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Budget Credibility, Deficit Control and Real GDP Growth in Nigeria: A Short-Run Mediation Analysis

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Abstract

This study investigates the short-term relationship between budget credibility, deficit control, and real GDP growth in Nigeria, with a particular focus on whether deficit control mediates the nexus between budget credibility and growth. Utilizing annual data spanning from 1995 to 2024, the study employs ARDL mediation models, accounting for lagged real GDP growth and fluctuations in oil prices. The indirect effect is evaluated through 5,000 nonparametric bootstrap replications. The findings indicate that budget credibility is positively correlated with deficit control, although this relationship is only marginally significant at the 10% level. While deficit control exhibits a positive association with real GDP growth, this relationship is not statistically significant. Furthermore, the direct and total effects of budget credibility on growth are negative and statistically insignificant. The estimated indirect effect is positive but minimal, with both the percentile and bias-corrected and accelerated 95% bootstrap confidence intervals encompassing zero. Consequently, the study finds no statistically significant evidence that deficit control mediates the short-term relationship between budget credibility and real GDP growth. The results imply that enhanced fiscal forecasting, credible budget implementation, and growth-sensitive deficit management could potentially improve fiscal discipline and support long-term macroeconomic stability.

Keywords: Budget credibility; deficit control; real GDP growth; fiscal discipline; mediation analysis; Nigeria; bootstrap.

1. Introduction

Fiscal policy serves as a crucial tool for influencing macroeconomic performance, especially in developing economies, where decisions regarding public expenditure, revenue mobilisation, and borrowing significantly impact aggregate demand, investment, and macroeconomic stability (Islam et al., 2025, Nwawube et al., 2025). In Nigeria, the annual budget is the primary mechanism for translating fiscal objectives into expenditure commitments, revenue plans, and financing strategies. However, the effectiveness of fiscal policy is contingent not only on the budget's size or composition but also on the credibility of the underlying assumptions and targets(Lawal & Afolabi, 2024; Nwawube et al., 2025). Budget credibility is determined by

whether the approved revenue, expenditure, and fiscal balance projections are realised. Realistic fiscal plans enhance predictability, reduce financing uncertainty, and bolster household, firm, and investor confidence. Persistent gaps between planned and actual fiscal outcomes can undermine fiscal policy benefits, regardless of the original budget design quality (Islam et al., 2025; Nnah Ugoani, 2022; Sherov, 2021).

The short-run dimension of budget credibility is relevant in Nigeria because annual fiscal plans are affected by oil price fluctuations, oil production disruptions, exchange rate pressures, revenue underperformance, delayed budget approval, and implementation constraints. (Khalid, 2025; Lawal & Afolabi, 2024)These shocks can alter fiscal outcomes within a budget cycle and create financing pressures. Where projected revenues fall below expectations, the government may adjust spending, defer projects, increase borrowing, or allow the fiscal deficit to exceed the planned levels. Thus, budget credibility and real GDP growth may be partly linked through the government's ability to control deficit outcomes during the fiscal year.Deficit slippage is a manifestation of budget implementation weakness when the realised fiscal deficit diverges from the approved target or statutory fiscal rule. The Fiscal Responsibility Act of 2007 set a federal government deficit ceiling of 3% of GDP. Despite this framework, Nigeria has experienced fiscal deficits, revenue shortfalls, and reliance on debt financing (Lawal & Afolabi, 2024; Nwawube et al., 2025), making deficit control crucial. Credible revenue and expenditure projections may reduce financing gaps and align spending with the available resources. Unrealistic forecasts and weak expenditure control may generate borrowing, delayed payments, and larger deficit.

Improved fiscal discipline can reduce macroeconomic uncertainty, ease debt service burdens, and preserve fiscal space for productive expenditures. Nevertheless, its impact is not consistently positive across all periods(Fotiou, 2020). Fiscal adjustments that involve abrupt reductions in capital expenditure, delayed contractor payments, or cuts in counter-cyclical spending may impede short-term growth. In contrast, adjustments achieved through enhanced non-oil revenue mobilisation, reduced expenditure leakages, and improved allocation efficiency may be better aligned with growth objectives. Therefore, the short-term growth effects of deficit control depend on the composition and timing of fiscal adjustments, rather than solely on the deficit level.(Georgantas et al., 2022)

Empirical evidence on fiscal policy, deficits, and growth in Nigeria is mixed. Existing studies have largely examined budget deficits, public debt, government expenditure, and economic growth as direct relationships or competing determinants of macroeconomic performance (Amade & Oyigebe, 2024; Ohiaeri, 2020; Osadola et al., 2023). Some studies report weak or statistically insignificant relationships between fiscal variables and real GDP growth, whereas others suggest that fiscal effects depend on the magnitude, composition, and financing of deficits (Afolabi, 2024; Lawal & Afolabi, 2024; Nwawube et al., 2025). A Central Bank of Nigeria study, for example, indicates that fiscal deficits may support growth only below a threshold of 2.02% of GDP. However, this literature gives limited attention to the credibility of the budget process that precedes fiscal outcomes.

Existing Nigerian studies infrequently investigate whether deficit control functions as a mechanism linking budget credibility and economic growth. Examining budget credibility, deficits, and growth solely as direct relationships fails to determine whether credible fiscal planning influences growth by mitigating deficit slippage and enhancing fiscal discipline. This represents a notable gap in a context marked by ambitious revenue projections, implementation shortfalls, periodic borrowing pressure, and susceptibility to oil-related shocks. Furthermore, it is crucial to differentiate between the immediate annual effects and the longer-term institutional impacts. Enhancements in budget credibility may not yield statistically significant output gains within a single year, as their advantages may gradually manifest through improved public investment efficiency, debt sustainability, expenditure quality, reduced fiscal risk, and increased private-sector confidence.

This study addresses this gap by examining the short-run relationship between budget credibility, deficit control, and real GDP growth in Nigeria using annual data for 1995–2024. Specifically, it estimates the direct and total short-run associations between budget credibility and real GDP growth and tests whether deficit control mediates this relationship. The analysis incorporates lagged real GDP growth to account for growth persistence and changes in oil prices to reflect Nigeria's exposure to oil-related fiscal and macroeconomic shocks.

This study makes two primary contributions. First, it redirects the focus from fiscal deficit levels to the credibility of the budget process that underlies short-term fiscal outcomes. Second, it employs a 5,000-replication nonparametric bootstrap mediation procedure to estimate the indirect effect of budget credibility on real GDP growth via deficit control. Consequently, this study provides evidence regarding whether deficit control significantly mediates the short-term relationship between budget credibility and real GDP growth in Nigeria without interpreting the estimated relationships as causal evidence.

2.0 LITERATURE REVIEW

2.1 Theoretical Framework

This study is based on three frameworks. First, Keynesian fiscal theory provides a rationale for the influence of budgetary policy on growth, asserting that deficit-financed spending can enhance aggregate demand and public investment when private-sector resources are underutilized. Second, institutional economics, as articulated by North (1990), highlights the significance of budget credibility for growth, suggesting that credible fiscal plans reduce uncertainty, whereas unpredictable implementation undermines the trust necessary for investment. Third, fiscal transparency theory, as proposed by Alesina and Perotti (1996), offers the specific mechanism examined here: transparent, disciplined budget processes constrain deficit behaviour and safeguard growth outcomes. Collectively, these frameworks justify modelling deficit control as a mediating mechanism: Keynesian theory supports the budget-growth link, institutional theory underscores credibility, and fiscal transparency theory delineates the deficit-control channel.

2.2 Conceptual Review

Budget and Budget Credibility

A government budget represents a projection of expected revenue and expenditure for a fiscal period; however, its effectiveness is contingent on the extent of its implementation (Plaček et al., 2020). Budget credibility refers to the extent to which a government follows its budgetary plan, distinguishing it from the concept of "good budgeting." A budget may be well-designed on paper but lacks credibility if its implementation diverges from the approved plan (E et al., 2025). In the public financial management (PFM) literature, credibility is considered a performance dimension distinct from a budget's size or composition. Evidence from Nigeria indicates credibility gaps in both revenue and expenditure, which are attributed to unrealistic revenue projections, weak accountability, and implementation failures. This study defines budget credibility through the expenditure-side deviation ratio (actual ÷ budgeted expenditure) by comparing planned and actual outcomes (Sanni & Babatunde, 2026). A fiscal deficit arises when expenditures exceed revenues, necessitating borrowing to address the shortfall. Although often treated as a single figure, the fiscal deficit is measured in various ways in public finance literature, influencing its interpretation and cross-country comparability. Common variants include the overall deficit, primary deficit (excluding interest payments to reflect the non-interest fiscal position), and cyclically adjusted deficit (Sawyer, 2023). The deficit's impact on growth is theoretically neutral: it may promote growth when financing productive investments or impede growth when high deficits increase borrowing costs and crowd out private investment. This ambiguity underscores the importance of focusing on the degree of control exercised over the deficit, rather than the deficit itself.

Deficit control

Deficit control refers to the extent to which actual fiscal deficits correspond to those planned by the government or prescribed by fiscal regulations. This concept is more precise and operational than "fiscal discipline", as it emphasises the discrepancies between planned and actual deficit outcomes and the plan-versus-outturn logic that defines budget credibility. (Anatolievna Saadulaeva et al., 2022) Typically, deficit control is implemented through fiscal rules that impose numerical constraints on budgetary aggregates. The International Monetary Fund (IMF) identifies this issue as "deficit bias", a tendency towards public debt accumulation observed in advanced economies since the 1970s and increasingly in emerging markets. Fiscal rules aim to assure investors and the public of sustainable finances by limiting discretionary, deficit-generating behaviour. The effectiveness of these rules depends on the oversight and enforcement structures in place (Ardanaz et al., 2024). Deficit control can be achieved through expenditure ceilings, revenue-side realism, or monitoring bodies. In Nigeria, the Fiscal Responsibility Act (2007) institutionalises deficit control with a ceiling of 3% of GDP, which grounds this study's Deficit Control Ratio (actual ÷ budgeted deficit). 2.1.4 The Concept of Economic Growth

Economic Growth

Economic growth, commonly measured by the annual percentage change in real Gross Domestic Product (GDP), reflects an economy's expanding productive capacity and output over time. In the context of fiscal policy, growth is influenced by three primary factors: the scale of fiscal policy, encompassing government expenditure or borrowing; its composition; and its credibility and predictability, specifically whether fiscal plans are implemented as announced. The latter factor is particularly relevant to this study, as a credible fiscal approach is argued to bolster investment confidence and macroeconomic stability, both of which are crucial for sustained economic growth. (Reed & Sidek, 2015)

2.2 Empirical Review

This review organises the literature into three thematic clusters to contextualise the mediation framework of the current study: (i) global evidence on fiscal rules, fiscal discipline, and their impact on growth; (ii) evidence specific to Nigeria concerning the relationship between deficits and growth; and (iii) literature addressing budget credibility and implementation distinct from deficit outcomes.

Global Evidence: Fiscal Rules, Discipline, and Growth

A substantial body of cross-country literature establishes that fiscal discipline is an institutional outcome rather than merely an accounting outcome, with quantifiable effects on economic growth. Mauro, Romeu, Binder, and Zaman (2015) analysed fiscal behaviour across 55 countries over an extended historical period and concluded that governments adhering to fiscal prudence are more adept at generating and sustaining primary surpluses as public debt escalates. This finding suggests that deficit control reflects institutional strength and policy commitment rather than passive budgetary calculations. Further support for this conclusion is provided by Mauro et al. (2016), whose cross-country analysis of developing economies demonstrates that weak fiscal-adjustment mechanisms are associated with increased debt accumulation and macroeconomic vulnerability. Persistent deficits, particularly in contexts where governments are unable to implement credible fiscal corrections, undermine growth. The causal relationship between fiscal rules and deficit outcomes whether fiscal rules lead to improved deficit outcomes or merely correlate with them—has been examined explicitly. Caselli and Reynaud (2020) employed an instrumental variable strategy across 142 countries from 1985 to 2015, using the geographical diffusion of fiscal rules as an instrument, and determined that fiscal rules cause improvements in fiscal balances. This finding is particularly significant for the mediation logic of the present study, as it supports the plausibility of the initial pathway (credible budget institutions leading to improved deficit control) rather than viewing the relationship as merely correlational. Complementary meta-analytic evidence from Heinemann, Moessinger, and Yeter (2018), who synthesise 30 empirical studies, similarly indicates that numerical fiscal rules reduce deficits and enhance discipline. However, the effect diminishes once endogeneity in rule adoption is considered, which serves as an important caution when interpreting any observed relationship between budgetary control institutions (BCI) and deficit control results (DCR) as being definitively causal. Additionally, Asatryan, Castellón, and Stratmann (2018) provide historical-constitutional evidence that balanced budget rules are linked to better fiscal outcomes and

reduced debt pressures, reinforcing the notion that institutionalised discipline, rather than discretionary restraint, is the driving force behind deficit control.

The direct documentation of the growth benefits of this discipline is evident in the literature. Employing dynamic-panel GMM estimation across EU economies, Afonso and Jalles (2015) determined that fiscal rules are positively correlated with growth and help mitigate the adverse effects of an excessively large public sector. Gründler and Potrafke (2020), utilising historical, cross-country, and sub-national data, estimated that the permanent implementation of constitutional fiscal rules could increase real GDP per capita by approximately 18% over the long term, representing one of the most significant growth effects of fiscal institutions documented in the literature. Nerlich and Reuter (2015) introduce an institutional-design nuance pertinent to enforcement: fiscal rules are more effective when supported by independent fiscal councils that can scrutinise forecasts and monitor their implementation. This suggests that the credibility of enforcement, rather than the mere existence of the rule, disciplines deficits. This insight directly informs the study's approach to operationalising budget credibility as the primary driver of deficit control, rather than treating fiscal rules as self-enforcing. Finally, Alesina, Barbiero, Favero, Giavazzi, and Paradisi (2015) provide a crucial qualification: analysing fiscal consolidation episodes post-2009, they find that tax-based consolidations are more contractionary than those based on expenditure. This adds nuance to the study's policy interpretation, indicating that deficit control that enhances growth outcomes involves disciplined, expenditure-quality-conscious fiscal management rather than indiscriminate austerity.

Nigeria-Specific Evidence: Deficit, Growth, and Nonlinearity

The extensive literature on the relationship between fiscal deficits and economic growth in Nigeria reveals mixed empirical results. Several studies have identified a threshold-dependent nonlinear relationship consistent with the institutional framework of the current study. Iwatt, Okoroafor, and colleagues (2016), using Nigerian data from 1981 to 2014 and a Threshold Autoregressive model, found that fiscal deficits generally correlate negatively with growth. However, they identified a feasible deficit threshold of approximately 5% of GDP that promotes growth with a one-year time lag. Ubi and Effiong (2017), employing quarterly data from 2010Q1 to 2017Q2 and instrumental variable/TAR estimation, concluded that deficit financing becomes detrimental beyond approximately 3% of GDP, with negative effects intensifying past 4%. This finding aligns closely with Nigeria's statutory Fiscal Responsibility Act (FRA) threshold, providing empirical support for a threshold-anchored deficit control measure. The Central Bank of Nigeria's 2022 study, using linear ARDL and TAR models over the period 1981–2019, similarly found that fiscal deficits enhance growth only up to a 2.02% of GDP threshold, beyond which they become detrimental to growth. Collectively, these threshold-based studies in Nigeria support the premise of this study: it is not merely the existence of a deficit but the degree of control over it that determines its impact on growth, a concept captured by the mediating construct DCR. Other Nigerian studies have linked deficits to growth through institutional and compositional channels rather than solely through thresholds. Adebayo, Oduyemi, and colleagues (2020) applied ARDL bounds testing to Nigerian data from 1980 to 2017 and found that policy uncertainty, corruption, fiscal deficits, and public debt negatively affect financial

development and growth, whereas budget reforms are positively associated with both. This study is one of the closest precedents to the present research, as it connects budget reform, deficit outcomes, and growth within a single Nigerian framework, although it does not formally test for mediation. Obadan and Okojie (2021) provide an analytical (non-econometric) perspective, emphasising that deficit financing supports growth only when it is transparent, productive and consistent with established rules. This study quantitatively operationalised these themes through DCR. In contrast, Omoju and Abraham (2019) found the effect of budget deficits on growth to be statistically insignificant despite a positive sign using the ARDL model on data from 1986 to 2016. Similarly, Oruku, Mumen, Ale, Chukwuto, and Uzor (2023) used OLS on data from 1983 to 2022 and found that fiscal policy variables had expected signs but lacked significance. Both studies underscore that Nigeria's deficit-growth relationship is highly sensitive to the methods of deficit financing and implementation, rather than merely their magnitude. Regional evidence provides a comparative context for Nigeria's experience. Mawejje (2022), examining five East African Community countries from 1980 to 2020 using panel ARDL methods, found that fiscal deficits are influenced by income levels, interest rates, grants and debt-service obligations. This evidence suggests that deficit control is endogenous to macroeconomic conditions, reinforcing the necessity of the ARDL framework in this study to account for the potential reverse causality between growth and deficit outcomes.

2.2.3 Budget Implementation, Credibility, and Macroeconomic Stability

A third category of Nigerian studies examines budget implementation and credibility independently of the deficit size. Ekpo, Udo, and colleagues (2021) utilized the ARDL model with data from the Central Bank of Nigeria and the Ministry of Finance to ascertain that capital budgeting, recurrent budgeting, and the pace of budget implementation significantly affect economic development. This finding highlights the importance of budget execution, regardless of its planned size. Similarly, Eze, Akpan, and colleagues (2024) analysed Nigerian data from 2010 to 2023 using the ARDL model and confirmed that the execution of capital and recurrent expenditures significantly influences economic development. They explicitly stated that their study did not explore whether fiscal deficits mediate the effect of budget implementation on growth, which the current study seeks to address. Ogundipe, Lawal, and associates (2023) used quarterly data from 2005Q1 to 2021Q4 and ARDL to observe that Nigeria deviated from established fiscal rule limits from 2017 onwards. They found that government size and capital formation contributed to macroeconomic stability during crisis periods, providing evidence that adherence to fiscal rules (as a proxy for credibility) has tangible stabilisation effects. The DCR variable in this study was designed to capture this mechanism in a reduced form.

2.3 Gap in the Literature

Although previous studies have examined fiscal deficits, debt, expenditure, budget reforms, and economic growth in Nigeria, they largely treat these variables as direct relationships and provide limited evidence on budget credibility as a determinant of fiscal discipline. In particular, no identified Nigerian study formally tests whether deficit control mediates the short-run relationship between budget credibility and real GDP growth. This study addresses the conceptual, measurement, short-run, and methodological gaps by estimating the direct, total, and

indirect associations between budget credibility, deficit control, and real GDP growth in Nigeria using ARDL-based mediation models and a 5,000-replication bootstrap procedure.

Methodology and sources of data

The study uses annual data covering **[1995–2025)**, sourced from the Budget Office of the Federation (budgeted and actual expenditure/deficit figures), the Debt Management Office (deficit financing and debt data), the Central Bank of Nigeria Statistical Bulletin (cross-validation of fiscal aggregates), and the National Bureau of Statistics

Model Specification

Functional Form

RGDPG=F (BCI,LOIL)
DCR= F(BCI, LOIL)
RGDPG= F(BCI,DCR,LOIL)

Where
RGDPG is real GDP growth.
DCR is the Deficit Control Ratio,
BCI is the Budget Credibility Index
LOIL is the Oil prices

Mathematical Form

$$\mathrm{RGDPG}_t = a_0 + a_1 BCI_t + a_2 LOIL_t + \mu_t \ldots\ldots (1)$$

$$\mathrm{DCR}_t = \beta_0 + \beta_1 BCI_t + \beta_1 \mathrm{LOIL}_t + \mu_t \ldots\ldots (2)$$

$$\mathrm{RGDPG}_t = c_0 + c_1 BCI_t + c_2 DCR_t + C_3 LOIL_t + \mu_t \ldots\ldots (3)$$

Econometric Form

$$\Delta\mathrm{RGDPG}_t = a_0 + \sum_{i=1p} a_1 \Delta\mathrm{RGDPG}_{t-i} + \sum_{j=0g} a_2 \Delta\mathrm{BCI}_{t-j} + + \sum_{j=0g} a_3 \Delta LOIL_{t-j} + \lambda_1 \mathrm{RGDPG}_{t-1} + \lambda_1 DCR_{t-1} + \lambda_2 BCI_{t-1} + \lambda_1 LOIL_{t-1} + \mu_t$$

Where a_2 = C which denotes the total effect of budget credibility on growth

$$\Delta\mathrm{DCR}_t = \beta_0 + \sum_{i=1p} \beta_1 \Delta\mathrm{DCR}_{t-i} + \sum_{j=0g} \beta_2 \Delta\mathrm{BCI}_{t-j} + \sum_{j=0M} \beta_3 \Delta\mathrm{LOIL}_{t-j} + \lambda_1 DCR_{t-1} + \lambda_2 BCI_{t-1} + \lambda_2 LOIL_{t-1} + \mu_t$$

Where β_1 = a denotes the effect of budget credibility on deficit control

$$\Delta RGDPG_t = c_0 + \sum_{i=1p}^{\cdot} c_1 \Delta RGDPG_{t-i} + \sum_{j=0g}^{\cdot} c_2 \Delta BCI_{t-j} + + \sum_{j=0g}^{\cdot} c_3 \Delta DCI_{t-j} + \sum_{j=0g}^{\cdot} c_4 \Delta LOIL_{t-j} + \lambda_1 RGDPG_{t-1} + \lambda_2 BCI_{t-1} + \lambda_1 DCR_{t-1} + \lambda_1 LOIL_{t-1} + \mu_t$$

Where c_2=c ′ is the direct effect of budget credibility on growth and c_3=b is the association between deficit control and real GDP growth.

The indirect effect is computed as the product of the estimated a-path and b-path coefficients:

IE=ab=$\beta_1 c_3$.

The analysis uses 5,000 nonparametric bootstrap replications to obtain the sampling distribution of the indirect effect. Both percentile and bias-corrected and accelerated (BCa) 95% confidence intervals are reported. Deficit control is considered a statistically significant mediator only where the relevant bootstrap confidence interval for ab excludes zero. Bootstrap inference is preferred because an indirect effect is the product of two estimated coefficients and may not follow a normal sampling distribution, especially in a small annual sample.

RESULTS AND DISCUSSION
PRESENTATION AND ANALYSIS OF RESULT

Table 1:DESCRIPTIVE STATISTICS,

	RGDPGT_	BCI	DCI	LOILP
Mean	4.523	84.59715	2.167785	4.282572
Median	4.77	85.775	1.841	4.253435
Maximum	8.04	105.1	5.2774	4.715369
Minimum	0.81	46.78991	0.1186	3.717467
Std. Dev.	2.286452	12.07208	1.514502	0.323004
Skewness	-0.04157	-1.29078	0.498263	-0.17344
Kurtosis	1.635405	6.021411	2.189026	1.938048
Jarque-Bera	1.557528	13.16118	1.375619	1.040057
Probability	0.458973	0.001387	0.502676	0.594504
Observations	30	30	30	30

Source: *Researcher's Computation (2026)*

Table 1 provides the descriptive statistics for 30 annual observations. The mean real GDP growth was 4.523%, with a range from 0.81% to 8.04%, indicating moderate variation (SD = 2.286) and an approximately normal distribution (p = 0.459). The budget credibility index averaged 84.597,

with a range from 46.790 to 105.100, demonstrating significant variation in the alignment between budget plans and actual fiscal outcomes. Its negative skewness (−1.291) and Jarque–Bera probability (p = 0.001) indicate a non-normal distribution. The mean deficit control was 2.168, with values ranging from 0.119 to 5.277, and its normality test was insignificant (p = 0.503). The logged oil price had a mean of 4.283, exhibited low dispersion (SD = 0.323), and an approximately normal distribution (p = 0.595).

Table 2: ADF AND PP Unit Root Test

Variable	ADF at level	p-value	ADF at first difference	p-value	PP at level	p-value	PP at first difference	p-value	Order of integration
RGDPGT	-3.568379	0.1093	-3.580623	0.0076	-3.56838	0.1448	-3.57424	0	I(1) / I(1)
BCI	-2.96777	0.0017			-3.568379	0..0028	-3.57424	0.0057	I(0) / I(0)
LOILP	-3.673616	0.2453	-3.710482	0.0304	-3.673616	0.2549	-3.690814	0.0033	I(1)
DCR	-3.568379	0.1641	-3.587527	0.0036	-3.568379	0.18333	-3.57424	0	I(1) / I(1)

Source: *Researcher's Computation (2026)*

Tables 2 displays the outcomes of the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests, respectively, which were employed to ascertain the order of integration of the time-series variables. Both tests reveal that all variables are integrated of mixed order I(0) and I(1), thereby justifying the use of Autoregressive Distributed Lag (ARDL)) models for co-integration testing and subsequent dynamic regression analysis. Stationarity was evaluated at a 5% significance level

MULTIVARIATE MODELS LAG ORDER SELECTION CRITERIA

TABLE 3

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-32.90758	NA	2.867736	3.885008	4.083838	3.918658
1	-26.36829	9.636847 *	1.610797 *	3.301925 *	3.550462 *	3.343988 *

4.0 DISCUSSION OF RESULTS, POLICY IMPLICATIONS, AND RECOMMENDATIONS.

Table 4 presents the results of the regression analysis,

Variable	Coefficient	Standard error	t-statistic	p-value
Constant	1.8685	0.8205	2.277	0.0316
real GDP growth	0.6218	0.1448	4.294	0.0002
budget credibility	'-0.0217	0.0323	'-0.674	0.5068
deficit control	0.1598	0.2159	0.74	0.4661
log oil price	0.9496	1.6315	0.582	0.5657
R2	0.4375			
Adjusted R^2	0.3476			
F-statistic	4.862			0.0049

Real GDP (RGDP) growth exhibits a positive coefficient of 0.6218, which is statistically significant. This indicates a strong correlation between current GDP growth and the previous year's growth performance, suggesting that Nigeria's short-term growth dynamics are influenced by momentum in productive activity, investment conditions, demand, and prior macroeconomic conditions. Conversely, budget credibility demonstrates a negative but statistically insignificant direct effect on GDP growth. This finding does not substantiate the assertion that annual variations in budget credibility have an immediate direct impact on output growth. It should not be interpreted as evidence that increased budget credibility reduces growth; rather, a plausible interpretation is that the macroeconomic advantages of credible budgeting manifest through slower institutional channels, such as improved public investment selection, more predictable fiscal policy, enhanced debt planning, and increased private-sector confidence. Deficit control shows a positive but statistically insignificant relationship with GDP growth. Although the coefficient aligns with the expectation that sound fiscal management can support growth, the evidence is insufficiently precise to confirm such an effect in the short term. This result is consistent with the mixed nature of fiscal adjustment: it may enhance stability when driven by higher revenue efficiency and expenditure rationalization, but it can weaken output if achieved by reducing productive investment or delaying public payments. This finding is consistent with Nigerian evidence that fiscal deficits have conditional rather than uniform effects on growth. Changes in oil prices are positive but insignificant. This should not be construed as evidence that oil prices are irrelevant to Nigeria. Instead, it suggests that, after accounting for growth persistence and fiscal variables, annual changes in oil prices alone do not account for a statistically significant portion of the remaining variation in GDP growth. The effects of oil prices likely depend on factors such as oil production, disruptions, exchange-rate conditions, fiscal buffers, and non-oil sector performance.

The mediator equation shows that budget credibility has a positive association with deficit control: a= 0.0537, p =0.0557

The coefficient is significant at the 10% level, though not at the 5% level, indicating weak evidence that enhanced budget credibility correlates with more effective deficit control. This finding is economically plausible, as more realistic revenue and expenditure plans could mitigate unexpected financing gaps and facilitate a more orderly fiscal adjustment. Furthermore, this aligns with the diagnoses of the IMF and World Bank, which suggest that forecast optimism and revenue shortfalls undermine Nigeria's budget credibility and complicate fiscal management.

The total effect of budget credibility on growth is negative and insignificant

C= -0.0131, P=0 0.6637

The total-effect result confirms that there is no statistically significant short-run overall relationship between budget credibility and GDP growth in the estimated model. A significant total effect is not required for mediation testing, however, because an indirect relationship can exist even where direct and total effects are weak or offsetting.

Table 5. Bootstrap mediation estimates

Effect	Estimate	Statistical evidence	Interpretation
Budget credibility â†'\rightarrowâ†' deficit control, a	0.0537	p=0.0557	Positive; marginally significant at 10% only
Deficit control â†'\rightarrowâ†' GDP growth, b	0.1598	p=0.4661	Positive; not statistically significant
Direct effect, c'	'-0.0217	p=0.5068	Negative; not statistically significant
Total effect, c	'-0.0131	p=0.6637	Negative; not statistically significant
Indirect effect, ab	0.0086	Bootstrap SE = 0.0178	Positive but small
Percentile 95% CI		(âˆ'0.0034, 0.0622)	Includes zero
BCa 95% CI		(âˆ'0.0086, 0.0447)	Includes zero

Note: Bootstrap inference is based on 5,000 replications. An indirect effect is statistically significant when the 95% confidence interval excludes zero.

The estimated indirect effect is

$$ab = 0.053724 \times 0.159827 = 0.008587$$

Both bootstrap intervals encompass zero. Specifically, the percentile interval is (-0.0034, 0.0622), and the BCa interval is (-0.0086, 0.0447). Consequently, the study does not identify a statistically significant mediation effect. Deficit control does not significantly mediate the short-run relationship between budget credibility and GDP growth within the sample. Although the signs of the coefficients provide some insight, they should not be over-interpreted. Budget credibility is positively correlated with deficit control, and deficit control is positively correlated with growth. However, the statistical weakness of the latter relationship precludes the establishment of an indirect pathway. The estimated direct effect is negative, while the indirect effect is positive, indicating potential offsetting mechanisms. Nonetheless, neither component achieves statistical significance. Consistently, the estimates adhere to the standard mediation decomposition: the signs of the coefficients remain informative but should not be over-interpreted. Budget credibility is positively associated with deficit control, and deficit control is positively associated with growth. Yet, the statistical weakness of the second relationship prevents the establishment of an indirect pathway. The estimated direct effect is negative, whereas the indirect effect is positive, suggesting potential offsetting channels. Nevertheless, neither component is statistically significant.

For consistency, the estimates satisfy the standard mediation decomposition:

$$C \approx C + ab$$

Specifically:

$$-0.0131 \approx -0.0217 + 0.086$$

This indicates that the total effect is the sum of a small positive indirect effect and a negative direct effect. The key conclusion remains that the data do not provide evidence of a statistically significant direct, total, or indirect short-run impact of budget credibility on GDP growth.

Conclusion

This study evaluated the short-term mediating role of relationships among budget credibility, deficit control, and real GDP growth in Nigeria by employing ARDL models and 5,000 bootstrap replications. The analysis revealed that budget credibility was positively correlated with deficit control, although this association was only marginally significant at the 10% level. Furthermore, deficit control exhibited a positive but statistically insignificant relationship with real GDP growth. Budget credibility demonstrated negative but statistically insignificant direct and total effects on growth. The indirect effect through deficit control was positive but minimal (ab = 0.0086). Both the percentile 95% confidence interval (−0.0034, 0.0622) and the BCa 95% confidence interval (−0.0086, 0.0447) encompassed zero. Consequently, the evidence does not substantiate a statistically significant short-term mediation effect of deficit control in the estimated sample

Policy Implications

Stakeholders should prioritize enhancing budget credibility and strengthening fiscal institutions over solely pursuing deficit targets. Key reforms should encompass more realistic assumptions regarding oil production and revenue, enhanced macro-fiscal forecasting, regular publication of forecast-performance evaluations, and bolstered budget implementation capacity. These initiatives can mitigate unexpected financing issues and enhance fiscal discipline.

Deficit reduction strategies should be sensitive to growth. It is preferable to focus on improved non-oil revenue mobilization, reduced expenditure leakages, transparent procurement processes, efficient recurrent expenditure, and the safeguarding of productive capital investment, rather than implementing indiscriminate spending cuts. Credible fiscal planning can primarily support growth through long-term mechanisms, such as improved public investment efficiency, effective debt management, enhanced expenditure quality, fiscal risk management, and increased private-sector confidence.

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