed Countries. Comparative Education Review, 37(2), 90–106. http://www.jstor.org/stable/1188679

Gobna, O. W., Usman, G., & Mohammed, S. S. (2022). Public Debt Sustainability Measures and Its Growth Implications for the Nigerian Economy. *Economic and Financial Review*, *60*(2), 27-53.

Gukat, B. T., & Ogboru, I. (2017). An Empirical Analysis of Government Expenditure and Economic Growth in Nigeria. *Journal of Economics and Development Studies, 5*(4), 122-134.

IMF Staff. (2023). Making Public Debt Public-ongoing Initiatives and Reform Options. International Monetary Fund. Washington: IMF.

Jacobs, A. M. (2016). Policy Making for the Long Term in Advanced Democracies. (R. Gallagher, Ed.) *Annual Review of Political Science, 19*(1), 433-454.

Jibir, A., Abdu, M., Bappayaya, B., Wahab, B. A., and Isah, A. (2023). Disaggregated Impact of Government Expenditure on Economic Growth: Evidence from Nigeria. *Lapai Journal of Economics, 7*(1), 15-32.

Kast, F. E., and Rosenzweig, J. E. (1972). General Systems Theory: Applications for Organization and Management. The Academy of Management Journal, 15(4), 447–465. https://doi.org/10.2307/255141

Lopetegui, G., & Rosado, W. (2022). Public Debt: A Primer for Development Practices. The Fiscal Accountability and Sustainable Trade Task Order, 7200AA18D00010/7200AA19F00015. USAID. https://pdf.usaid.gov/pdf_docs/PA00ZDP8.pdf.

Nworji, I. D., Okwu, A. T., Obiwuru, C. T., and Nworji, L. O. (2012). Effects of Public Expenditure on Economic Growth in Nigeria: A Disaggregated Time Series Analysis. (J. Keets, & S. K. Anderson, Eds.) *International Journal of Management Sciences and Business Research, 1*(7), 1-15. Retrieved Janauary 17, 2023, from https://core.ac.uk/download/pdf/228010214.pdf

Ohiaeri, N. (2020). Mainstreaming Public Expenditure Budgetary Control Connectivity with Economic Growth of Nigeria. IEEE Transactions on Reliability, *3*, 1-22. https://doi.org/10.26677/tr1010.2020.363.

Onifade, S. T., Çevik, S., Erdoğan, S., Asongu, S., & Bekun, F. V. (2020). An empirical retrospect of the impacts of government expenditures on economic growth: new evidence from the Nigerian economy. (T. Yagi, & K. Saito, Eds.) Journal of Economic Structures, *9*(6).

Onofrei, M., Gavriluţă, A., Bostan, I., Oprea, F., Paraschiv, G., & Lazăr, C. M. (2020). The implication of Fiscal Principles and Rules on Promoting Sustainable Public Finances in the EU Countries. *Sustainability, 12*(2772), 1-20.

Riaz, N., & Wu, G. (2022). Effectiveness of Development Expenditures and Non-development Expenditures on Economic Growth. Journal of Economics and Management Sciences, *3*(1), 35-48.

Sanni, G. K., Musa, A. U., & Sani, Z. (2019). Current Account Balance and Economic Growth in Nigeria: An Empirical Investigation. (A. M. Adebiyi, A. T. Adenekan, U. Kama, O. E. Olowofeso, A. O. Adenuga, E. T. Adamgbe, et al., Eds.) Economic and Financial Review (EFR), *57*(2), 83-106.

Selim, R., Küçükçifçi, S. (2024). The Effect of Social Transfers on Income Inequality and Poverty in Türkiye. Journal of Knowledge Economics. https://doi.org/10.1007/s13132-024-02196-1.

Stoica, E. C., & Panait, N. G. (2019). The Role of Sovereign Debts in the Development of the Actual Macroeconomic Environment. (N. Titulescu, Ed.) Global Economic Observer, *7*(2), 104-111.

Syafriadi, E., Sitepu, H. B., Andini, Y. P., Muda, I., & Kesuma, S. A. (2023). The impact of agency theory on organizational behavior: a systematic literature review of the latest research findings. Brazilian Journal of Development, 9(12), 31895–31911. https://doi.org/10.34117/bjdv9n12-090

United Nations. (1999). Transparency and Accountability in Government Financial Management. United Nations, Department of Economic and Social Affairs, Division for Public Economics and Public Administration. New York: UN.

United Nations. (2000). Economic Governance: Guidelines for Effective Financial Management. United Nations, Economic and Social Affairs, Division for Public Economics and Public Administration. New York: United Nations.

World Bank. (2022). *Nigeria Development Update (NDU) June 2022: The Continuing Urgency of Business Unusual.* World Bank, International Development Association. IDA.

Yusuf, A., & Mohd, S. (2023). Nonlinear Effects of Public Debt on Economic Growth in Nigeria. (E. Kew, Ed.) SN Business & Economics, *3*(88).