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Moderating Effect of Public Debt on the Relationship Between Government Expenditure and Economic Growth in Nigeria

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ABSTRACT: Nigeria's persistent challenge of reconciling increasing government expenditure with sluggish economic growth, compounded by a rapidly escalating public debt profile, formed the background motivation for this study. The main objective of this study was to examine the moderating effect of public debt on the relationship between government expenditure and economic growth in Nigeria. The study employed an ex-post facto research design utilizing secondary data collected from the Central Bank of Nigeria Statistical Bulletin for a period of forty years spanning 1985 to 2024. The population of the study comprised all annual economic data on government expenditure, public debt, and economic growth indicators in Nigeria during the study period. The Autoregressive Distributed Lag (ARDL) model was employed to analyze the time series data at 5% significance level. The findings revealed that public capital expenditure had a positive and statistically significant effect on economic growth, while public recurrent expenditure exerted a negative and statistically significant effect on economic growth in Nigeria. Furthermore, public debt was found to significantly weaken the growth-enhancing impact of capital expenditure, while marginally and positively moderating the relationship between recurrent expenditure and economic growth. It was recommended that government prioritize high-impact capital investments shielded from debt service pressures and rationalize recurrent expenditure to redirect fiscal space toward productive growth-enabling activities.

Keywords: Public Debt, Government Expenditure, Economic Growth, Capital Expenditure and Public Recurrent Expenditure

INTRODUCTION

Economic growth remains a paramount objective for developing economies, with government expenditure serving as a critical fiscal instrument for achieving sustainable development. In Nigeria, the relationship between governance expenditure and economic growth has generated substantial scholarly attention, particularly as the nation grapples with persistent developmental challenges despite significant public spending. Nnachi et al. (2023) examined the impact of government expenditure on economic growth in Nigeria from 1986 to 2021 using the Autoregressive Distributed Lag model, revealing that expenditures on education, health, transport and communications, pensions and gratuities exerted significant positive influence on economic growth in both short-run and long-run periods. However, their findings indicated that government spending on agriculture and roads showed positive short-run effects but remained inconsequential in the long-run, suggesting substantial sectoral variations in expenditure effectiveness. Similarly, Fasewa and Aderinto (2023)

demonstrated that government capital expenditure exhibited a significantly negative relationship with economic growth in the short run, while recurrent expenditure maintained a positive association with gross domestic product, with impulse response tests revealing these effects as temporary. These contrasting findings underscore the complexity inherent in the expenditure-growth nexus, prompting deeper investigation into potential moderating factors that may explain these persistent empirical inconsistencies. Nwachukwu et al. (2022) corroborated this complexity by establishing that government recurrent expenditure's positive effect on economic growth was minimal and statistically insignificant from 1981 to 2021, whilst Nnamocha and Anyanwu (2022) reported that government capital expenditure negatively impacted economic growth, whereas recurrent expenditure demonstrated positive effects during the 1981-2018 period. The divergent empirical evidence across different time periods and expenditure categories suggests that the governance expenditure-economic growth relationship may be contingent upon contextual factors beyond simple linear associations (Aniefor, Nduka, Ananwude & Ezeaku, 2021).

Despite extensive scholarly efforts to elucidate the expenditure-growth relationship, a critical gap persists regarding the moderating influence of public debt on this association within the Nigerian context. While Akobi et al. (2021) discovered that government expenditures on health and telecommunications positively and significantly affected economic growth from 1981 to 2019, with education and agriculture expenditures showing positive but insignificant effects using Johansen Cointegration and Error Correction Model, their analysis did not account for Nigeria's escalating debt profile as a potential moderating variable. Lubo and Bigbo (2021) investigated public expenditure effects on economic growth from 1981 to 2018, finding that government expenditures on transport and communication, defense, agriculture, education, and health exhibited negative but insignificant effects, yet acknowledged the omission of critical expenditure categories such as roads and construction. Akujuobi and Tony-Okolo (2023) advanced the discourse by analyzing government expenditure from 1981 to 2021, revealing through Autoregressive Distributed Lag modeling that health expenditure exerted positive significant long-run effects on GDP whilst education expenditure demonstrated negative significant impacts, concluding that expenditure allocation remained inappropriately channeled despite substantial budgetary commitments. Okwu et al. (2022) examined government education expenditure and human capital development from 1990 to 2020, demonstrating that both recurrent and capital expenditures on education had negative insignificant effects on gross secondary school enrollment rates. Poku et al. (2022) examined government expenditure impacts in Ghana from 1970 to 2016 using ARDL technique, establishing positive short-run relationships between government expenditure and economic growth. Mohamed et al. (2022) investigated education spending effects on economic growth in Egypt from 1960 to 2019 using GMM model, finding that economic growth had deleterious effects on education expenditure per student. Adeiza, et al (2024) investigates the moderating effect of public debt on the relationship between public spending on administration and economic growth in Nigeria. And their result was inconclusive because it doesn't touch the interactive variable being public debt. However, these scholars collectively failed to interrogate how Nigeria's burgeoning public debt stock which has reached unprecedented levels in recent fiscal years might moderate governance expenditure effectiveness in stimulating economic growth. The theoretical underpinnings suggest that excessive debt servicing obligations may constrain the productivity of government spending by diverting scarce resources from development projects to debt repayment,

potentially transforming growth-enhancing expenditures into economically neutral or counterproductive outlays. This study addresses this knowledge void by examining the moderating effect of public debt on the relationship between governance expenditure and economic growth in Nigeria. The study proposed the following null hypotheses to test the validity and reliability of the variables.

$H_0$1: Public capital expenditure has no significant effect on economic growth in Nigeria.

$H_0$2: Public recurrent expenditure has no significant effect on economic growth in Nigeria.

$H_0$3: Public debt has no significant effect on the relationship between public capital expenditure and economic growth in Nigeria.

$H_0$4: Public debt has no significant effect on the relationship between public recurrent expenditure and economic growth in Nigeria.

LITERATURE REVIEW

Economic Growth

Scholars increasingly scrutinize economic growth amid volatile global trends. Acemoglu (2024) contends that economic growth arises from institutional innovations boosting productivity and output per capita, critiquing stagnant regimes for stifling innovation. Manyika et al. (2022) assert it as GDP expansion adjusted for inflation, propelled by labor and capital productivity, yet warn of decoupling from net worth tripling since 2000 in advanced economies. Roser (2021) defines it as rising per capita production enabling better living standards, evidenced by sixfold global economy growth over 50 years via population and productivity surges. This paper adopts Manyika et al.'s (2022) definition as working, suiting Nigeria's context where GDP per capita stagnated post-2019 oil dips but edged 2.98% in 2023 amid reforms. Trends underscore fragility, with Nigeria contracting -1.8% in 2020 before rebounding, highlighting productivity's primacy for Sub-Saharan sustainability.

Government Expenditure

Government expenditure Government expenditure demands rigorous fiscal scrutiny in debt-prone economies. Musgrave (rev. ed., 2021; Anusi & Nduka, 2022) delineates it as public outlays on goods, services, and transfers stabilizing cycles and allocating resources efficiently. Barro (2020) posits it as recurrent and capital spending influencing growth multipliers, though crowding-out risks escalate beyond thresholds. Afonso and Jalles (2023) describe it as budgeted disbursements across sectors, with Nigeria's 2022 N17.1 trillion dominated by recurrent (70%), fueling inflation. This adopts Afonso and Jalles' (2023) as operational, mirroring Nigeria's trends where expenditure ballooned 25% yearly post-2019 yet yielded suboptimal growth due to leakages. Escalating trends, hitting N28.7 trillion in 2024, expose inefficiencies, as recurrent bias hampers capital formation amid revenue shortfalls.

Public Capital Expenditure

Public capital expenditure merits critical examination for its growth potential amid fiscal constraints. Ebipre and Eniekezineme (2020) contend that it constitutes payments acquiring fixed assets like infrastructure, yielding multi-year benefits unlike transient recurrent costs. Duruibe et al. (2023) posit it as strategic investments in long-term projects boosting productivity, yet lament Nigeria's low prioritization. Central Bank of Nigeria (2021) defines it as outlays on airports, dams, and railways, essential for economic multipliers. Trends reveal chronic underfunding; 2021 totals hit N2,522.5 billion (20% of N12,164.1 billion public spend), down from balanced 2000 shares (48% recurrent gap). Post-2019 oil slumps exacerbated skews, with 2023 allocations at N5.8 trillion amid infrastructure deficits hindering GDP. Eyisi (2024) critiques

execution inefficiencies, as average ₦1,351 billion (1981-2022) peaks at ₦3,982 billion rarely sustain gains. Oil downturns since 2014 prompted recurrent surges, averaging 75-80% budgets, crowding out capital. Recent data shows 2024 hikes to 30% targets under reforms, yet leakages persist, underscoring monitoring needs for Sub-Saharan contexts. Advocates urge reallocation, as ARDL models affirm positive GDP impacts when robustly implemented (Ogunewe, Ananwude & Nduka, 2020).

Public Recurrent Expenditure

Public recurrent expenditure refers to the regular, non-capital outlays governments make on items such as personnel costs, overheads, transfers, subsidies, and day-to-day operations of public services (Ubesie et al., 2024; Ekwunife, Nduka & Ogini, 2022). In Nigeria, recurrent spending has consistently outpaced capital outlays, with the 2019 federal budget allocating about 40 percent of total expenditure to recurrent activities, including salaries, pensions, and goods and services (Iheanacho, 2016).

Between 2017 and 2019, recurrent expenditure on general administration surged from ₦564.42 billion to ₦847.57 billion, while recurrent outlays on defence rose from ₦442.15 billion in 2018 to ₦588.9 billion in 2019. These trends indicate that reforms such as the Integrated Personnel and Payroll Information System (IPPIS) have failed to suppress personnel-driven recurrent costs, as analyses of 1995–2019 data show a statistically significant increase in mean recurrent expenditure on education, defence, and health after IPPIS adoption (Ubesie et al., 2024). Researchers further argue that despite declining ghost-worker leakages, opaque allocation practices and rising wage bills have entrenched recurrent expenditure above desired levels, constraining fiscal space for growth-enhancing capital projects (Abiodun & Anichebe, 2019; Nduka, Ananwude & Osakwe, 2019).

Public Debt (as the Moderating Variable)

Public debt demands vigilant analysis as a fiscal-growth conditioner. Okezie and Ujah (2025) define it as aggregated domestic-external liabilities financing deficits, with Nigeria's bidirectional causality to GDP. Oladipo et al. (2020) portray it as borrowings spurring activity, yet overhang risks beyond 26% debt/GDP. As moderator, it reshapes expenditure impacts; administrative spending gains significance when debt-moderated, transfers lose efficacy. Trends alarm; domestic debt leaped ₦8,837 billion (2015) to ₦142,272 billion (2019), external ₦2,111 to ₦9,022 billion amid stagnant growth. Post-2019 COVID stimuli propelled totals to ₦97 trillion (2024), servicing devouring 96% revenues by 2023. VAR confirms co-integration, long-run negatives persisting.

Adewale and Adeyemo (2024) critique inflation-debt spirals eroding private investment. In moderation roles, 27% RGDP variance ties to protective spends via debt, per regressions. Nigeria's thresholds amplify low-debt positives but invert highs, crowding credit. Empirical adoption here tests non-linearities, as VECM unveils causality directions favoring cautionary policies. Sustainable caps below 55% GDP are imperative for amplification effects in emerging markets (Nduka, Atueyi, Osakwe & Mbanefo, 2021)

Empirical Review

Nnachi et al. (2023) examined the impact government expenditure on economic growth in Nigeria from 1986 to 2021. The Autoregressive distributed lag (ARDL) model was used to analyze time series data from the statistical bulletin. The results showed that government expenditures on education, health, transports and communications, and pensions and gratuities had significant positive influence on economic growth in both the short-run and the long-run. In contrast, the results indicated

that government spending on agriculture, and roads and constructions exerted positive and significant impact on economic growth in the short-run but inconsequential in the long-run.

Fasewa and Aderinto (2023) examined the effect of government expenditure on economic growth in Nigeria. The study also examined the response of economic growth to changes in government expenditure in Nigeria. Secondary data collected from the Central Bank of Nigeria Statistical Bulletin was employed for a period of thirty-eight years (i.e. 1981-2019). The Auto Regressive Distributed Lag technique was employed. For the first model explaining government capital expenditure, short run estimates reveal that in the current period, government capital expenditure has a significantly negative relationship with economic growth. For government recurrent expenditure, it was established that government recurrent expenditure has a positive relationship with economic growth. The impulse response test used in analyzing the effect of an unanticipated change in government expenditure (capital and recurrent) on economic growth shows that the effects of the change in both cases are temporary as they are seen to revert to the mean.

Okwu, et al (2022), examined the effect of government education expenditure and human capital development in Nigeria from 1990 to 2020. The dependent variable in the analysis was gross secondary school enrolment rate, the independent variables were recurrent and capital expenditure on education, and the control variable was recurrent expenditure on health. Using the Autoregressive Distributed Lag Model (ARDL), their study showed that recurrent expenditure on education and capital expenditure on education had negative insignificant effects on gross secondary school enrolment rate while recurrent expenditure on health had a positive but insignificant effect. However, the independent variables had joint effects on the dependent variable.

Nnamocha and Anyanwu (2022) studied government expenditure and performance of selected macroeconomic variables, Economic growth) in Nigeria from 1981 to 2018. The study made use of annual data sourced from the Central Bank of Nigeria Statistical Bulletin (2018 edition). Three models were formulated using government expenditure which was disaggregated into two components; government capital expenditure and government recurrent expenditure as independent variables for each of the selected macroeconomic variables, economic growth was the dependent variable in the three models. Error Correction model was used in analyzing the data. The findings showed that government capital expenditure had negative impact on economic growth. On the other hand, government recurrent expenditure had positive effect economic growth.

Theoretical Framework

The study is anchored on Public Choice Theory, pioneered by James Buchanan and Gordon Tullock in the 1960s, it applies economic principles and methodologies to political decision-making processes, treating government actors as self-interested utility maximizers rather than benevolent social welfare optimizers. In the context of public debt and government expenditure, Public Choice Theory suggests that politicians and bureaucrats may favor deficit financing and excessive borrowing because the benefits of increased spending accrue immediately while the costs of debt repayment fall on future generations. Empirical evidence regarding government expenditure patterns in Nigeria reveals dynamics consistent with Public Choice predictions about political incentives shaping fiscal decisions. Oligbi (2024) examined government expenditure and public debt in Nigeria, finding that rising debt levels coincide with expanding government size, consistent with Public Choice predictions that political actors have systematic incentives to grow the public

sector beyond socially optimal levels. The study revealed that government expenditure patterns often fail to align with productivity-enhancing investments, reflecting political rather than economic optimization criteria. Nguyen and Bui (2022) analyzed the role of corruption control in the impact of government expenditure on economic growth using data from 16 Emerging Markets and Developing Economies in Asia. Their findings revealed that government expenditure and corruption control both negatively impacted growth when examined independently, but the interaction between government expenditure and corruption control reduced the negative impact of these factors. However, the present study's examination of how public debt moderates the governance expenditure-growth relationship engages directly with Public Choice predictions about political economy influences on fiscal outcomes. The theory suggests that the relationship between government spending and growth is moderated not just by debt levels but also by the quality of political institutions, the effectiveness of accountability mechanisms, and the extent to which rent-seeking behavior diverts resources from productive uses.

METHODOLOGY

The study employed an ex-post facto research design, which is appropriate for research situations where the independent variables have already occurred, and the researcher seeks to examine their impact on the dependent variable without manipulating the study environment. Secondary data collected from the Central Bank of Nigeria Statistical Bulletin was employed for a period of forty years (i.e. 1985 to 2024). The population of the study comprised all annual economic data on governance expenditure, public debt, and economic growth indicators in Nigeria during the study period. The study employed The Autoregressive distributed lag (ARDL) model was used to analysze time series data from the statistical bulletin to examine the relationship between governance expenditure, public debt, and economic growth in Nigeria. In line with the previous researches. The study adapts Akaegbobi and Nwosu (2025), in determining the effect of government expenditure on the economic growth of Nigeria. The model specification is:

$$GDPt=\beta0+\beta1CAPEXt+\beta2RECURt+\beta3TOTEXt+\epsilon t _____ i$$

The model is modified and expressed as:

$$LEGt=\beta0+\beta_1LPCEt+\beta_2L\ PREt+\beta_3LPDt+\beta_4(LTPCE\times LPD)t+\beta_5(LPRE\times LPD)t+\epsilon t \text{----------} ii$$

Where:

EG = Economic Growth

EE = Public Capital Expenditure

SE = Public Recurrent Expenditure

PD = Public Debt

β_1 = Coefficient

β_0 = Constant

ϵ = Error Term

t = Time t

L= log

Measurement of Variables

Variable	Proxies	Measurement	Source
Dependent Variable	Economic Growth (EG)	Natural logarithm of the total market value of goods and services at constant market prices	Fix, Nitzan & Bichler, (2019); Dore (2022); Samuel and Lawrence (2021)
Independent Variable	Public Capital Expenditure (PCE)	Total government spending on infrastructure, development projects, and long-term investments	Mensah & Adukpo, (2025)
	Public Recurrent Expenditure (PRE)	Sum of money spent on sectors e.g Education, Health and transportation	Mensah & Adukpo, (2025)
Moderating Variable	Public Debt (PD)	Total outstanding government debt, including domestic and external borrowings, measured in natural logarithm of national currency values	Debt Management Office (DMO, 2023); Central Bank of Nigeria (2023)

Source: Researcher Compilation 2025

RESULTS AND DISCUSSIONS

Descriptive Statistics

	LEG	LPCE	LPRE	LPD	LPD_LPCE	LPD_LPRE
Mean	9.244419	5.761840	6.549741	7.202715	44.24304	50.50935
Median	9.649525	6.231761	7.099604	6.866596	45.55972	50.30549
Maximum	12.34546	9.045328	9.867216	11.16068	95.43825	110.1248
Minimum	5.101146	1.698309	2.025038	2.850741	4.841440	5.772860
Std. Dev.	2.320300	1.958504	2.310563	1.758842	22.21111	26.43908
Skewness	-0.416322	-0.563989	-0.402771	-0.026405	0.269011	0.343903
Kurtosis	1.836210	2.531180	2.021023	3.079596	2.698456	2.508781
Jarque-Bera	3.412841	2.486878	2.678823	0.015207	0.633993	1.190621
Probability	0.181514	0.288391	0.262000	0.992425	0.728333	0.551391
Sum	369.7768	230.4736	261.9897	288.1086	1769.722	2020.374
Sum Sq. Dev.	209.9679	149.5937	208.2093	120.6475	19240.01	27261.97
Observations	40	40	40	40	40	40

Source: E-Views 10.

The descriptive statistical results display average values of 9.244419 for economic growth, 5.761840 for Public capital expenditure, 6.549741 for Public recurrent expenditure, 7.202715 for public debt, 44.24304 for public debt * Public capital expenditure and 50.50935 for public debt * Public capital expenditure. The data shows an abnormal distribution confirmed through Jarque-Bera probabilities, which are all greater than 0.05 (5%), not supporting data normality.

Summary of unit root test

At Level Variables	ADF Statistics	5% Critical Value	At First Difference ADF Statistics	5% Critical Value	Order of Integration
LPCE	-2.152505	-2.938987	-4.511747	-2.941145	I(1)
LPRE	-1.738208	-2.938987	-8.472259	-2.941145	I(1)
LPD	-0.803596	-2.941145	-4.179008	-2.941145	I(1)
LEG	-2.861897	-2.938987	-3.488633	-2.941145	I(0)
LPD_LPCE	-1.049633	-2.938987	-4.958144	-5.792020	I(1)
LPD_LPRE	0.815958	-2.938987	-4.817821	-2.941145	I(1)

Source: Eview 10, Output 2025

The ADF unit root test results at 5% significance level show mixed orders of integration among the variables. economic growth (LEG) are integrated at level order I(0), becoming stationary at level with ADF statistics of -2.861897, which are more negative than the critical value of --2.938987. Public capital expenditure (LPCE), Public recurrent expenditure (LPRE), public debt (LPD), LPD_LPCE and LPD_LPRE are integrated at order I(1), indicating they are stationary at first difference.

F-Bounds Test to Cointegration Result

Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	10.26179	10%	2.08	3
k	5	5%	2.39	3.38
		2.5%	2.7	3.73
		1%	3.06	4.15

Source: ARDL Cointegration Output using Eviews 10

Result of cointegration in Table above shows that a long run relation exists between the dependent and independent variables because the value of the F-statistic which is 10.26179 is greater than the 5% upper bound critical value of 3.73. We therefore reject H_0 and accept H_1 and conclude that there is cointegration among the variables. The study therefore estimated both short run and long result since cointegration is dictated.

Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.078576	Prob. F(24,11)	0.1031
Obs*R-squared	29.49602	Prob. Chi-Square(24)	0.2020
Scaled explained SS	4.295959	Prob. Chi-Square(24)	1.0000

Source: Researcher's computation using Eviews 10

The Breusch-pagan-Godfrey test result indicate that the probability values greater than 5% (F-statistic: 0.1012, Chi-Square: 0.0965), we fail to reject the null hypothesis of homoskedasticity. This indicates that heteroskedasticity is not a significant concern in the model. The panel regression estimate is efficient and the standard errors are reliable

Multicollinearity Test

Variance Inflation Factors

	Coefficient	Uncentered	Centered

Variable	Variance	VIF	VIF
LEG(-1)	0.066387	122145.9	5.825362
LPCE	0.040505	32098.29	5.989186
LPCE(-1)	0.180487	138742.2	9.535980
LPRE	0.038851	39997.73	2.885792
LPRE(-1)	0.060812	59688.10	6.089459
LPD	0.037350	43088.98	9.624147
LPD(-1)	0.037658	41391.05	8.664134
LPD(-2)	0.032929	34585.89	9.450111
LPD_LPCE	0.000442	23292.74	3.760200
LPD_LPCE(-1)	0.002715	134431.2	2.530332
LPD_LPRE	0.000608	42491.80	5.819658
LPD_LPRE(-1)	0.001447	91692.45	1.571436
C	0.217605	4245.798	NA

Source: Researcher's computation using Eviews 10

Based on the table above, the multicollinearity test revealed that all centered VIF mean values above benchmark of 10. As a result, we reject the null hypothesis and determine that the independent variables has multicollinearity. This finding validates the correlation coefficients.

ARDL Long Run Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LPCE	1.730861	0.672230	2.574805	0.0258
LPRE	-0.062947	0.629739	-0.099958	0.9222
LPD	0.337537	0.098383	3.430845	0.0056
LPD_LPCE	-0.217943	0.096865	-2.249964	0.0459
LPD_LPRE	0.135489	0.089743	1.509741	0.1593
C	0.446494	0.740390	0.603053	0.5587

Source: Researcher's computation using Eviews 10

The ARDL long-run results show that public capital expenditure (LPCE) has a significant positive effect on economic growth with a coefficient of 1.730861 ($p=0.0258 < 0.05$), public Recurrent expenditure (LPRE) has a negative and insignificant effect on economic growth with a coefficient of -0.062947 ($p=0.9222 > 0.05$), Public debt (LPD) alone shows a significant effect ($p=0.0056 < 0.05$). However, the interaction terms reveal that public debt has a negative and significant effect in moderating public capital expenditure and it positively and insignificantly moderates the LPRE-growth relationship (coefficient= -0.135489, $p=0.1593 > 0.05$).

ARDL Short Run Result (Dependent Variable: EG)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LEG(-2))	0.209075	0.085044	2.458427	0.0318
D(LPCE)	0.995186	0.097436	10.21369	0.0000
D(LPCE(-2))	-0.797855	0.119120	-6.697922	0.0000
D(LPRE)	-0.559200	0.088487	-6.319568	0.0001
D(LPRE(-2))	-0.352897	0.057490	-6.138400	0.0001
D(LPD)	0.716092	0.080259	8.922286	0.0000
D(LPD_LPCE)	-0.102025	0.010158	-10.04423	0.0000

D(LPD_LPCE(-2))	0.116350	0.015692	7.414834	0.0000
D(LPD_LPRE)	0.072375	0.011648	6.213347	0.0001
D(LPD_LPRE(-2))	-0.092616	0.013426	-6.898452	0.0000
CointEq(-1)*	-0.611229	0.058012	-10.53631	0.0000
R-squared	0.954054			
Adjusted R-squared	0.905405			
Durbin-Watson stat	1.962263			

Source: Researcher's computation using Eviews 10

The short-run ARDL results reveal statistically significant relationships across all four study objectives at the 5% decision rule. For Objective i, the coefficient of D(LPCE) is 0.995186 with a prob. value of 0.0000, indicating that public capital expenditure exerts a strong, positive, and statistically significant effect on economic growth in Nigeria in the short run. Its second lag, D(LPCE(-2)), however, returns a coefficient of -0.797855 (prob. = 0.0000), suggesting a delayed negative reversal. For Objective ii, D(LPRE) records a coefficient of -0.559200 (prob. = 0.0001), and its second lag D(LPRE(-2)) shows -0.352897 (prob. = 0.0001), both confirming that public recurrent expenditure has a negative and statistically significant effect on economic growth in the short run, leading to the rejection of the null hypothesis. Concerning Objective iii, the interaction term D(LPD_LPCE) has a coefficient of -0.102025 (prob. = 0.0000), indicating that public debt significantly dampens the positive contribution of capital expenditure to economic growth. For Objective iv, D(LPD_LPRE) yields a coefficient of 0.072375 (prob. = 0.0001), confirming that public debt positively and significantly moderates the relationship between recurrent expenditure and economic growth, resulting in the rejection of all four null hypotheses.

The model demonstrates strong explanatory power, with an R-squared of 0.954054, meaning approximately 95.4% of the variation in economic growth is explained by the included regressors. The Adjusted R-squared of 0.905405 confirms this robustness even after accounting for the number of predictors, establishing that 90.5% of the variation is attributable to the independent variables, which validates the model's reliability. The Durbin-Watson statistic of 1.962263 is approximately 2, falling within the acceptable range of 1.5 to 2.5, thereby confirming the absence of first-order serial autocorrelation in the residuals and affirming the efficiency of the estimates.

Discussion of Findings

The findings are discussed in alignment with the four specific objectives of the study and compared with related empirical reviews. Public capital expenditure has a positive and significant short-run effect (coefficient = 0.995186, prob. = 0.0000). This finding is consistent with Ebi and Ibe (2019) and Onuoha and Okorie (2020) found a positive and significant relationship between capital expenditure and economic growth in Nigeria; Abdulazeez (2021), who confirmed that government capital expenditure is a significant predictor of GDP growth. However, these studies differ from the present study in that they did not incorporate the moderating role of public debt in the capital expenditure–growth nexus, used different methodologies such as OLS and ECM without ARDL bounds testing, focused on sectoral disaggregation rather than aggregate capital expenditure, and examined cross-country or broader macroeconomic contexts. Conversely, Public recurrent expenditure has a negative and significant short-run effect (coefficient = -0.559200, prob. = 0.0001). This corroborates Fasewa and Aderinto (2023) whose ARDL estimates showed a mixed relationship between recurrent and capital

expenditure and growth, and Nwachukwu et al. (2022), who found that recurrent expenditure had a minimal and insignificant positive effect on growth, suggesting largely ineffective recurrent spending in Nigeria.

Public debt serving as the moderating variable of capital expenditure has a negative and significant moderation (coefficient = -0.102025, prob. = 0.0000), indicating that rising public debt weakens the growth-enhancing impact of capital expenditure. This finding is related to Chukwuemeka (2022), who showed that capital expenditure has a negative and significant impact on economic growth in a debt-laden context, and Saraireh (2020), whose study confirmed that a long-run negative relationship exists between government spending and economic growth when fiscal constraints are present. However, public debt which moderate recurrent expenditure revealed a positive and significant interaction (coefficient = 0.072375, prob. = 0.0001), suggesting that public debt amplifies the limited effect of recurrent expenditure on growth. This finding partly aligns with Nnamocha and Anyanwu (2022) and Utip et al. (2022), who found that recurrent expenditure had a positive effect on economic growth. The gap this present study fills is uniquely significant: while prior studies examined either capital or recurrent expenditure in isolation, none explicitly introduced public debt as a moderating variable between governance expenditure and economic growth in Nigeria using the ARDL framework with interaction terms, providing more nuanced and policy-relevant insights on how indebtedness conditions the fiscal expenditure–growth relationship in Nigeria.

CONCLUSION

The study set out to examine the moderating effect of public debt on the relationship between governance expenditure and economic growth in Nigeria, addressing four specific objectives. From the short-run ARDL results, the study concludes that public capital expenditure exerts a strong positive and statistically significant effect on economic growth in Nigeria, confirming that productive capital investments in infrastructure and development drive short-run economic expansion. It is further concluded that public recurrent expenditure has a negative and statistically significant effect on economic growth, suggesting that the bulk of government recurrent spending in Nigeria is largely unproductive and fails to translate into meaningful economic output, reflecting the well-documented inefficiency in Nigeria's public wage bills and administrative overhead. Concerning the moderating role of public debt, the study concludes that public debt significantly weakens the growth-enhancing impact of capital expenditure, implying that debt-financed capital projects are being eroded by the burden of debt servicing obligations, which crowd out the productive gains that capital expenditure would otherwise generate. It is also concluded that public debt positively moderates the relationship between recurrent expenditure and economic growth, indicating that debt-financed recurrent spending provides short-run stimulus to growth, which is insufficient to justify continued deficit-financed recurrent commitments. Overall, the study concludes that while capital expenditure remains a critical lever for economic growth, its effectiveness is significantly conditioned by the level of public indebtedness, and that Nigeria's growing public debt profile poses a structural threat to the fiscal expenditure-growth transmission mechanism.

It is recommended that the Nigerian government prioritize the channeling of capital expenditure into high-impact infrastructure projects with measurable returns, while instituting strong public financial management frameworks to ensure that capital budgets are fully implemented and shielded from debt service pressures, as this will restore and sustain the positive growth dividend of capital spending. It is

further recommended that government rationalize and restructure recurrent expenditure by drastically reducing administrative overheads, rightsizing the public sector wage bill, and redirecting freed fiscal space toward growth-enabling investments, since the persistently negative effect of recurrent spending on economic growth signals an urgent need for expenditure composition reforms that align public spending with productive economic outcomes in Nigeria.

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