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INSTITUTIONAL QUALITY AND PUBLIC DEBT IN NIGERIA: AN APPLICATION OF ARDL

ABSTRACT

The study examined the nexus between public debt and institutional quality in Nigeria for the period 1996 to 2023. The data for the study is drawn from World Bank Development Indicators (WDI) and was analysed using Autoregressive Distributed Lag (ARDL) econometric technique and Bound Co-integrated test. The study found that control of corruption, government effectiveness and political stability and absence of violence had a positive and long run significant relationship with public debt in Nigeria. The result further reveal that political stability and absence of violence had positive effect on debt in both short run and long run while control of corruption and government effectiveness have only in short run in Nigeria. The study, therefore, recommended for greater beneficial debt to ascertain in the country there is need to introduce reforms on fighting against corruptions and fast tract the process in handling corruptions cases as well as intensify effort to minimize social vices that would ensure security of lives and properties and enhance efficiency in governance.

Keywords: Public Debt, Institutional Quality, Government Effectiveness, political stability and ARDL.

JEL Classification: E02, O55

1. INTRODUCTION

The growing public debt levels observed in developing nations recently exhibit signs of potential future sustainability issues, raising alarms among economic analysts (Sandow, Oteng-Abagie, & Duodu, 2022). This concern arises because public debt may sometimes hinder economic development rather than foster it. Such setbacks are frequently linked to ineffective institutions (Ogbonna, Ogbuabor, Eze & Ugwuoke, 2021). In Nigeria, the escalating debt situation, coupled with the minimal positive effect on the economy due to misallocation of funds and deficient institutional frameworks, continues to create significant obstacles for the nation. Recently, there have been numerous initiatives aimed at enhancing institutional quality by creating various anti-fraud agencies and implementing anti-corruption policies intended to elevate institutional standards within the country. However, despite these initiatives, Nigeria's debt continues to grow alongside a decline in institutional effectiveness.

The ongoing struggle of Nigeria to generate local resources to manage persistent budget deficits has led to an increased dependence on public debt, especially external borrowing, characterized by unfavourable lending terms and a shift of scarce resources from productive private enterprises to inefficient public sectors. This situation adds extra tax pressures and is influenced by external economic variables such as interest and exchange rates, contributing to Nigeria's current economic downturn. As a result, this dependency has negatively impacted the growth of Nigeria's economy, as observed by Akinwunmi and Adekoya (2020). It has also been noted that this problem obstructs the development of domestic capital, further worsening the inadequate supply of vital services for the populace. Nigeria's total public debt, comprising both external and internal debt, amounted to N121.67 trillion (US\$91.46 billion) in the first quarter of 2024, rising from N97.34 trillion (US\$108.23 billion) in the fourth quarter of 2023, reflecting a quarter-on-quarter growth rate of 24.99%. Meanwhile, the cost of servicing this debt was reported at N5.47 billion according to DMO & CBN (2024).

The ongoing increase in both external and internal debt in Nigeria, coupled with a lack of similar growth in capacity utilization, has led to the need for frequent debt rescheduling and the cancellation of debts for Nigeria and numerous other developing nations around the world. Although the debt relief provided by the International Monetary Fund (IMF) through the Catastrophe Containment and Relief Trust (CCRT), along with debt restructuring and internal debt management, has significantly eased some of the strain, Nigeria's debt challenges continue to be an ongoing issue that presents considerable difficulty.

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.2 Theoretical Review

2.2.1 The Ricardo Theory of Public Debt

David Ricardo introduced the theory of public debt in 1819, asserting that both planned and unexpected government expenditures primarily involve payments made to maintain economic balance, regardless of the efficiency of most workers in the economy (Ajayi, 2020). In a letter addressed to McCulloch in 1886, Ricardo emphasized that public expenditure was an unproductive economic activity carried out by the state. Focused on the identified fiscal gap, Ricardo's theory centers on the escalating burden arising from society, a result of unproductive public expenditures (Precious, 2015). According to David Ricardo's theory of public debt, financing public expenditure can be productively achieved by obtaining funds from sectors and communities with excess economic resources to reduce inequality.

Ricardo argued that prioritizing a particular sector over others for settling public expenditure does not positively impact economic growth; instead, it impoverishes the state despite the accumulation of public debts and taxes raised (Ricardo, 1819). Additionally, Ricardo (1819) contended that paying interest on debt

transfers a significant amount of wealth from the society to a different economy, thereby impoverishing the state's economy. This underscores the importance of nations acquiring productive debts to enhance economic growth and development (Okoye et, al. 2020).

2.2.2 Institutional Theory

Institutions encompass the formal and informal rules, norms, and structures that govern behaviour within a society or organization. In the context of public debt, institutions include legal frameworks, regulatory bodies, government agencies, and broader governance mechanisms. Institutional theory posits that institutions shape the behaviour of individuals and organizations by providing incentives, shaping expectations, and defining acceptable practices. For public debt, institutions determine how governments borrow, repay, and manage debt, and they establish rules for transparency, accountability, and fiscal discipline. Strong institutions are crucial for ensuring fiscal discipline and sustainable debt management. Institutions that promote transparency, accountability, and effective decision-making reduce the risk of fiscal mismanagement, excessive borrowing, and unsustainable debt levels.

Institutions that uphold the rule of law enhance the credibility of government commitments, including debt repayment. A credible legal framework assures creditors that debt contracts will be honoured, thereby reducing borrowing costs and facilitating access to international capital markets. Similarly, effective regulatory frameworks oversee financial markets and ensure that debt issuance complies with legal and fiscal standards. Institutional mechanisms for debt monitoring, risk assessment, and reporting provide transparency to stakeholders and help mitigate the risk of fiscal crises. Additionally, institutional stability and political continuity are essential for maintaining investor confidence and stable debt markets. Countries with strong institutional frameworks are better equipped to withstand economic shocks and manage public debt sustainably over the long term. This theory is relevant to this study because it provides a valuable framework for understanding how institutional arrangements influence public debt management and governance practices. Strong institutions that foster transparency, accountability, and fiscal discipline are essential for maintaining sustainable debt levels and ensuring long-term economic stability. However, the theories reviewed the institutional theory will be adopted and used for the study.

2.3 EMPIRICAL REVIEW

Olurin (2025) Investigates the effect of public debt on macroeconomic performance in Nigeria and the role institutional quality can play. The Autoregressive Distributed Lag (ARDL) bound testing technique and error correction model (ECM) were used. Findings found that money supply growth significantly affected economic growth positively, exchange rate significantly affected economic growth negatively, institutional quality and debt significantly affected real interest rate positively, and bt positively affected inflation, whereas the interaction of debt and institutional quality affects real interest rates and inflation negatively.

Beyene (2024) examined how governance quality influences economic growth in 22 selected Sub-Saharan African countries using Panel Dynamic Generalized Method of Moments (GMM) analysis. The study utilized World Bank panel data from 2002 to 2020 and found that a composite governance index positively and significantly impacts economic growth in all the countries analysed. El-Naser (2023) examines the impact of public debt and institutional quality on economic growth in the EU from 2000 to 2021 using the GMM method. Our results showed that some variables are statistically significant across all methods, such as Regulatory Quality, Voice and Accountability, Gross fixed capita, and Population, while others are only significant for some methods or not significant at all. The Sargan test and Hansen test were used to test the over identifying restrictions of the GMM estimator, which checks whether the instruments used in the GMM estimation are valid or not.

Ashogbon et al., (2023) assessed the nexus between public debts, institutional quality on economic growth in Nigeria. Secondary data were used spanning 1981 to 2021, using the autoregressive distributed lag model. The results showed evidence of long run equilibrium relationship among the variables. Also, findings showed that public debt had a negative significant impact on economic growth. Hlongwane (2023) employed a bound test to explore the relationship between various macroeconomic variables and economic growth in South Africa, found a negative effect of external debt on real GDP growth both in the short and long run. Ekpe and Ogbuabor (2023) examined the impact of foreign debt and institutional quality on economic performance in Nigeria. Data used for the analysis were quarterly data that ranged from 1996 first quarter to 2019 fourth quarter. The result of the analysis depicts that foreign debt has an insignificant negative effect on economic performance in the short run and also negative insignificant effect in the long run too, corruption control has a significant positive effect on economic performance only in the short run. Ndubuisi et al., (2023) investigates the role of institutional quality on external debt and sectoral growth relationship across 17 countries between 2005 and 2018. The Fully Modified Ordinary Least Squares (FMOLS) technique was used to estimate the long run relationship after ascertaining the stationary and cointegration condition of the data series. The findings reported that external debt on average exerts a significant positive effect on the agricultural and industrial sectors, while exerting a negative impact on the service sector. Assoum and Alinsato (2023) investigated the relationship between governance, per capita income, and public debt in Sub-Saharan Africa using a neoclassical production function and a dynamic panel threshold model on data from 39 countries covering 2002-2019. Their findings indicated that the relationship between per capita income and public debt is not always direct but depends on the quality of governance. Aman (2023) assessed the impact of good governance on debt and economic performance using World Bank data from 1990 to 2020. The employed OLS model, findings found that there is no significant relationship between debt-to-GDP and economic development, a strong correlation was established between good governance and economic performance.

Okeke et al., (2023) examine the effects of public debt on economic growth in Nigeria from 1981 to 2021 using the Auto-Regressive Distributed Lag technique. The analysis showed that variables such as Real GDP, Gross Fixed Capital Formation, External Debt, and Debt Service Repayment positively and significantly influenced economic growth, while the exchange rate and domestic debt had negative effects. The positive variables had a p-value less than 5%, whereas the negative variables had a p-value greater than 5%. Abotsi (2023) explored the impact of governance on the political environment and public debt across 48 African countries using annual data from 1996 to 2022. The study employed the system generalized method of moments (GMM) and assessed regulatory efficiency, corruption control, and rule of law. The findings indicated that countries with similar regulation quality and corruption control levels incur less public debt, while those adhering strictly to the rule of law tend to have higher public debt.

3. METHODOLOGY

3.1 Sources of Data

The study employed annual time series data spanning from 1996 – 2023 drawn from the World Bank development indicator online database.

3.2 Model specification

The model specification of this study is in line with Ahmed (2017). The model can be expressed as:

$$PUD = f(COC, GOE, POS) \dots\dots\dots (1)$$

The mathematical form of the model is as follows:

$$PUD = \beta_0 + \beta_1COC + \beta_2GOE + \beta_3POS + \mu \dots\dots\dots (2)$$

Where: PUD= public debt, COC = Control of corruption, government effectiveness and POS= Political stability and absence of violence.

The short run ARDL model can be specified as:

$$\Delta(PUD)_t = \beta_0 + \beta_1(PUD)_{t-1} + \beta_2(COC)_{t-1} + \beta_3(GOE)_{t-1} + \beta_4(POS)_{t-1} + \sum_{i=1}^w \beta_5 \Delta(PUD)_{t-1} + \sum_{i=0}^x \beta_6 \Delta(COC)_{t-1} + \sum_{i=0}^y \beta_7 \Delta(GOE)_{t-1} + \sum_{i=0}^z \beta_8 \Delta(POS)_{t-1} + \beta_9 ECT_{t-1} + \mu \dots\dots\dots (3)$$

4.1. RESULTS AND DISCUSSION

4.1.1 Descriptive Statistics

The summary of the variables used for this study is given in table 1, the maximum and minimum values of the series are 16.39 and -2.211 respectively. The skewness of the distribution and the kurtosis show that the series deviate from the normal distribution as the value range -0.629 and 1.392 and 1.729 and 4.068 for skewness and kurtosis respectively. The normal distribution of the variables is determined using the value of Jarque-Bera and the probability. It is very apparent that the hypothesis that all but one, the variables are

not normally distributed can be rejected since all the values of the probability are more than the Jarque-Bera Chi -square at 5% level of significance except POS whose probability is less than 0.05.

Table 1: Descriptive Statistic

	PUD	COC	GOE	POS
Mean	7.592803	-1.178397	-1.043852	-1.733352
Median	8.401681	-1.160613	-1.027820	-1.873889
Maximum	16.39651	-0.900949	-0.897212	-0.588244
Minimum	0.676956	-1.502068	-1.213329	-2.211123
Std. Dev.	5.050542	0.136475	0.089475	0.415329
Skewness	-0.009525	-0.628794	-0.348702	1.391460
Kurtosis	1.728717	3.101285	2.159920	4.068284
Jarque-Bera	1.818588	1.790761	1.341119	9.996612
Probability	0.402809	0.408452	0.511422	0.006749
Observations	27	27	27	27

Table 2:

Correlation Matrix

	PUD	COC	GOE	POS
PUD	1			
COC	-0.1193736	1		
GOE	0.2067258	-0.363032	1	
POS	0.4536832	-0.276368	0.2575905	1

4.1.2 The Unit Root test

The results of Augmented Dickey-Fuller (ADF) test of root was conducted to verify the order of integration of the variables under study to avoid spurious regression results. The results are presented in Table 2. The results indicate that the variables public debt (PUD), Control of corruption (COC), political stability(POS) are I(1), while government effectiveness (GOE) is I(0) variable. The mixture of the order of integration of the variables (i.e., I(0) & I(1) provides a justification to apply the Autoregressive Distributed Lag (ARDL) bound test model Pesaran (2001).

Table 3: ADF Unit Root Tests Result

Variables	I(0)	I(1)
ADF	Constant	Constant
PUD	-2.327958 (0.1709)	-6.095667*** (0.0000)
COC	-1.617912 (0.4595)	-4.979783*** (0.0008)
GOE	-3.441165** (0.0185)	-6.791343*** (0.0000)
POS	-1.783123 (0.3800)	-4.726751** (0.0009)

Note that probability values are in parenthesis, *** is $p < 0.01$, and ** $p < 0.05$ respectively.

The bounds test is conducted to test for long run equilibrium relationship among the variables the results of the bound test are presented in table 4 below.

From table 4, the bounds test for co-integration results shows the existence of long run co-integration relationship between the dependent variable (PUD) and the independent variables. This is demonstrated by comparing the value of the computed F-statistic and upper bound result at all (1% & 5%) level of significance. The computed F- statistic of 5.53 is greater than the lower and upper bound values of 3.65 and 4.66 at 1% significant level respectively. Therefore, the null hypothesis of no co-integration can be rejected while the alternative is accepted

Table 4: ARDL Bounds Test for Co-Integration Analysis

Dependent Variable	Calculated F-Statistic	Significant level	Lower Bound I(0)	Upper Bound I(1)
D(PUD)	5.531751	10%	2.37	3.2
		5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

Source: Author's computation

Table 5 presents the long-run results of the effect of institutional quality on public debt (PUD) in Nigeria. The results indicate that political stability (POS) has a positive and significant relationship with public debt in Nigeria. The results show that a unit increase in POS led to an increase in PUD by 5.33 units. The sign of the coefficient is consistent with the a priori expectation that improved institutional quality enhance chances to access credit.

Table 5: Long run Estimates

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
COC	1.516012	7.489424	0.202420	0.8414
GOE	6.155652	11.36205	0.541773	0.5932
POS**	5.313023	2.373178	2.238780	0.0351
C	25.01419	17.31238	1.444873	0.1620

Source: Author's computation

Table 6 presents the short run estimation results of the effect of the institutional quality on public debt (PUD) in Nigeria. The empirical result reveal that control of corruptions (COC) and political stability (POS) have direct and significant relationship with the public debt in Nigeria while the government

effectiveness (GOE) had negative relationship with public debt at 5% level of significance. The result reveals that a unit increase in the control of corruption (COC) and political stability (POS) induce PUD to increase by 41.27 and 10.89 units respectively in the short run. This result is in line with the findings of the study carried out by Ahmed (2017) and Ashogbon, et, al. (2023). However, a weak government effectiveness result public debt to reduce by 99.54 unit in the short run. This is consistent with the apriori expectation and it confirms the result of Abotsi (2023).

The estimated error correction term (ECT (-1)) revealed desired result that is in consistent with rule of co-integration. The ECT is negative and statistically significant at 5%. A negative and significant ECT implies that the adjustment process to get back to equilibrium is very effective. This implies that about 68% percent departure from long run equilibrium is corrected in the short run and incorporated into the long run relationship within a third quarter period of a year.

Table 6: Short Run Estimates

Dependent Variable D(PUD)				
Selected Model: ARDL(3, 3, 4, 4)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.*
D(PUD(-1))**	0.404451	0.125022	3.235034	0.0231
D(PUD(-2))**	-0.587335	0.134417	-4.369500	0.0072
D(COC)**	41.27177	6.562898	6.288651	0.0015
D(COC(-1))	24.45495	12.12771	2.016453	0.0998
D(COC(-2))**	54.39082	10.33290	5.263850	0.0033
D(GOE)**	-32.06618	7.384067	-4.342618	0.0074
D(GOE(-1))**	99.54331	12.69048	7.843933	0.0005
D(GOE(-2))**	32.69033	9.594815	3.407083	0.0191
D(GOE(-3))**	30.98750	7.185748	4.312355	0.0076
D(POS)**	10.88933	3.071306	3.545506	0.0165
D(POS(-1))**	-18.65092	3.021148	-6.173455	0.0016
D(POS(-2))	-4.176339	2.921329	-1.429602	0.2122
D(POS(-3))**	-6.718529	2.237858	-3.002214	0.0300
ECT(-1)**	-0.676087	0.095819	-7.055902	0.0009

Source: Author's computation

4.1.3 Diagnostic tests

In table 7, present the diagnostic tests of the model. The robustness/goodness of model has been definite by diagnostic test such as Breusch-Godfrey Serial Correlation LM Test, Heteroskedasticity Test: Breusch-

Pagan-Godfrey, Jargue-Bera normality and Ramsey reset test. All the tests revealed the model estimated are serially uncorrelated.

Table 7: Diagnostic tests

Serial Correlation LM Test:	Heteroskedasticity Test	Normality Test	Ramsey RESET Test
0.5171	0.9324	0.6481	0.1481
(0.6413)	(0.5901)	(0.7232)	(0.7199)

5. CONCLUSION

The goal of this study was to examine the relationship between public debt (% of GDP) and institutional quality. The significant increase in public debt by government amidst incline issues in corruption cases, in completed projects despite growing demand in public goods over years, propel for this study to re-examine the effect of institutional quality on public debts. The study uses time series data from 1996-2023 and adopt Pesaran et al. and Narayan ARDL Bound Testing approach. The estimated results revealed the existence of long-run equilibrium relationship among the variables. That is, both control of corruption, government effectiveness, political stability and absences of violence shown potential positive influence on public debt. However, the effect of the political stability and absences of violence on debt is both in the short run and long run while the effect of control of corruption and government effectiveness on debt is in the short run. Therefore, based on the study, we recommend that for beneficial debt to ascertain in the country there is need to introduce reforms on fighting against corruptions and fast tract the process in handling corruptions cases as well as intensify effort to minimise social vices that would ensure security of lives and properties and enhance efficiency in governance.

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