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THE RELATIONSHIPS BETWEEN PUBLIC DEBT AND ECONOMIC DEVELOPMENT IN NIGERIA

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Abstract
This study examined the relationships between public debt and economic development in Nigeria, specifically focusing on the relationship between domestic debt, external debt and real exchange rate and real GDP per capita in Nigeria. Economic development was represented by per capita real gross domestic product (RGPCt), the dependent variable, while domestic debt (DMDt), external debt (EXDt), real exchange rate (RXRt), and nominal exchange rate (EXRt) served as the independent variables. Time series data of the variables are sourced from the Central Bank of Nigeria's statistical bulletin spanning 1981 to 2022. The variables underwent unit root test and were found to be integrated of order one I (1) and order two I(2). Following, the Toda-Yamamoto Causality (Block Exogeneity Wald) test was employed to examine causality among the variables in the model. The analysis revealed that external and domestic debt have no statistically significant relationship with per capita real gross domestic product in Nigeria. The study recommended that policymakers ensure effective and transparent utilization of borrowed fund, prioritizing investments that promote sustainable economic growth and development in Nigeria.

Introduction

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).

The trends in public debt are raising concerns among policy makers in Nigeria. Nigeria's total public debt, which includes both external and domestic debt, has been increasing, reaching over ₦80 trillion (around $100 billion) by late 2023. In view of recent debt relief and various bank reforms, economists wonder if trends in public are negatively affecting financial and macroeconomic stability even when authorities are achieving or close to achieving set macroeconomic objectives (Aimola & Odhiambo, 2019; CBN, 2023). As of 2023, Nigeria's debt-to-GDP ratio stands at approximately 40-45% which is below the critical threshold of 60%, its debt service burden and challenges in generating revenue mean that the country faces substantial fiscal pressure toward economic growth and as being a continuously debatable topic among researchers globally. Moreover, the issue is widely debated, particularly in highly indebted developing countries such as Nigeria (Olabisi & Effiong, 2023). Meanwhile, the rate at which domestic debt is increasing in developing countries, particularly in Nigeria, has raised concerns among economists and policymakers, due to the potential effect of sovereign debt on private sector growth, economic growth rate and debt sustainability. In 2020 Nigeria's total domestic debt was approximately ₦19.6 trillion, but by 2023 the total domestic debt had escalated to about ₦60 trillion. The sharp increase in domestic debt highlights Nigeria's reliance on local borrowing to finance its budget deficits and address its economic challenges over these years. Economics literature suggests that, even in the absence of fiscal costs, a persistently high and increasing public debt ratio may have a detrimental effect on long run economic growth in an economy (Paivi, 2022). Moreover, high public debt creates expectations about future tax increases and a climate of uncertainty, reducing incentives to save and invest. At a high threshold of 60% debt-to-GDP ratio, there are evidence of an S-shape impact of government debt on gross domestic product per person. Thus, high government debt, unarguably, harms gross product per person and results in fiscal consolidation not being able to stimulate gross domestic product per person (Buthelezi & Nyatanga, 2023).

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 critical 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 mismanagement 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 provide evidence and argue that public debt has no positive impact on per capita income in Nigeria, over the years.

Theoretical Review

The discourse on the relationship between public debt and economic growth presents two opposing theoretical frameworks. The Keynesian perspective posits 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. Conversely, the Neo-Classical viewpoint argues that external debt can negatively impact economic growth, primarily through mechanisms such as the debt overhang hypothesis and the crowding-out effect. This suggests 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).

Empirical Review

The literature on public debt revealed a complex interplay between debt levels, economic growth, and fiscal policy across various contexts, particularly in developing economies like Nigeria and emerging markets. Aimola and Odhiambo (2018) examined the interplay between public and private debt in Nigeria, highlighting their implications for financial and macroeconomic stability. Utilizing a 37-year trend analysis, the authors identified persistent issues such as fiscal dominance, elevated borrowing costs, and the detrimental effects of poor coordination between fiscal and monetary policies. Notably, the study pointed out that government borrowing from banks leads to a crowding-out effect, limiting private sector credit availability. The findings underscored the necessity for fiscal adjustments to reduce public debt, improve coordination between fiscal and monetary authorities, and enhance central bank autonomy to mitigate political influences on monetary policy. Despite some progress in debt management, the authors argued that substantial challenges remain, which must be addressed to foster macroeconomic stability and sustainable growth in Nigeria.

Aimola and Odhiambo (2020) provided a comprehensive review of the literature on the relationship between public debt and inflation, highlighting the complexities and variances in this relationship across different economies. The authors categorized existing studies by region, variables, and methodologies, revealing mixed findings: while some research suggested a positive correlation between public debt and inflation, others indicated a negative or negligible relationship. Key influencing factors include central bank independence, political stability, and prevailing economic conditions. The above has implications for the need for policymakers to navigate the intricate dynamics between public debt and inflation when crafting fiscal and monetary policies to ensure economic stability. The study underscored the necessity for further research to elucidate the mechanisms at play, ultimately aiming to provide clearer guidance for effective management of public debt and inflation.

Kaka (2020) examined the interplay between direct taxation and Nigeria's national debt, highlighting an underutilized potential for tax revenue to alleviate fiscal pressures and stimulate economic growth. Applying a documentary research design, the analysis draws on secondary data from reputable sources and revealed that direct taxes could significantly bolster government revenue, akin to practices in developed economies. The findings suggested that enhancing tax policies is essential for improving revenue generation, which is critical for effective debt servicing, particularly given Nigeria's vulnerability to fluctuating oil prices. This underscores the importance of fiscal policy reform in addressing the country's economic challenges. The study concluded that a strategic overhaul of tax policies is necessary for Nigeria to achieve sustainable economic development and calls for further research into the taxation-debt nexus.

Puonti (2022) investigated the intricate relationship between public debt and economic growth, with a particular focus on Finland and EU fiscal policies. The study employed both theoretical frameworks and empirical analysis, revealing several key findings. Firstly, it identified that high public debt levels can adversely affect economic growth, especially when

they surpass certain thresholds. Secondly, the relationship is characterized by significant cross-country heterogeneity, indicating that the effects of public debt on growth are contingent upon varying economic conditions and institutional contexts. Additionally, the study highlighted that these effects are time-varying, influenced by economic cycles and policy responses. The implications of these findings underlined the need for prudent fiscal policies. Puonti suggested that policymakers exercise caution regarding public debt increases, particularly in the context of revising EU fiscal rules, to ensure fiscal sustainability and support long-term economic growth. Ultimately, while public debt can facilitate growth, excessive levels pose substantial risks to economic stability, necessitating a balanced approach to fiscal policy that weighs the long-term consequences of debt on economic performance.

Heimberger (2021) study employed meta-regression analysis to quantitatively assess the impact of the public-debt-to-GDP ratio on econdomic growth, synthesizing existing econometric literature. The analysis revealed a significant negative correlation between high levels of public debt and economic growth, identifying specific thresholds where this relationship intensified. The findings underscored the necessity for policymakers to exercise caution regarding public debt accumulation, as excessive levels could impede economic development. Heimberger advocated for sustainable debt management to leverage public debt as a growth financing tool while mitigating potential adverse economic effects.

Saleh and Ibrahim (2020) investigated the impact of debt management strategies on economic performance in Sub-Saharan Africa. The study employed quantitative analysis of secondary data from reputable financial sources. The findings revealed a significant relationship between the level of indebtedness and debt maturity, with short-term debt exacerbated debt conditions while long-term debt mitigated risks associated with debt crises. This underscored the importance of effective debt management in fostering economic growth. Saleh and Ibrahim postulated that Policymakers are optimize debt composition to enhance stability and growth, and emphasized the critical role of debt management practices in the economic landscape of Sub-Saharan Africa.

Barrows (2020) provided an analysis of the economic performance of the PIIGS countries—Portugal, Ireland, Italy, Greece, and Spain—post-Great Financial Crisis, with a focus on peak debt levels. Employing a comparative framework, the research evaluated trade flows, industry dynamics, demographics, and economic outcomes through twelve key metrics, including GDP trade ratios, government debt, foreign direct investment, and unemployment rates.

The findings revealed a distinct ranking among the PIIGS, with Ireland at the forefront of recovery, followed by the EU average, Spain, Portugal, Italy, and Greece, which continues to face significant economic challenges. This divergence in recovery trajectories underscored the varying effectiveness of economic policies and the need for tailored support mechanisms within the EU. This implied that EU policymakers, sustain relevant economic support and integration strategies aimed at stabilizing weaker member states. Barrows concluded that understanding the economic dynamics of the PIIGS is essential for fostering overall EU stability and growth, advocating for sustained monitoring and intervention to assist struggling economies.

Frascaroli, Oliveira, and Almeida (2019) examined the interplay between public debt and economic policy coordination within the European Monetary Union (EMU) and Brazil. The authors highlighted that both regions grapple with fiscal deficits and the challenges of policy coordination, but Brazil's lack of coherence in economic policies contributing significantly to macroeconomic instability. The research underscored the critical role of institutional

frameworks in determining the success of policy coordination. The findings suggested that enhanced coordination of economic policies is a means to improve economic outcomes, particularly in managing public debt and fostering stability. Frascaroli, Oliveira, and Almeida concluded that stronger institutional mechanisms are essential for effective fiscal and monetary policy implementation, suggesting that lessons from the EMU and Brazil could be applicable to other regions facing similar economic challenges. Frascaroli, Oliveira, and Almeida emphasized the necessity of cohesive economic strategies to achieve sustainable growth and stability.

Buthelezi and Nyatanga (2023) investigated the intricate dynamics between government debt, fiscal consolidation, and economic growth in South Africa the study employed a threshold analysis methodology to discern how these relationships evolved under varying economic conditions. The authors analyzed data from 1979 to 2022 and found that fiscal consolidation can positively influence economic growth when government debt is below a certain threshold, but may prove detrimental at higher debt levels. These findings pointed to the relevance of maintaining sustainable debt levels to avoid undermining growth through consolidation efforts.

Asravor and Sackey (2023) examined the sustainability of Ghana's domestic debt and its implications for economic growth, particularly its interaction with private sector investment. Exploiting econometric models and data from 1994 to 2018, the research applied the debt overhang theory. The study revealed that while domestic debt can stimulate growth, excessive levels may crowd out private investment, ultimately hindering economic growth. Key findings indicated a causal relationship between domestic debt and economic growth, underscoring the necessity for sustainable debt management. Asravor and Sackey argued for need for the formulation and implementation of policies aimed at increasing GDP and revenue, promoting export-oriented manufacturing, and curtailing excessive imports to enhance debt sustainability.

Serzane and Askoldaviciute (2022) investigated the determinants of Lithuanian public debt to foreign countries, focusing on key macroeconomic indicators: inflation, minimum wage, GDP, unemployment rate, and population. The authors employed a robust dataset spanning three decades (1991-2020) employed both pairwise and multivariate regression analyses via SPSS, the authors find that all considered variables significantly influence public debt. Notably, the multivariate analysis reveals that the regression model is only viable when excluding the population variable, indicating that GDP, unemployment, inflation, and minimum wage are the primary drivers of external debt levels. Serzane and Askoldaviciute emphasized the necessity of continuous monitoring of macroeconomic indicators to navigate the complexities of public debt dynamics effectively.

Kose et al., (2022) examined the economic ramifications of rising debt levels in emerging markets and developing economies, particularly following the COVID-19 pandemic. Using a mix of literature review, empirical analysis, and case studies, the authors identified that unprecedented debt levels correlated with slower long-term economic growth and present complex inflationary dynamics. Kose et al., stressed the necessity for prudent fiscal policies and transparency in debt management to mitigate risks associated with high debt. The study concluded that while debt can facilitate development, excessive accumulation poses significant threats to economic stability, advocating for balanced debt management and structural reforms to enhance resilience.

Olabisi and Effiong (2023). analyzed the intricate relationship between external debt servicing and Nigeria's economic growth from 1985 to 2021. Applying econometric methods,

including the autoregressive distributed lags (ARDL) model, the research draws on data from the World Bank and Nigeria's Debt Management Office, focusing on GDP per capita as a growth indicator alongside variables such as external debt stock and service payments. The findings revealed a dual nature of external debt: while servicing can hinder growth by diverting resources, a well-managed external debt stock may foster economic development. The study highlighted the significant roles of corruption, mismanagement, and prevailing economic conditions in shaping this relationship. The study suggested that the relevance of effective debt management strategies that prioritize productive investment of borrowed funds, alongside tackling corruption to enhance the benefits of external debt. Olabisi and Effiong posited that external debt can be a growth catalyst if managed properly, advocating for the strategic use of borrowed funds in infrastructure and development projects to bolster Nigeria's economic trajectory.

Ricardo Reis (2022) examined the sustainability of public debt amid evolving economic conditions, particularly in a low-interest-rate environment. Using a theoretical framework, the research highlights the relationship between government debt, interest rates, and economic growth, challenging traditional views on debt sustainability. Findings of the study indicated that the issuance of public debt can generate substantial "debt revenue," enabling developed economies to maintain high debt levels without incurring a debt crisis. The study notes a concerning trend where government bond returns have consistently fallen below economic growth rates, complicating conventional assessments of debt sustainability. Reis argued that governments must navigate the policy trade-offs at her disposal to decide on the optimal debt level that balances these considerations. Reis urged policymakers to rethink traditional debt sustainability frameworks, emphasizing the potential of debt revenue as a tool for effective fiscal management. Reis posited that understanding the interplay between debt revenue, interest rates, and economic growth is crucial for fiscal authorities. According to the study, the absence of a debt crisis in advanced economies, despite elevated debt-to-GDP ratios, can largely be attributed to the revenue generated from public debt issuance, suggesting a need for a paradigm shift in fiscal policy assessment.

The studies collectively advocate for a good understanding of public debt dynamics, emphasizing the necessity for ongoing research to inform effective fiscal policy decisions. Policymakers are urged to balance the benefits of debt as a growth financing tool against the risks of excessive accumulation, with a focus on enhancing institutional frameworks and coordinating economic policies to achieve sustainable growth. The overarching theme is the critical need for strategic debt management and fiscal reforms to navigate the complexities of public debt and its implications for economic stability.

Theoretical Framework

The debt overhang theory is adopted as the theoretical framework of the study. This theory was primarily developed by Krugman and Sachs in the 1980s, though the concept has evolved through contributions by various scholars (Imbs & Ranciere (2005). The debt overhang theory posits that excessive borrowing leads to high levels of debt, creating a debt trap that hampers economic growth. When a government's debt is perceived to exceed its repayment capacity, it discourages both domestic and foreign investment due to fears of increased taxation to service that debt. This expectation diminishes the incentive for current investment, as potential returns are overshadowed by anticipated future tax burdens. Furthermore, accumulated public debt acts as a tax on future output, reducing savings and investment incentives. The theory suggests that servicing debt limits available funds for productive investment, particularly in critical areas like infrastructure and human capital, ultimately restraining economic growth. Therefore, mismanagement of debt can significantly

hinder a country's economic development (Meraj et al., 2024: Islam & Nguyen, 2024: Dawood, 2024).

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 = $\beta 0 + \beta 1DMDt + \beta 2EXDt + \beta 3RXRt + \beta 4EXRt\ t + Ut$ …….. 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 adversely impact economic development; hence, the coefficients of these variables in the model ($\beta 1$, $\beta 2$, and $\beta 3$) 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 necessary for the choice appropriate method of estimating the parameters of the relationship.

Model Evaluation

The coefficients of estimates of the study are evaluated 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.

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	27.1407	1.0000	-0.2607	0.9218	-8.38106	0.0000	I(2)
	I & T	22.1910	1.0000	-2.3376	0.4051	-11.6808	0.0000	
	N	25.5378	1.0000	0.3623	0.7846	-7.07920	0.0000	
EXDt	I	3.4057	1.0000	-1.9525	0.3059	-8.8858	0.0000	I(2)
	I & T	1.7779	1.0000	-2.6819	0.2491	-15.9088	0.0000	
	N	4.2416	1.0000	-1.4088	0.1455	-7.89750	0.0000	
EXRt	I	3.2589	1.0000	-4.1254	0.0025			I(1)
	I & T	0.0610	0.9958	-4.7974	0.0021			
	N	5.2120	1.0000	-3.4140	0.0011			
RGPCt	I	-0.4559	0.8895	-3.8349	0.0055			I(1)
	I & T	-2.8677	0.1831	-3.8068	0.0265			
	N	0.6165	0.8455	-3.6657	0.0005			
RXRt	I	-2.0466	0.2666	-4.2950	0.0015			I(1)
	I & T	-2.0218	0.5724	-5.3172	0.0005			
	N	-1.6398	0.0947	-4.2695	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 non-stationary 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	-1560.740	NA	4.23e+29	82.40737	82.62284
1	1	-1306.056	428.9410*	2.41e+24*	70.31876	71.61159*
2	2	-1282.965	32.81460	2.87e+24	70.41919	72.78938
3	3	-1251.745	36.14951	2.51e+24	70.09182	73.53937
4	4	-1223.215	25.52652	3.16e+24	69.90605*	74.43096

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	0.970964	0.6154	No causality
EXDt does not cause GPCt	0.231283	0.8908	No causality
EXRt does not cause GPCt	0.960899	0.6185	No causality
RXRt does not cause GPCt	1.895142	0.3877	No causality
All	8.242586	0.4101	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	35.02524	25	0.0877	1.535243	(25, 49.8)	0.0982
2	34.41470	25	0.0993	1.500285	(25, 49.8)	0.1106
3	18.29616	25	0.8296	0.692801	(25, 49.8)	0.8388

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	35.02524	25	0.0877	1.535243	(25, 49.8)	0.0982
2	70.59716	50	0.0291	1.610940	(50, 39.8)	0.0610
3	112.6713	75	0.0032	1.668239	(75, 18.6)	0.1072

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.

Discussion of Finding.

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 debt-economic 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

growth. Considering the continuous raise in public debt in Nigeria, this result suggested that domestic debt is not utilized in manners that substantially impact productivity or per capita economic growth. The absence of causality from foreign debt to GDP per capita indicates that borrowing from outside sources does not directly influence Nigeria's per capita economic productivity. Since domestic and external debt levels, together with exchange rate fluctuations, do not directly influence real GDP per capita, policymakers ought to prioritize allocating borrowed fund to productive investments and structural reforms to stimulate economic growth. Investment in infrastructure, education, and technology developments can establish a more resilient foundation for enhancing per capita real GDP. Structural reforms designed to improve productivity and stimulate a more vigorous private sector may also prove advantageous. Given that domestic and external debt do not directly influence real GDP per capita, it underscored the necessity for effective debt management, emphasizing efficiency and transparency, while prioritizing investments that bolster long-term economic capacity and sustainability.

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 properly managed in Nigeria over the years. The findings implied 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.

Recommendations

Therefore, the study recommended that policymakers ensure efficient and transparent use of public debt while focusing on factors that enhance long-term economic growth that are essential for economic development. More so, the government consider a broader economic strategy that includes maintaining a stable exchange rates while also addressing other factors such asinvestment in infrastructure, education, and technological advancements to create a more robust foundation for improving per capita GDP in Nigeria.

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