



INSTITUTIONAL QUALITY AND PUBLIC DEBT ACCUMULATION: EMPIRICAL EVIDENCE FROM NIGERIA

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Abstract

This study investigates the impact of institutional quality on public debt in Nigeria from 1996 to 2023 using the ARDL framework. Institutional quality, measured by control of corruption, government effectiveness, rule of law, and regulatory quality, serves as the main explanatory variable, with inflation, government revenue, expenditure, and GDP per capita as controls. Results show that strong institutions, higher government revenue, and GDP per capita reduce public debt in the long run, while higher government expenditure increases it; inflation is insignificant. Short-run effects are limited, but the error correction term indicates rapid adjustment to long-run equilibrium. The findings highlight that weak institutions, rising expenditure, and poor economic performance drive debt accumulation, suggesting the need for institutional reforms, revenue enhancement, prudent spending, and economic diversification to ensure fiscal sustainability.

Keywords: *Public debt, Institutional quality, Governance, ARDL, Fiscal sustainability, Nigeria*

INTRODUCTION

Public debt, often referred to as government debt, represents the total amount of money that a government owes to creditors. These creditors include individuals, firms, other governments, and international financial institutions and organizations. It comprises both domestic and external debt, which is typically expressed as a ratio of gross domestic product (GDP). Public borrowing generally arises from persistent fiscal deficits and, when effectively managed, can serve as an important instrument for financing development. However, it is equally essential that public debt is serviced in a timely manner and maintained at sustainable levels. When deployed efficiently, public debt can stimulate socio-economic activities, expand the revenue base, support debt repayment, enhance and achieve new level of economic growth (Mehmood et al., 2022; Fan et al., 2023; Ozmen & Mutascu, 2023; Jayaraman & Lau, 2009).

Conversely, excessive public debt relative to GDP may undermine macroeconomic stability and weaken the domestic investment climate, thereby discouraging foreign direct investment inflows (Furceri & Zdzienicka, 2014). High levels of indebtedness also increase an economy's vulnerability to external and internal shocks, elevate the risk of default, constrain capital formation, and impede economic growth. These adverse outcomes can, in turn, erode tax revenues and intensify inflationary pressures (Burriel et al., 2020; Woo & Kumar, 2015).

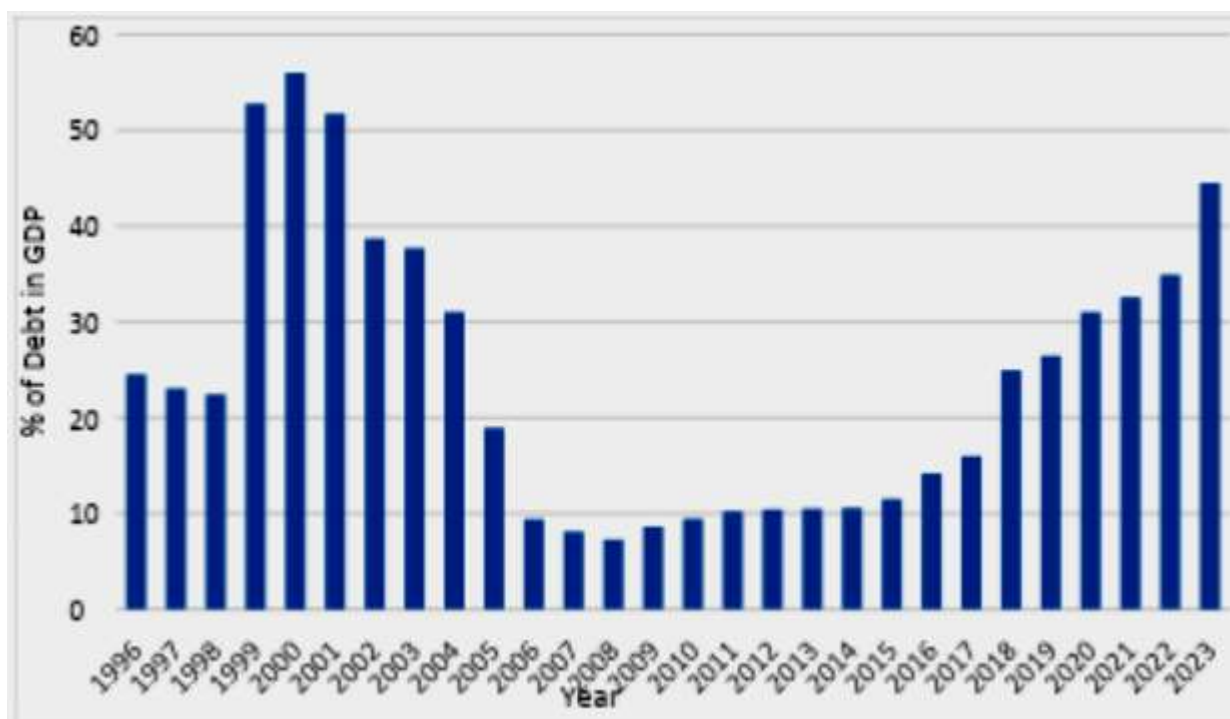
A growing body of empirical literature suggests that the impact of public debt critically depends on institutional quality. Countries endowed with strong institutions tend to derive greater benefits from public borrowing and are better positioned to manage debt sustainably (Jalles, 2011; Kim et al., 2017). Effective institutions enhance the efficient allocation and utilization of public resources, thereby preventing excessive debt accumulation relative to GDP (Ojeka et al., 2024; Sebola, 2023). In this regard, Cooray and Ozman (2024) emphasize that institutional dimensions such as government effectiveness, regulatory quality, rule of law, and control of corruption play a pivotal role in effective debt management and in mitigating the impact of financial crises.

In contrast, weak institutional frameworks are frequently associated with recurrent debt crises (Lumpkin, 2009). Deficiencies in government effectiveness, regulatory quality, rule of law, and corruption control can divert public revenues from productive to unproductive uses, leading to higher debt levels. Weak institutions also tend to foster the expansion of the shadow economy, thereby reducing tax revenues and compelling governments to rely more heavily on borrowing to finance expenditure (Friedman et al., 2000). Moreover, large public sectors and elevated government spending are often characteristic of countries with poor institutional quality. As a result, ineffective governance can distort public sector performance and expenditure structures, ultimately increasing the public debt burden (Cooray et al., 2017;

Dzhumashev, 2014). Overall, weak institutions tend to facilitate higher debt accumulation (Cerra et al., 2008; Cooray et al., 2017).

In Nigeria, as in many developing economies, public borrowing has been widely regarded as a critical instrument for financing infrastructure and promoting economic development (Nwala & Saleh, 2021). Nevertheless, concerns have intensified over the rapid rise in the government debt-to-GDP ratio, particularly following the Paris Club debt relief in 2005. This concern is compounded by the country's limited revenue-generating capacity and the growing proportion of government revenues devoted to debt servicing, which substantially constrains fiscal space for development expenditure. As illustrated in Figure 1, Nigeria's debt-to-GDP ratio increased steadily from 7.3 percent in 2008 to 11.5 percent in 2015, and further escalated to 44.5 percent by 2023, approaching pre-relief levels of 56.0 percent recorded in 2000, despite ongoing efforts to maintain fiscal discipline.

Figure 1: Nigeria's Government Debt from 1996 to 2023



Source: International Monetary Funds, 2025; World Development Indicator (World Bank)

This rising debt trajectory may, in part, be attributable to Nigeria's persistently weak institutional environment. According to the World Bank's Worldwide Governance Indicators, institutional quality in Nigeria remained low throughout the period 1996 to 2023. This context underscores the need for a systematic empirical investigation into the relationship between

institutional quality and public debt accumulation in Nigeria, which constitutes the central focus of this study.

Empirically, a growing body of literature has examined the direct impact of institutional quality on public debt accumulation, with the majority of studies adopting a cross-country perspective (Tarek & Ahmad, 2017; Ali & Al Yahya, 2019; Abotsi, 2023; Cooray & Ozman, 2024; Rajabi & Ghaleh, 2025). In contrast, relatively few studies have focused on country-specific analyses, thereby underscoring the need to examine the unique institutional and economic contexts of individual countries such as Nigeria. Despite the recognized importance of institutions in shaping public debt dynamics, empirical evidence specific to Nigeria remains limited. To the best of the author's knowledge, existing country-level studies include Abdullahi and Jubril (2024), who examined the effects of the rule of law and control of corruption on public debt, and Fagbemi and Olatunde (2019), who investigated the relationship between corruption and public debt in Nigeria. These studies, while informative, focus on a narrow subset of institutional dimensions.

The present study extends the Nigerian literature by constructing and employing a composite institutional quality index that incorporates government effectiveness, regulatory quality, rule of law, and control of corruption to examine their combined effect on public debt accumulation over the period 1996 to 2023. These institutional dimensions are closely linked to fiscal decision-making and public resource management (Cooray & Ozman, 2024; Nguyen & Luong, 2021). By adopting this broader institutional framework, the study contributes additional country-level empirical evidence on the institutional determinants of public debt.

More precisely, although institutional quality is widely recognized as a key determinant of public debt dynamics, country-specific evidence for developing economies, particularly Nigeria, remains limited. Most existing studies rely on cross-country analyses that may overlook national institutional and fiscal peculiarities. In Nigeria, public debt has risen sharply since the mid-2000s despite debt relief and fiscal discipline efforts, alongside persistently weak governance indicators, a narrow revenue base, and increasing debt servicing pressures. Moreover, the few Nigeria-focused studies concentrate on isolated institutional dimensions, providing only partial insights. This study addresses this gap by examining how a comprehensive institutional quality index, encompassing government effectiveness, regulatory quality, rule of law, and control of corruption, affects public debt accumulation in Nigeria from 1996 to 2023, thereby offering country-level evidence with direct policy relevance for fiscal sustainability.

The remainder of the paper is organized as follows. Section two reviews the relevant empirical literature on institutional quality and public debt accumulation. Section three outlines

the methodology employed in the analysis. Section four presents and discusses the empirical results, while Section five concludes the paper.

LITERATURE REVIEW

The bulk of the empirical literature examining the relationship between institutional quality and public debt accumulation is dominated by cross-country analyses, with relatively limited attention paid to country-specific dynamics. These studies generally emphasize that institutional quality plays a critical role in shaping fiscal outcomes, although the magnitude and direction of its effects often vary across regions and institutional contexts.

Tarek and Ahmad (2017) employed a generalized least squares (GLS) random-effects model to analyze the relationship between institutional quality and public debt in Middle East and North Africa (MENA) countries over the period 1996–2015. Using the public debt-to-GDP ratio as the dependent variable and incorporating macroeconomic controls alongside the six Worldwide Governance Indicators (WGIs), the study found that political stability, regulatory quality, rule of law, and voice and accountability significantly influenced debt accumulation, with weak institutional quality contributing to higher public debt. Similarly, Ali and Al Yahya (2019) examined Arab Gulf countries between 1996 and 2015 using GLS estimation. Their results revealed a generally negative relationship between public debt and institutional quality, as measured by the WGIs, with the exception of control of corruption.

Imaginario and Guedes (2020) investigated the relationship between public debt and institutional quality in a large sample of 164 countries from 2002 to 2015, distinguishing between low- and high-income economies. Using a generalized method of moments (GMM) approach, the authors found that aggregate institutional quality was negatively and significantly associated with public debt. At the disaggregated level, control of corruption, regulatory quality, and political stability reduced debt, while government effectiveness, rule of law, and voice and accountability were positively related to debt accumulation. Importantly, the study reported that strong institutions were associated with lower public debt in low-income countries, whereas the relationship differed in high-income economies.

Nguyen and Luong (2021) explored the effects of fiscal policy and institutional quality on public debt in 27 transition economies between 2000 and 2018 using ordinary least squares (OLS), random-effects, and two-step GMM estimators. Their findings indicated a positive and significant relationship between public debt and government effectiveness, regulatory quality, and rule of law, while control of corruption exhibited a negative effect. Political stability and voice and accountability were found to be insignificant, suggesting that the influence of institutions on debt may depend on the broader effectiveness of governance structures.

Focusing on Africa, Abotsi (2023) analyzed 48 African countries over the period 1996–2022 using GMM estimation. The results showed that regulatory quality, control of corruption, and government effectiveness exerted a negative effect on public debt accumulation, whereas the rule of law was positively related to debt levels. Cooray and Ozman (2024) extended the analysis by examining 27 European and 27 non-European countries between 2010 and 2022, applying logistic quantile regression and recentered influence function (RIF) methods. Their findings indicated that government effectiveness, regulatory quality, and voice and accountability affected public debt in both regions, while political stability and control of corruption were more effective in reducing debt in European countries than in non-European counterparts.

Rajabi and Ghaleh (2025) studied 15 OPEC member countries from 2004 to 2016 using dynamic panel data techniques. They found that political stability, regulatory quality, and control of corruption had a negative and significant impact on public debt, while voice and accountability, government effectiveness, and rule of law were insignificant. Similarly, Khalid, Qurat-ul-Ain, and Tanveer (2025), employing a two-step system GMM for 116 countries over the period 2000–2022, reported a significant negative effect of institutional quality—measured using principal component analysis—on public debt accumulation.

In contrast to the extensive cross-country evidence, country-specific studies remain relatively scarce. Mehmood et al. (2021) examined Pakistan using OLS and quantile regression methods and found mixed results across institutional dimensions, with regulatory quality, voice and accountability, and control of corruption positively related to public debt, while rule of law, political stability, and government effectiveness reduced debt. In a subsequent study on Japan, Mehmood et al. (2024) employed multiple time-series techniques and reported significant short- and long-run relationships between institutional quality and public debt, although the direction of effects varied across institutional indicators.

For Nigeria, the empirical literature is particularly limited. Fagbemi and Olatunde (2019) used an autoregressive distributed lag (ARDL) approach to examine the effect of corruption on public debt between 1996 and 2017, finding that corruption-related variables were insignificant in the long run but significant in the short run. Abdullahi and Jubril (2024) further analyzed the role of rule of law and control of corruption on public debt sustainability in Nigeria from 1993 to 2022 using threshold regression, showing that corruption increases public debt beyond certain thresholds, while stronger rule of law reduces debt levels.

Overall, the reviewed literature suggests that institutional quality is a key determinant of public debt accumulation, although its effects are context-specific and vary across institutional dimensions and levels of economic development. The dominance of cross-country studies

highlights the need for more country-specific analyses, particularly in developing economies such as Nigeria, where weak institutional frameworks may play a central role in driving debt accumulation. Generating such evidence is essential for designing context-appropriate policies aimed at achieving sustainable public debt management.

METHODOLOGY

Theoretical Framework

The theoretical linkage between institutional quality and public debt is grounded in institutional economics and fiscal sustainability theories. Weak institutional frameworks—characterized by poor control of corruption, ineffective governance, weak regulatory quality, and inadequate enforcement of the rule of law—are widely argued to foster fiscal indiscipline, macroeconomic instability, and ultimately unsustainable public debt. Romer (2018) formalized this argument by incorporating institutional quality into a fiscal framework that explains public debt accumulation. The central premise is that institutional weaknesses distort fiscal decision-making, undermine revenue mobilization, and encourage inefficient public spending, thereby increasing debt levels.

This theoretical proposition is supported by recent empirical evidence documenting a negative relationship between institutional quality and public debt accumulation (Tarek & Ahmad, 2017; Ali & Al Yahya, 2019; Abotsi, 2023). Accordingly, the coefficient of institutional quality is expected to be negative. Following Romer (2018), the relationship can be expressed as:

$$D_{i,t} = a + bWEAK_{i,t} + cX_{i,t} + e_{i,t} \quad (1)$$

Where: $D_{i,t}$ denotes the level of fiscal imbalance, proxied by gross government public debt as a ratio of GDP for country i at time t ; $WEAK_{i,t}$ represents institutional quality; $cX_{i,t}$ is a vector of control variables influencing public debt; and $e_{i,t}$ is the error term. The coefficient b is expected to be negative, reflecting the adverse effect of weak institutions on debt sustainability.

Guided by this framework and the extant empirical literature, the baseline empirical model for Nigeria is specified as:

$$\ln PD_t = \beta_0 + \beta_1 \ln INFLA_t + \beta_2 \ln GRV_t + \beta_3 \ln GEX_t + \beta_4 \ln GDPPC_t + \beta_5 IQI_t + \varepsilon_t \quad (2)$$

Where: $\ln PD$ is the natural logarithm of public debt; $\ln INFLA$ is the natural logarithm of inflation; $\ln GRV$ is the natural logarithm of government revenue; $\ln GEX$ is the natural logarithm of government expenditure; $\ln GDPPC$ is the natural logarithm of GDP per capita; IQI is the institutional quality index; E_t is the error term.

Data Source and Description

This study examines the effect of institutional quality on public debt accumulation in Nigeria using annual time-series data covering the period 1996 to 2023. The analysis is based on secondary data obtained from the World Development Indicators (World Bank) and the International Monetary Fund (IMF) databases.

The choice of the study period, 1996 to 2023, is based on the fact that it captures major structural shifts in Nigeria's economic and institutional landscape, including the transition to democratic governance, successive waves of fiscal and public sector reforms, debt restructuring initiatives, and the recent rise in public debt levels. These developments are closely tied to changes in institutional quality and macroeconomic management, making the period particularly suitable for the objectives of this study. Furthermore, the timeframe ensures adequate data availability and consistency, especially for institutional quality indicators drawn from the World Bank's Worldwide Governance Indicators (WGI) database, which provides harmonized and systematically revised estimates beginning from 1996.

Table 1: Description of Variables and Data Sources

Variable	Description	Source
Public debt (PD)	Central government debt as a percentage of gross domestic product (% of GDP).	IMF (2025)
Inflation rate (INFLA)	Consumer price index (annual %). It is expected to positively affect public debt.	WDI (2025)
Government revenue (GRV)	Government revenue as a percentage of gross domestic product (% of GDP). It is Expected to negatively relate to public debt	IMF (2025)
Gross Domestic Product per capita (GDPPC)	GDP per capita (constant 2010, LCU). It is expected to indirectly relate to public debt	WDI (2025)
Government expenditure (GEX)	Government expenditure as a percentage of gross domestic product (% of GDP). It is Expected to positively correlate to public debt	IMF (2025)
Institutional quality index (IQI)	The average of four institutional variables. (Control of corruption, rule of law, government effectiveness and regulatory quality). Estimates range from -2.5 (weak) to 2.5(strong)	WDI 2025)

Note: WDI – World Development Indicator (world bank); IMF – International Monetary Fund

Source: Author's computation, 2025.

In the empirical model, public debt is specified as the dependent variable, while the institutional quality index serves as the key explanatory variable. To control for macroeconomic conditions that may influence debt dynamics, the study further includes inflation, government revenue, government expenditure, and GDP per capita as control variables. With the exception of the institutional quality index, all variables are transformed into natural logarithms to ensure linearity, reduce heteroscedasticity, and improve interpretability of estimated coefficients. A detailed description of all variables, along with their respective data sources, is presented in Table 1 above.

Econometric Model/Technique

The study employs the Autoregressive Distributed Lag (ARDL) approach to examine both the short-run and long-run relationships between public debt, institutional quality, and selected macroeconomic variables in Nigeria. The ARDL methodology developed by Pesaran and Shin (1997) and Pesaran et al. (2001) is particularly suitable when the variables are integrated of order $I(0)$, $I(1)$, or a mixture of both, but not $I(2)$.

The ARDL specification corresponding to equation (2) is expressed as:

$$\Delta \ln PD_t = \phi + \sum_{j=1}^p \phi_j \Delta PD_{t-j} + \sum_{j=0}^{q_1} \beta_{1j} \Delta INFLA_{t-j} + \sum_{j=0}^{q_2} \beta_{2j} \Delta GRV_{t-j} + \sum_{j=0}^{q_3} \beta_{3j} \Delta GEX_{t-j} + \sum_{j=0}^{q_4} \beta_{4j} + \sum_{j=0}^{q_5} \beta_{5j} \Delta IQI_{t-j} + \theta PD_{t-1} + \omega_1 INFLA_{t-1} + \omega_2 GRV_{t-1} + \omega_3 GEX_{t-1} + \omega_4 GDPPC_{t-1} + \omega_5 IQI_{t-1} + \varepsilon_t \quad (3)$$

Where:

- $p, q_1, q_2, q_3, q_4, q_5$ are the respective optimal lag length of dependent and independent variables, chosen by information criterion.
- ε_t is the white noise error, assuming to be serially uncorrelated.
- $\phi_j, \beta_{1j}, \beta_{2j}, \beta_{3j}, \beta_{4j}, \beta_{5j}$ are the short-run coefficients at various lags ($j=1, 2, 3, \dots$)
- $\theta, \omega_1, \omega_2, \omega_3, \omega_4, \omega_5$ are the long-run coefficients.

Cointegration among the variables is tested using the ARDL bounds testing procedure by imposing the null hypothesis that all long-run coefficients are jointly zero (Pesaran et al., 2001). That is, the null hypothesis is stated as:

$$H_0: \theta = \omega_1 = \omega_2 = \omega_3 = \omega_4 = \omega_5 = 0$$

And the alternative as:

$$H_1: \theta \neq \omega_1 \neq \omega_2 \neq \omega_3 \neq \omega_4 \neq \omega_5 \neq 0$$

The Decision rule:

If the computed F-statistic is greater than the upper bound critical value, H_0 is rejected indicating the existence of a long-run relationship among the variables. However, if the computed F-statistic is less than the lower bound critical value, H_0 is accepted, indicating that the non-existence of a long run relationship among the variables. While if the F-statistics is in-between the lower and upper bounds, it is inconclusive.

Upon establishing cointegration, the short-run dynamics are estimated using the error correction model (ECM), which is then specified from equation (3) as follows:

$$\Delta \ln PD_t = \varphi + \sum_{j=1}^p \phi_j \Delta PD_{t-j} + \sum_{j=0}^{q_2} \beta_{1j} \Delta INFLA_{t-j} + \sum_{j=0}^{q_2} \beta_{2j} \Delta GRV_{t-j} + \sum_{j=0}^{q_3} \beta_{3j} \Delta GEX_{t-j} + \sum_{j=0}^{q_4} \beta_{4j} + \sum_{j=0}^{q_5} \beta_{5j} \Delta IQI_{t-j} + \psi ECT_{t-1} + \epsilon_t \quad (4)$$

Where, ECT_{t-1} is the error correction term derived from the long-run relationship; Ψ is the coefficient of the error term, which measures the speed of adjustment toward equilibrium, and it is expected to be negative and statistically significant, confirming convergence to the long-run equilibrium following short-run shocks.

EMPIRICAL RESULTS AND DISCUSSION

Descriptive Statistics

Table 2 presents the descriptive statistics of the variables used in the analysis. All series exhibit internal consistency, as their mean and median values lie within the respective minimum and maximum ranges. Each variable comprises 28 annual observations. The standard deviations are relatively low, ranging from 0.22 to 0.65, indicating limited dispersion and suggesting a reasonable degree of stability over the sample period. The Jarque–Bera normality test indicates that all variables are normally distributed at the 5 percent significance level, with the exception of the institutional quality index (IQI), whose probability value falls below the conventional threshold ($p < 0.05$). The departure from normality in IQI reflects its skewed distribution, which is not uncommon for governance indicators in developing economies.

Table 2: Descriptive Statistics

	<i>LNP</i>	<i>LNINFLA</i>	<i>LNGRV</i>	<i>LNGEX</i>	<i>LNGDPPC</i>	<i>IQI</i>
Mean	2.99	2.50	2.57	2.72	12.57	-1.02
Median	3.12	2.52	2.60	2.67	12.68	-1.03
Maximum	4.02	3.38	3.36	3.43	12.81	-0.26
Minimum	1.98	1.68	1.63	2.28	12.19	-1.3
Std. Dev.	0.65	0.40	0.49	0.27	0.22	0.18
Skewness	0.002	0.05	-0.14	0.77	-0.63	2.71
Kurtosis	1.63	2.71	1.85	3.26	1.83	13.74
Jarque-Bera	2.20	0.11	1.64	2.82	3.47	168.75
Probability	0.33	0.92	0.44	0.24	0.18	0.00
Sum	83.77	70.11	71.94	76.30	351.82	-28.69
Sum Sq. Dev.	11.37	4.24	6.49	1.91	1.33	0.85
Observations	28	28	28	28	28	28

Source: Author's computation from E-view 12, 2025.

Stationarity Test

The stationarity properties of the variables are examined using the Augmented Dickey–Fuller (ADF) unit root test, and the results are reported in Table 3. The findings reveal a mixed order of integration: some variables are stationary at levels [$I(0)$], while others become stationary after first differencing [$I(1)$]. Specifically, public debt (*LNP*), government revenue (*LNGRV*), and GDP per capita (*LNGDPPC*) are integrated of order one, whereas inflation (*LNINFLA*), government expenditure (*LNGEX*), and the institutional quality index (*IQI*) are stationary at levels. This mixed integration order justifies the application of the Autoregressive Distributed Lag (ARDL) approach and the associated bounds testing procedure to examine the existence of a long-run relationship among the variables.

Table 3: Augmented Dickey-Fuller Unit Root Test

Variables	t-statistics	p-value	status
<i>LNP</i>	-3.189828	0.0322	$I(1)$
<i>LNINFLA</i>	-3.911271	0.0061	$I(0)$
<i>LNGRV</i>	-5.013203	0.0005	$I(1)$
<i>LNGEX</i>	-3.922923	0.0276	$I(0)$
<i>LNGDPPC</i>	-3.854266	0.0309	$I(1)$
<i>IQI</i>	-4.250229	0.0029	$I(0)$

Source: Author's computation from E-view 12, 2025.

ARDL Bounds Test for Cointegration

The results of the ARDL bounds test for cointegration are presented in Table 4. The computed F-statistic (8.06) exceeds the upper bound critical value at the 1 percent level of significance. Consequently, the null hypothesis of no long-run relationship is rejected. This result confirms the existence of a stable long-run equilibrium relationship between public debt, institutional quality, and the selected macroeconomic and fiscal variables in Nigeria.

Table 4: ARDL Bound test for co-integration

Level of significance	F-Statistic value (K)	Lower Bound I(0)	Upper Bound I(1)
10%	8.06*** (5)	2.49	3.38
5%		2.81	3.76
2.50%		3.11	4.13
1%		3.5	4.63

Note: *** indicates 1% significant

Source: Author's computation from E-view 12, 2025.

ARDL Long-Run and Short-Run Estimation Results

Table 5 reports the estimated long-run and short-run coefficients from the ARDL model. Public debt is regressed as a function of institutional quality, inflation, government revenue, government expenditure, and GDP per capita. All variables, except the institutional quality index, are expressed in natural logarithms.

Long-Run Estimates

The long-run results indicate that institutional quality exerts a negative and statistically significant effect on public debt (-0.85 , $p < 0.05$). This finding implies that improvements in institutional quality reduce public debt accumulation in Nigeria, while weak institutional frameworks contribute to rising debt levels. The result is consistent with prior empirical evidence highlighting the debt-reducing role of strong institutions (Tarek & Al Yahya, 2019; Imaginario & Guedes, 2020; Abotsi, 2023; Khalid et al., 2025).

Regarding the control variables, inflation exhibits a negative but statistically insignificant effect on public debt in the long run. Although the sign deviates from a priori expectations, it suggests that inflation may erode the real value of debt, consistent with the arguments of Sargent and Wallace (1984), but does not play a decisive role in determining debt accumulation in Nigeria. Government revenue has a negative and highly significant long-run impact on public

debt (-2.05 , $p < 0.01$), indicating that enhanced revenue mobilization reduces fiscal deficits and reliance on debt financing. In contrast, government expenditure exerts a positive and significant effect on public debt (3.79 , $p < 0.01$), suggesting that sustained increases in public spending, particularly when not matched by revenue growth, intensify debt accumulation. This finding aligns with the evidence of Afonso and Jalles (2012). Thus, Government may resort to more borrowing when there is not sufficient revenue.

Furthermore, GDP per capita is found to have a negative and statistically significant effect on public debt in the long run (-4.88 , $p < 0.01$). This result implies that improved economic performance alleviates pressure on public debt. Government could generate more revenues as economic performance improves over time and invariably could reduce the reliance on debt financing. Similar findings have been reported by Bon (2015), Fagbemi and Olatunde (2019), and Naz and Yasmin (2021).

Table 5: Results of Estimated ARDL Model

Long-run Estimates				
Variables	coefficients	Std.Error	t-statistics	P-value
LNINFLA	-0.27	0.17	-1.63	0.127
LNGRV	-2.05***	0.43	-4.79	0.0004
LNGEX	3.79***	0.67	5.64	0.0001
LNGDPPC	-4.88***	0.57	-8.61	0.000
IQI	-0.85**	0.4	-2.12	0.0537
@TREND	0.1***	0.02	4.61	0.0005
Short-run Estimates				
C	40.99***	4.51	9.08	0.0000
D(LNGRV)	-0.6***	0.12	-5.02	0.0002
D(LNGRV(-1))	0.32***	0.1	3.03	0.0097
D(LNGEX)	0.71***	0.12	4.74	0.0004
D(LNGEX(-1))	-0.55***	0.19	-2.9	0.0124
D(IQI)	-0.14	0.1	-1.36	0.195
ECM(-1)	-0.71***	0.08	-9.08	0.000
R-squared	0.884726	Durbin-Watson Stat		1.995
Adjusted R-squared	0.848324			
F-statistic	24.3042			
Prob(F-statistic)	0.000			

Note: *, **, ***, indicate 10%, 5% and 1%, respectively.

Source: Author's computation from E-view 12, 2025.

Short-Run Estimates

The short-run dynamics in table 5 above, indicate that institutional quality has a negative but statistically insignificant effect on public debt as a percentage of GDP (-0.14 , $p > 0.05$), suggesting that institutional improvements influence debt outcomes primarily over the long term rather than in the short run. Among the control variables, changes in government revenue exert a negative and significant contemporaneous effect on public debt (-0.6 , $p < 0.05$), implying that increases in government revenue reduce borrowing needs, thus decreases public debt. However, the lagged effect of government revenue is positive and significant (0.32 , $p < 0.05$), indicating a partial reversal in subsequent periods. This pattern may reflect fiscal expansion following revenue windfalls, particularly those associated with oil price increases.

Government expenditure has a positive and significant contemporaneous effect (0.71 , $p < 0.05$) on public debt. This is consistent with theoretical expectations. Interestingly, its lagged coefficient is negative and significant (-0.55 , $p < 0.05$), indicating that it has debt reducing effect. This may possibly be due to repayment cycles or delayed revenue effects. The coefficient of the error correction term (ECM-1) is negative and highly significant (-0.71 , $p < 0.01$), confirming the presence of a stable long-run relationship. This indicates that approximately 71 percent of deviations from the long-run equilibrium are corrected within one year, reflecting a relatively rapid speed of adjustment following short-run shocks. The model exhibits strong explanatory power, with an R^2 of 0.88, implying that about 88 percent of the variation in public debt is explained by the included regressors. The overall model is statistically significant, (F-statistic 24.3042, $p < 0.05$) and no serial correlation with a Durbin-Watson statistic of 1.995.

Model Adequacy and Diagnostic Tests

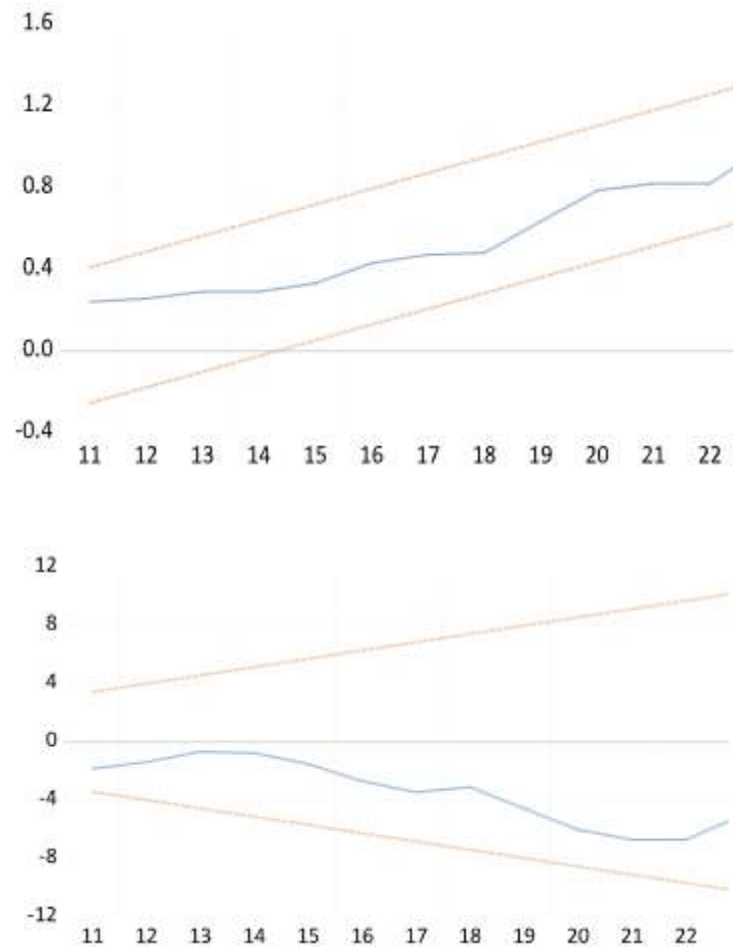
To ensure the robustness and adequacy of the estimated model, several post-estimation diagnostic tests are conducted, including tests for serial correlation, heteroskedasticity, normality, functional form misspecification (Ramsey RESET), and parameter stability (CUSUM and CUSUM of squares). The results, reported in Table 6 and illustrated in Figure 2, indicate that the model passes all diagnostic checks. There is no evidence of serial correlation or heteroskedasticity, the residuals are normally distributed, the functional form is correctly specified, and the parameters remain stable over the sample period. Overall, these diagnostic results confirm the reliability of the estimated ARDL model and the robustness of the empirical findings.

Table 6: Results of Post-estimation Tests

Breusch-Godfrey Correlation LM Test	Value	P-value
F-statistics	0.088037	0.9164
Obs*R-squared	0.40962	0.8148
Heteroskedasticity Test: Breusch-Pagan-Godfrey		
F-statistic	1.360313	0.2944
Obs*R-squared	14.47351	0.2715
Ramsey Reset Test		
t-Statistics	0.754512	0.4651
F-statistics	0.569288	0.4651
Jarque-Bera Normality Test		
	1.142352	0.56486

Source: Author's computation from E-view 12, 2025.

Figure 2: Cusum and Cusum of Squares



CONCLUSION

Summary of Findings

This study investigates the relationship between institutional quality and public debt accumulation in Nigeria over the period 1996 to 2023, employing the ARDL framework. The institutional quality index, composed of control of corruption, government effectiveness, rule of law, and regulatory quality, is the primary explanatory variable. Control variables include inflation, government revenue, government expenditure, and gross domestic product per capita.

Specifically, the empirical analysis reveals that institutional quality plays a critical role in public debt management in Nigeria. The institutional quality index, comprising control of corruption, government effectiveness, rule of law, and regulatory quality, exerts a significant negative impact on public debt in the long run, indicating that stronger institutions help restrain debt accumulation, although the effect is insignificant in the short run. Government revenue and GDP per capita also demonstrate negative and significant long- and short-run relationships with public debt, highlighting the importance of fiscal capacity and economic performance in reducing reliance on borrowing. Conversely, government expenditure exhibits a positive and significant effect, suggesting that rising spending, especially on recurrent and unproductive ventures, contributes to higher debt levels. Inflation, however, has a negative but statistically insignificant relationship with public debt, implying limited influence on debt accumulation. The error correction coefficient indicates that deviations from long-run debt equilibrium are corrected rapidly, with approximately 71% adjustment within a year, reflecting a strong capacity of the economy to respond to fiscal and institutional shocks. Overall, these findings underscore that sustainable public debt management in Nigeria requires strengthening institutional quality, improving revenue generation, controlling government spending, and fostering economic growth. Furthermore, rising public debt in Nigeria is driven by weak institutions, limited revenue capacity, increasing government expenditure, and broader economic performance challenges.

Policy Recommendations

Based on these findings, several policy implications emerge:

- **Institutional Reforms:** Strengthening institutional frameworks, particularly enhancing government effectiveness, enforcing the rule of law, improving regulatory quality, and controlling corruption, is essential to promote fiscal discipline and debt sustainability.
- **Revenue Mobilization:** Expanding the government's revenue-generating capacity through tax reform, broadening the tax base, and reducing leakages can reduce dependence on borrowing.

- Expenditure Management: Rationalizing government expenditure, prioritizing productive investments over recurrent or unproductive spending, and enforcing fiscal rules can mitigate public debt accumulation.
- Economic Diversification: Diversifying the economy away from over-reliance on oil and enhancing sectors that generate sustainable revenue can strengthen economic performance and reduce debt vulnerability.

Limitations of the Study

Despite its contributions, this study has some limitations:

- The use of a composite institutional quality index may obscure the specific impact of individual governance components on public debt.
- The analysis is restricted to Nigeria; therefore, the findings may not be fully generalizable to other developing countries with different institutional and economic contexts.
- Structural breaks, policy regime changes, or external shocks, such as oil price fluctuations, were not explicitly incorporated into the empirical model.
- The study relies on national-level data, which may mask subnational variations in institutional quality and debt management.

These limitations notwithstanding, the study offers robust empirical evidence on the role of institutional quality in shaping public debt dynamics in Nigeria and provides a useful foundation for future research and policy formulation.

Areas for Future Research

To build on the findings of this study, future research could:

- Examine the individual effects of each institutional component on public debt to identify which aspects of governance are most critical.
- Incorporate structural breaks and major fiscal or external shocks to assess how these events affect debt accumulation and institutional effectiveness.
- Explore the allocation of public debt across sectors and how institutional quality influences the productive use of borrowed funds.
- Investigate subnational variations within Nigeria to understand regional disparities in governance and debt management.
- Assess the long-term effectiveness of specific institutional reforms in enhancing fiscal discipline and reducing debt.

In conclusion, this study highlights the pivotal role of institutional quality in shaping public debt dynamics in Nigeria. The evidence indicates that weak governance structures, fiscal imbalances, and inefficient resource allocation contribute to unsustainable debt levels. Strengthening institutions, enhancing revenue mobilization, rationalizing government expenditure, and promoting economic diversification emerge as essential strategies for achieving fiscal sustainability. By fostering accountable and effective governance alongside sound economic management, policymakers can reduce debt vulnerabilities while supporting sustained economic growth. These findings underscore the need for integrated institutional and fiscal reforms to secure a resilient and fiscally stable economy.

REFERENCES

- Abdullahi, M. M., & Jubril, H. A (2024). Assessing the impact of institutional quality on public debt sustainability in Nigeria. *UMYUK Journal of Economics and Development (UJED)*, 1(1), 209-220.
- Abotsi, A., & 2023. Influence of governance indicators on public debt accumulation in Africa. *Journal of Economic and Administrative Sciences*, 40(2), 383-404.
- Afonso, A., & Jalles, J. T. (2012). Growth and productivity: The role of government debt. *International Review of Economics & Finance*, 25, 384-407. doi: <https://doi.org/10.1016/j.iref.2012.07.004>
- Ben Ali, T., & Al Yahya, B. (2019). The effect of governance on public debt: An empirical investigation for the Arabian Gulf countries. *Journal of Economics Studies*, 46(4), 812-841.
- Bon, N. V. (2015). The Relationship between public debt and inflation in developing countries: Empirical evidence based on difference panel GMM. *Asian Journal of Empirical Research*, 5(9), 102-116.
- Burriel, P., Checherita-Westphal, C., Jacquinot, P., Schon, M., & Stahler, N. (2020). Economic consequences of high public debt: Evidence from three large scale DSGE models. *European Central Bank Working Paper Series*, No 2450.
- Cerra, V., Rishi, M., & Saxena, S. (2008). Robbing the riches: Capital flight, institutions and debt. *Journal of Development Studies*, 44(8), 1190-1213.
- Cooray, A., Dzhumashev, R., & Schneider, F. (2017). How does corruption affect public debt? An empirical analysis. *World Development*, 90, 115–127., 90, 115-12
- Cooray, A., & Özmen, I. (2024). The role of institutions on public debt: A quantile regression approach. *International Review of Economics & Finance*, 93, 912-928. doi: <https://doi.org/10.1016/j.iref.2024.03.065>
- Dzhumashev, R. (2014). Corruption and growth: The role of governance, public spending, and economic development. *Economic Modelling*, 37, 202-215.
- Fagbemi, F., & Olatunde, O. (2019). Public debt spiral in Nigeria: Can a structural gap result from pervasive corruption? *American International Journal of Social Science Research*, 4(2)
- Fan, R. Y., Lederman, D., Nguyen, H., & Rojas, C. J. (2023). Calamities, Debt, And Growth in Developing Countries. *IMF Economic Review*, 1-21.
- Friedman, E., Johnson, S., Kaufmann, D., & Zoido-Lobaton, P. (2000). Dodging the grabbing Hand: The Determinants of Unofficial Activity in 69 Countries. *Journal Of Public Economics*, 76(3), 459-493.
- Furceri, D., & Zdzienicka, A. (2012). How costly are debt crises? *Journal of International Money and Finance*, 31(4), 726-742.
- Imaginário, J., & Guedes, M. J. (2020). Governance and government debt. *Risk Governance and Control: Financial Markets & Institutions*, 10(3), 34-49. doi:10.22495/rgcv10i3p3
- Jalles, J. T. (2011). The Impact of Democracy and Corruption on the Debt-Growth Relationship in Developing Countries *Journal of Economic Development*, 36(4), 41-55. doi: <https://doi.org/10.35866/caujed.2011.36.4.003>
- Jayaraman, T. K., & Lau, E. (2009). Does external debt lead to economic growth in Pacific Island countries. *Journal of Policy Modeling*, 31(2), 272-288.

International Monetary Fund (2025). Central government debt, global debt database - general government debt (imf.org).

International Monetary Fund (2025). Government Finance Statistics (imf.org).

International Monetary Fund (IMF), (2025). Government finance statistics (GFS) [Data set]. Washington DC

Khalid, Z., Qurat-ul-Ain, & Tanveer, H. (2025). Institutional quality and industrial employment: Key drivers of sustainability. *Review of Economic Trends*, 2(1), 90-102.

Kim, E., Ha, Y., & Kim, S. (2017). Public Debt, Corruption and Sustainable Economic Growth. *Sustainability*, 9(3), 1-30.

Lumpkin, S. (2009). Resolutions of weak institutions: Lessons learned from previous crises. *OECD Journal: Financial Market Trends*, 2, 1-42.

Mehmood, W., Mohd-Rashid, R., Aman-Ullah, A., & Ong, C. Z. (2021). Country-level institutional quality and public debt: empirical evidence from Pakistan. *Journal of Asian Finance Economics and Business*, 8(4), 21-32. doi: <https://doi.org/10.13106/jafeb.2021.vol8.no4.0021>

Mehmood, W., Mohd-Rashid, R., Aman-Ullah, A., Patwari, A. K., & Aman-Ullah, A. (2024). High public debt in Japan: The institutional quality perspective *International Journal of Business and Technopreneurship*, 14(1), 1-20.

Mehmood, W., Rashid, R. M., Khalid, A., Aman-Ullah, A., & Abbas, Y. A. (2022). Empirical analysis of country-level institutional quality and public debt: Perspective of South Asian countries. *Journal of Economic Cooperation & Development*, 43(1), 1-18.

Naz, M., & Yasmin, B. (2021). Corruption and Public Debt in Developing Countries: Role of Institutional Quality *Journal of Economic Cooperation and Development*, 42(3), 59-90.

Nguyen, T. A. N., & Luong, T. T. H. (2021). Fiscal policy, institutional quality, and public debt: Evidence from transition countries. *Sustainability*, 13(19), 10706. doi: <https://doi.org/10.3390/su131910706>

Nwala, M. N., & Saleh, A. D. (2021). A disaggregated analysis of the effect of domestic public debt on economic growth in Nigeria. *Journal of Economic and Allied Research*, 6(3), 14-29.

Ojeka, O. J., Egbetunde, T., Okoduwa, G. O., Ojeyode, A. O., Jimoh, M., & Ogunbowale, G. O. (2024). Moderating effect of institutional quality on the influence of debt on investment in sub-Saharan Africa *Future Business Journal*, 10(1). doi: <https://doi.org/10.1186/s43093-024-00362-0>

Okwoche, P., & Nikolaidou, E. (2022). Determinants of government debt in sub-Saharan African countries: the role of conflict, governance, and economic factors. *School of Economics Macroeconomic Discussion Paper Series, University of Cape Town, South Africa*

Özmen, İ., & Mutascu, M. (2023). Public Debt and Growth: New Insights. *Journal of the Knowledge Economy*, 1-31.

Pesaran, H., & Shin, Y. (1997). *An Autoregressive Distributed Lag Modeling Approach to Co-integration Analysis*. Cambridge, England.

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16, 289-326.

Rajabi, E., & Ghaleh, H. G. (2025). The Impact of Governance Quality on Public Debt Volume: OPEC Countries Evidence. *Journal of Exalted Governance*, 6(21).

Romer, D. (2018). *Advanced Macroeconomics*. New York, NY, USA: McGraw-Hill/Irwin

Sargent, T.J., & Wallace, N. (1984). Some Unpleasant Monetarist Arithmetic. In: Griffiths, B., Wood, G.E. (eds) *Monetarism in the United Kingdom*. Palgrave Macmillan, London. https://doi.org/10.1007/978-1-349-06284-3_2

Sebola, M. (2023). The Commissioner for Conciliation, Mediation and Arbitration Office in South Africa: Serving the Interest of the Powerful or the Powerless? *Journal of Governance Risk Management Compliance*. doi: <https://doi.org/10.31098/jgrcs.v3i2.1877>

Tarek, B. A., & Ahmed, Z. (2017). Governance and public debt accumulation: Quantitative analysis in MENA countries. *Economic analysis and policy*, 56, 1-13.

World Bank. (2025). *World development indicators (WDI)* [Data set]. Washington, D.C. <https://databank.worldbank.org/reports.aspx?source=World-Development-Indicators>.

Woo, J., & Kumar, M. S. (2015). Public debt and growth. *Economica*, 82, 705-739.