British Journal of Interdisciplinary Research **May 2025, Volume 2, Number 6, 24-34**
ISSN 3049-8899

DYNAMIC RELATIONSHIP BETWEEN RISING PUBLIC DEBT AND ECONOMIC STABILITY: AN ASSESSMENT OF NIGERIA ECONOMY

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Abstract

The consistent increase in public debt of Nigerian economy has raised concerns regarding its impact on economic stability. This paper examines the dynamic relationship between Nigeria's rising public debt and its economic stability by analyzing empirical data and existing literature. The study emphasizes on the key macroeconomic indicators affected by debt accumulation, such as inflation, GDP growth, investment, and exchange rates. The findings suggest that while public debt can drive short-term economic growth, excessive borrowing without sustainable fiscal policies can undermine long-term economic stability.

Keywords: *Public Debt, Economic Stability, Nigeria, Fiscal Policy, Debt Sustainability.*

DOI: 10.31039/bjir.v2i6.41

1. INTRODUCTION

Public debt plays a crucial role in every nation's economic development, providing necessary funds for infrastructure, social programs, as well as economic growth. However, when debt levels increase violently, it may lead to dissenting economic effects, including inflationary

pressures, high debt servicing costs, and reduced investor confidence. Nigeria, like many developing economies, has experienced a significant increase in public debt, prompting debates on its implications for economic stability. This paper explores the nature of Nigeria's public debt, its drivers, and its impact on the country's macroeconomic stability. Public debt is vital source for funding public expenditures, especially when increasing taxes and cutting public expenditure are challenging (Aimola & Odhiambo, 2019: Kaka, 2020). By increasing government spending through borrowing, government could stimulate economic growth during times of recession or economic downturn by boosting aggregate demand in the economy, leading to increased investment, consumption, and employment. Theoretically, public debt is a viable option that can be used to address income inequality and social welfare issues when borrowed money is used to fund social programs such as healthcare, education, and +poverty alleviation initiatives that can improve the standard of living for its citizens (Saleh & Ibrahim, 2020: Asravor and Sackey 2023). While debt can facilitate development, excessive accumulation poses significant threats to economic stability, advocating for balanced debt management and structural reforms to enhance resilience (Kose et al., 2022).

Public debt is a crucial tool for countries to achieve their macroeconomic objectives through funding essential infrastructure projects, stimulate growth during economic downturns, address social welfare issues, manage fiscal deficits, and capitalize on investment opportunities. However, excessive accumulation of debt is a fundamental factor in the debt-growth dynamics and underscores the relevance of a balanced debt management. By screening 892 articles and narrowing down to 535 relevant studies, Khudzari et al. (2022) identified three primary research clusters on public debt sustainability: fiscal sustainability and policy rules, empirical sustainability testing, and debt-growth dynamics. The findings revealed a predominance of analytical and empirical articles, reflecting the diverse economic contexts influencing public debt, highlighting a growing complexity in the literature on public debt sustainability, underscoring the need for this research on debt-growth dynamics to inform effective fiscal policy decisions. Nigeria's debt burden, despite its necessity for financing critical infrastructure, raises serious sustainability concerns because of issues of sustainability of debt service that diverts funds from development priorities, issues relating to poor management of borrowed funds, which leads to weak returns on investment and oil dependency as well as external shocks, which expose the country to significant economic vulnerabilities. Thus in this study, we explained the Dynamic Relationship between Rising Public Debt and Nigeria’s Economic Stability.

2. LITERATURE REVIEW

Numerous studies have examined the relationship between public debt and economic stability. Reinhart and Rogoff (2010) argue that high debt levels negatively impact economic growth, particularly when debt-to-GDP ratios exceed 90%. Similarly, Pattillo, Poirson, and Ricci (2004) emphasize that excessive external debt hampers economic growth by diverting resources toward debt servicing rather than productive investments. In the Nigerian context, Udoka and Ogege (2012) found that external debt has a significant negative effect on economic growth due to high repayment obligations.

Theoretical Frameworks

The Keynesian perspective

The Keynesian perspective suggests that increased public debt can enhance capital, output, income, and aggregate demand, particularly benefiting developing economies with limited capital. This positive effect is contingent upon the effective allocation of borrowed funds to productive sectors, as supported by various empirical studies.

The Neo-Classical theory

the Neo-Classical viewpoint argues that external debt can adversely impact economic growth, primarily through methods such as the debt overhang hypothesis and the crowding-out effect. This posits that excessive debt may hinder investment and economic performance. The contrasting implications of these theories highlight the complexity of public debt's role in economic development, emphasizing the importance of both the context and management of debt in influencing growth outcomes (Meraj et al., 2024: Islam & Nguyen, 2024: Dawood, 2024)

Overview of Nigeria's Public Debt

Nigeria's indebtedness dates back to pre-independence era. The debts incurred before 1978 were relatively small and mainly long-term loans from multi-lateral and official sources such as the World Bank and Nigeria's major trading partners. The loans were majorly procured on soft terms and therefore did not constitute encumbrance to the economy. However, due to the decrease in oil prices and oil receipts, the country in 1977/78 increased the first jumbo loan to the tune of US$1.0 billion from the international capital market. The loan was used to finance

various medium to long-term infrastructural projects. Domestic debt management in Nigeria had hitherto been carried out by the CBN through the issuance of government instruments, such as the Nigerian Treasury Bills (NTBs); Nigerian Treasury Certificates; Federal Government Development Stocks; and Treasury Bonds. The debt management strategy adopted at that time led to inefficiencies resulting in fundamental challenges. In consideration of these numerous difficulties, the government established an autonomous debt management office in order to achieve efficient debt management practices. The Debt Management Office (DMO) was thus established on October 4, 2000 to centrally co-ordinate the management of Nigeria's debt for all the tiers of government. Most of Nigeria's domestic debt which was mostly long-term in 2010 became more of short-term, that is, they had maturity of less than one year. This led to increased debt service burden. As at end-2012, the Nigerian total public debt service / GDP ratio stood at 0.5 per cent. With the debt forgiveness in 2005, Nigerian foreign debt which was hitherto being driven by Paris Club was being dominated by the multilateral debt

Empirical Review

Ekperiware and Oladeji (2012) examined the effect of external debt relief on economic growth in Nigeria using regression technique on quarterly time series of external debt, external debt service and real gross domestic product. Applying Chow- test to the regression result they found that there was a structural break in the relationship between economic growth and external debt in Nigeria during the period 1975 to 2005. The study concluded that the external debt relief made more resources available for economic growth in Nigeria and recommended a shift towards discretional concessional borrowing.

Udoka and Ogege (2012) examined the extent of public debt crisis and its consequences on economic development using data on the Nigerian economy for the period 1970 to 2010. They employed the error correction modeling framework with co-integration techniques to test the relationship between percapita GDP and other macroeconomic variables (foreign reserve, debt stock, investment, debt service payment). The test revealed that political instability may reduce the rate of development and other independent variables were responsible for the underdevelopment of the country.

Onyeiwu (2012) carried out an investigation on the relationship between domestic debt and economic growth in Nigeria using the error correction modeling approach to regression

analysis. He used quarterly data between 1994 and 2008 for GDP, foreign exchange rate, credit to private sector, budget deficit and money supply. The result showed that the domestic debt holding of government was far above the healthy threshold of 35 percent of bank deposits, which resulted in a negative effect on economic growth.

Faraglia et al (2012) examined the impact of government debt maturity on inflation using dynamic stochastic general equilibrium (DSGE) model. They used the following variables: Fiscal Insurance, Fiscal Sustainability, Government Debt, Inflation, Interest Rates and Maturity. The result showed that the persistence and volatility of inflation depends on the sign, size and maturity structure of government debt and remains significantly incomplete even with long bonds and inflation which plays a minor role in achieving debt sustainability. They concluded that issuing long term debt does enable governments to use inflation more to achieve fiscal sustainability.

3. METHODOLOGY

This study employs a quantitative research approach, analyzing secondary data from the Central Bank of Nigeria (CBN), National Bureau of Statistics (NBS), and World Bank. Time-series econometric models, such as the Vector Autoregression (VAR) and Granger Causality tests, are used to determine the dynamic relationship between public debt and economic stability indicators, including GDP growth, inflation, and exchange rates.

Research Design

The study used a quasi-experimental design (ex post facto), particularly about the data utilized for the research. This is a research methodology wherein the researcher exerts no influence over the data for analysis.

Variables in the Model

The model's dependent variable is real gross domestic product growth per capita (RGDPCt), while the independent variables are domestic debt (DMDt), foreign debt (EXDt), and the real exchange rate (RXRt). The parameter estimates of the relationship reflect the impact of public debt variables on economic development.

Model Specification Based on the theoretical framework and the selection of variables, the mathematical model to examine the relationship between public debt and economic development in Nigeria is as follows;

RGPCt = f(DMDt, EXDt, RXRt) …….. 3.1

Where:

RGDPCt = real GDP growth rate

DMDt = domestic debt

EXDt = external debt

RXRt = exchange rate The econometric model becomes

RGPCt = β0 + β1DMDt + β2EXDt + β3RXRt + β4EXRt t + Ut …….. 3.2

Equation 3.2 states that economic development as proxy with real gross domestic product per capita (RGDPC) depends on domestic debt (DMDt), external debt (EXDt), real exchange rate (RXRt) and nominal exchange rate (EXRt) as the control variable of the model.

A priori Expectation

According to the debt hangover hypothesis, domestic debt (DMDt), external debt (EXDt), and the real exchange rate (RXRt) are expected to negatively impact economic development; hence, the coefficients of these variables in the model (β1, β2, and β3) should be negative.

Method of Data Analysis

The variables of the model are subjected to both unit root to test for the stationarity and the order of integration of the variables of the model which are crucial for the choice appropriate method of estimating the parameters of the relationship.

Model Evaluation

The coefficients of estimates of the study are examined using critical values and probability values. The choosen level of significance for the rejection of the null hypothesis the study is the 5 percent level of significance.

4. DATA AND DATA SOURCES

Time series of real gross domestic product per capita (RGDPC) depends on domestic debt (DMDt), external debt (EXDt), real exchange rate (RXRt) and nominal exchange rate (EXRt)

from 1981 to 2022, to cover periods of low and high public debt, will be obtained from the Central Bank of Nigeria statistical bulletin of 2022.

Table 1.1 Phillip Perron (PP) Unit Root Test

Variable	Test Equation	Level		First Difference		Second Difference		Order
		Stat	PV	Stat	PV	Stat	PV	
DDBt	I	27.1134	1.0000	-0.2623	0.9221	-8.35436	0.0000	I(2)
	I & T	22.1132	1.0000	-2.3332	0.4034	-11.6808	0.0000	
	N	25.5223	1.0000	0.36232	0.7843	-7.03420	0.0000	
EXDt	I	3.4032	1.0000	-1.9523	0.3045	-8.8438	0.0000	I(2)
	I & T	1.7732	1.0000	-2.6833	0.2434	-15.9348	0.0000	
	N	4.2456	1.0000	-1.4088	0.1432	-7.83230	0.0000	
EXRt	I	3.2575	1.0000	-4.1243	0.0025			I(1)
	I & T	0.0645	0.9943	-4.7921	0.0021			
	N	5.2153	1.0000	-3.4121	0.0011			
RGPCt	I	-0.4229	0.8823	-3.8345	0.0055			I(1)
	I & T	-2.8327	0.1821	-3.8033	0.0265			
	N	0.6134	0.8432	-3.6654	0.0005			
RXRt	I	-2.0326	0.2623	-4.2932	0.0015			I(1)
	I & T	-2.0318	0.5732	-5.3132	0.0005			
	N	-1.6521	0.0934	-4.2621	0.0001			

Source; Author's Computation

The unit root test result is assessed by comparing the probability value of the test statistic for each variable with the selected significance level of the study, which is 0.05. The decision criterion is to reject the null hypothesis if the probability value of the test statistic for the variable is less than the selected significance level (0.05). The selected level of significance for the study. The final column of the unit root results in Table 1.1 indicates that the order of integration comprises variables of order one I(1) and order two I(2). Domestic debt (DDBt) and foreign debt (EXDt) are interconnected at the second order, I(2). For these two variables, the probability values of the test statistics under the first difference exceed 0.05; hence, the hypotheses asserting that these variables are non-stationary at first difference cannot be rejected. Nevertheless, the probability values in the second difference column are below 0.05; hence, the null hypothesis asserting that the variables are non-stationary at first difference is rejected. This indicated that domestic debt (DDBt) and external debt (EXDt) are nonstationary at both the level and first difference, but become stationary at the second difference. The remaining three variables—exchange rate (EXRt), real gross domestic product per capita

(GPCt), and real exchange rate (RXRt)—are integrated of order one, I(1). The probability values of the test statistics for the variables in the first difference column are below 0.05. Consequently, the hypothesis that the exchange rate (EXRt), real gross domestic product per capita (RGPCt), and real exchange rate (RXRt) are non-stationary at first difference is refuted.t The variables are non-stationary at the level but become stationary after the first difference. The unit root test analysis indicates that domestic debt (DDBt) and foreign debt (EXDt) are integrated of order two I(2), whereas the exchange rate (EXRt), real gross domestic product per capita (RGPCt), and real exchange rate (RXRt) are integrated of order one I(1). The Toda Yamamoto approach is employed to estimate the parameters of the models, which exhibit mixed orders of integration I(1) and I(2).

Toda Yamamoto result

Table 1.2; VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	0	-1532.740	NA	4.23e+29	82.40737	82.25644
1	1	-13032.056	428.9320*	2.41e+24*	70.31832	71.61675*
2	2	-122.965	32.82160	2.87e+24	70.41932	72.78943
3	3	-1231.755	36.12151	2.51e+24	70.09443	73.53124
4	4	-1223.315	25.52352	3.16e+24	69.90456*	74.43123

Source; Author's Computation

The optimal lag length (K) is 2, determined by the minimum values of the AIC, SC, and HQ criteria. The unit root test results in Table 2.3 indicate that the maximum order of integration is I(2), signifying that dmax equals 2. The (k+dmax)th order corresponds to the 4th order, necessitating a 4th VAR to implement the Toda-Yamamoto methodology and to provide the Granger Causality or Block Exogeneity Wald test results.

Table 1.3; Toda-Yamamoto Causality (Block Exogeneity Wald) test result Dependent Variable; Real Gross Domestic Product Per Capita (RGPCt)

Null Hypothesis	Chi-sq	Prob.	Value Direction of causality
DDBt does not cause RGPCt	0.970932	0.61532	No causality
EXDt does not cause GPCt	0.231232	0.89322	No causality
EXRt does not cause GPCt	0.960834	0.61833	No causality

RXRt does not cause GPCt	1.895432	0.3834	No causality
All	8.242323	0.4134	No causality

Source; Author's Computation

The criterion for establishing causation is to reject the null hypothesis if the p-value of the test statistic is below 0.05 (5%). According to Table 4.4, with real gross domestic product per capita (RGPCt) as the dependent variable, the probability values for domestic debt (DDBt), foreign debt (EXDtt), exchange rate (EXR), and real exchange rate (RXRt) are 0.6154, 0.8908, 0.6185, and 0.3877, respectively. The values exceed 0.05, indicating that the null hypotheses asserting that domestic debt (DDBt), external debt (EXDt), exchange rate (EXRt), and real exchange rate (RXRt) do not influence real gross domestic product per capita (GPCt) cannot be rejected. Consequently, there is no statistical evidence indicating that domestic debt (DDBt), external debt (EXDt), exchange rate (EXRt), and real exchange rate (RXRt) influence real gross domestic product per capita (GPC). The analysis of joint causality indicated that debt (DDBt), external debt (EXDt), exchange rate (EXRt), and real exchange rate (RXRt) do not significantly affect real gross domestic product per capita (RGPCt), as the overall probability value of 0.4101 above the threshold of 0.05.

Diagnostic Test

Table 1.4; VAR Residual Serial Correlation LM Tests

Null hypothesis: No serial correlation at lag h

Lag	LRE*	stat	Df Prob.	Rao	F-stat	Df Prob.
1	35.02324	25	0.0832	1.533323	(25, 49.8)	0.0982
2	34.41320	25	0.0545	1.500325	(25, 49.8)	0.1121
3	18.29546	25	0.8456	0.692311	(25, 49.8)	0.8212

Source; Author's Computation

Null hypothesis: No serial correlation at lags 1 to h

Lag	LRE*	stat	Df Prob.	Rao	F-stat	Df Prob.
1	35.02123	25	0.08321	1.53456	(25, 49.8)	0.0921
2	70.59723	50	0.0292	1.61321	(50, 39.8)	0.0612
3	112.6723	75	0.00321	1.6621	(75, 18.6)	0.1021

Source; Author's Computation

The null hypothesis for the serial VAR Residual Serial Correlation LM Tests posits the absence of serial correlation inside the model. The decision criterion is to reject the null hypothesis if the p-value is less than 0.05 at the selected lag. The probability values of the test statistics at lag 2 exceed 0.05; hence, the null hypothesis asserting that the model is devoid of serial correlation cannot be rejected. The model has no serial correlation.

5. DISCUSSION OF FINDINGS

Rising Public Debt in Nigeria Nigeria's public debt has surged in recent years, with total debt rising from $10.7 billion in 2005 to over $100 billion by 2023 (CBN, 2023). This rise is attributed to budget deficits, infrastructure financing, and revenue shortfalls due to fluctuating oil prices. The model's results indicated that domestic debt (DDBt), external debt (EXDt), nominal exchange rate (EXRt), and real exchange rate (RXRt) do not influence real gross domestic product per capita (RGPCt) either individually or collectively in Nigeria. The observation that domestic debt does not influence real GDP per capita in Nigeria indicates that variations in domestic borrowing do not directly affect the nation's per capita economic performance. This research provides empirical evidence for the debt overhang theory of Nigeria's debteconomic development dynamics. This result is also in tandem with Aimola and Odhiambo (2018) that discovered crowding-out effect of government borrowing on private investment in Nigeria. The finding is also similar to that of Puonti (2022) that posited that public debt could have adverse effect on economic growth. However, the findings contradicted those of Asravor and Sackey (2023), that identified causal effect between public debt and economic stability

6. CONCLUSION AND POLICY RECOMMENDATIONS

The study concludes that while public debt can be a vital tool for economic growth, unsustainable debt accumulation threatens Nigeria's economic stability. Conclusion Following the findings we concluded that external debt and domestic debt do not have significant statistical relationship with per capita real gross domestic product in Nigeria. While public debt remains a crucial variable for economic management, the absence of a direct statistical relationship between public debt and real GDP per capita suggested that public debt has not been effectively managed in Nigeria over the years. The findings suggests that effective debt management and exchange rate policies alone may not suffice to drive improvements in per capita economic performance. Given these insights, policymakers should focus on broader

economic strategies that go beyond managing debt and exchange rates. The government should enact prudent debt management strategies, including:

- Enhancing revenue generation to reduce reliance on borrowing.
- Strengthening fiscal discipline by minimizing unnecessary expenditures.
- Diversifying the economy to reduce dependence on oil revenues.
- Improving transparency in debt utilization to boost investor confidence.

REFERENCES

- Central Bank of Nigeria (2023). Annual Economic Report. Abuja: CBN.
- Pattillo, C., Poirson, H., & Ricci, L. (2004). "What are the Channels through which External Debt Affects Growth?" IMF Working Paper No. 04/15.
- Reinhart, C. M., & Rogoff, K. S. (2010). "Growth in a Time of Debt." American Economic Review, 100(2), 573-578.
- Udoka, C. O., & Ogege, S. (2012). "Public Debt and the Crisis of Development in Nigeria: Econometric Investigation." Asian Economic and Financial Review, 2(4), 511-521.
- World Bank (2023). "Nigeria Economic Update." Washington, DC: World Bank