

# The Impact of Fiscal Federalism on Economic Growth in Nigeria: Evidence from Time Series Analysis (1985–2024)

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## ABSTRACT

This study examines the impact of fiscal federalism on economic growth in Nigeria over a 40-year period from 1985 to 2024. Using annual time-series data sourced from the Central Bank of Nigeria Statistical Bulletin, economic growth is proxied by real GDP per capita, while fiscal federalism is measured via three indicators: revenue decentralization (RDC), expenditure decentralization (EXDC), and their simultaneous decentralization (REXDC). The study employs the Augmented Dickey Fuller unit root test, Johansen cointegration technique, an Error Correction Model (ECM), and Granger causality tests. The results confirm a stable long-run equilibrium relationship between fiscal federalism and economic growth. Revenue decentralization exerts a positive and statistically significant effect on growth, whereas expenditure decentralization negatively affects it. Simultaneous decentralization shows a complex, context-dependent effect. Granger causality tests reveal a bidirectional causal relationship between simultaneous decentralization and economic growth, suggesting feedback effects. The findings accentuate that decentralization's efficacy is contingent on institutional quality, highlighting the importance of revenue autonomy, strengthened subnational institutional capacity, and improved intergovernmental fiscal coordination for promoting sustainable economic growth in Nigeria.

**Keywords:** Fiscal federalism; Economic growth; Revenue decentralization; Expenditure decentralization; Nigeria; Time-series analysis

## INTRODUCTION

Fiscal federalism concerns the allocation of revenue-raising powers and expenditure responsibilities among different tiers of government within a federation. Theoretical propositions, notably by Oates (1999), posit that decentralization enhances economic growth by improving allocative efficiency, fostering inter-jurisdictional competition, and increasing governmental accountability and responsiveness to local preferences. However, the empirical landscape, especially in developing federations, remains contested. Critics such as Prudhomme (1995) and Tanzi (2000) argue that decentralization can exacerbate inefficiencies, macroeconomic instability, and corruption in weak institutional environments, leading to mixed growth outcomes.

Nigeria presents a critical case study. Operating a federal system since independence, its fiscal architecture is paradoxically characterized by a high degree of revenue centralization, primarily due to its overwhelming dependence on oil revenues accruing to the federal government. Conversely, expenditure responsibilities are significantly decentralized to 36 states and 774 local governments. Subnational governments therefore rely heavily on statutory allocations from the Federation Account, exhibiting weak internally generated revenue (IGR) capacity. This dichotomy, centralized revenue collection versus decentralized spending, raises fundamental questions about the effectiveness of Nigeria's fiscal federalism in fostering broad-based and sustainable economic growth.

Recent Nigeria-specific studies have reinforced concerns about the imbalance between revenue authority and expenditure responsibilities among tiers of government. Empirical evidence suggests that excessive dependence of subnational governments on federal transfers weakens fiscal discipline and undermines developmental

outcomes (Nkoro & Otto, 2023; Umar, 2024). These institutional constraints highlight the need for a more context-sensitive evaluation of fiscal decentralization and its growth implications in Nigeria.

The period 1985–2024 is particularly instructive, as it encompasses major political and economic shifts, including prolonged military rule, the transition to democracy in 1999, oil price booms and busts, and several fiscal reform initiatives.

Against this backdrop, this study provides a comprehensive empirical examination of the impact of fiscal federalism on Nigeria's economic growth over these four decades. It contributes to the literature by jointly analysing revenue decentralization, expenditure decentralization, and their simultaneous interaction within a unified time-series framework, thereby offering nuanced insights for policy formulation.

## LITERATURE REVIEW AND THEORETICAL FRAMEWORK

### Theoretical Perspectives

The theoretical debate on fiscal decentralization and growth is bifurcated. The "first-generation" theory of fiscal federalism (Oates, 1972, 1999; Musgrave, 1959) emphasizes efficiency gains. Decentralization allows subnational governments (SNGs) to tailor public goods to heterogeneous local preferences, improving welfare and potentially boosting productive investment. Furthermore, competition among SNGs can incentivize policy innovation and prudent fiscal management.

Conversely, the "second-generation" theory highlights potential pitfalls, especially in developing countries. Prudhomme (1995) warns of the "dangers of decentralization," including capacity constraints at local levels, destructive tax competition, and macroeconomic management challenges. Tanzi (2000) further notes that decentralization can widen regional inequalities and increase opportunities for corruption in the absence of strong institutions and oversight mechanisms.

### Empirical Evidence

Empirical studies yield mixed results, often contingent on context and measurement. Cross country analyses, such as that by Akai and Sakata (2002), frequently find a positive relationship between revenue decentralization and growth. However, studies focusing on single countries, particularly developing ones, often reveal more complex dynamics where expenditure decentralization may not yield positive outcomes due to governance failures (Baskaran & Feld, 2013).

In the Nigerian context, empirical findings are equally varied. Some studies identify positive linkages between certain aspects of fiscal autonomy and development indicators. Others, like Anyanwu (1999) and Oyejide (2003), point to the adverse effects of Nigeria's dysfunctional federalism, where expenditure decentralization without corresponding revenue responsibility fosters fiscal irresponsibility, dependency, and inefficiency at the subnational level.

More recent empirical studies focusing on Nigeria provide deeper insights into the fiscal decentralization–growth nexus. Nkoro and Otto (2023), using an ARDL framework, find that revenue decentralization enhances economic development, while excessive expenditure decentralization constrains growth due to inefficiencies and weak accountability mechanisms.

Umar (2024) similarly argues that Nigeria's fiscal federalism is characterized by structural imbalances that limit the effectiveness of intergovernmental fiscal relations. Furthermore, Change (2024) demonstrates that subnational public spending patterns often fail to translate into productive investments, reinforcing concerns about institutional capacity and fiscal discipline. These findings align with the second-generation fiscal federalism theory, which emphasizes the mediating role of institutional quality in determining decentralization outcomes.

This study bridges a gap in the extant literature. While many studies focus on either revenue *or* expenditure decentralization, this paper analyses both concurrently and introduces their interaction (simultaneous decentralization). This holistic approach, applied to a long and turbulent time series in Africa's largest economy, provides a clearer picture of the net growth effect of Nigeria's unique federal fiscal structure.

## METHODOLOGY

### Data and Variables

Annual time-series data spanning 1985 to 2024 were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin and the National Bureau of Statistics (NBS). The variables are constructed as follows:

- **Economic Growth (PCGDP):** Measured by real Gross Domestic Product per capita (in constant 2010 Naira), serving as the dependent variable.
- **Fiscal Federalism Indicators (Independent Variables):**
  - **Revenue Decentralization (RDC):** Ratio of total revenue of state and local governments to the consolidated revenue of the federal, state, and local governments.
  - **Expenditure Decentralization (EXDC):** Ratio of total expenditure of state and local governments to the consolidated expenditure of all tiers of government.
  - **Simultaneous Decentralization (REXDC):** An interaction term calculated as the product of RDC and EXDC, capturing the joint effect of decentralizing both revenue and expenditure powers.

All variables are transformed into natural logarithms to mitigate skewness and allow for elasticity interpretation. The logarithmic forms are denoted as LPCGDP, LRDC, LEXDC, and LREXDC.

### Model Specification

The study adopts a cointegration and error correction modelling framework. The long-run relationship is specified as:

$$\ln(PCGDP_t) = \beta_0 + \beta_1 \ln(RDC_t) + \beta_2 \ln(EXDC_t) + \beta_3 \ln(REXDC_t) + \varepsilon_t$$

where  $\varepsilon_t$  is the error term.

The associated Error Correction Model (ECM) to capture short-run dynamics and adjustment to long-run equilibrium is:

$$\Delta \ln(PCGDP_t) = \alpha_0 + \sum_{i=1}^k \alpha_{1i} \Delta \ln(RDC_{t-i}) + \sum_{i=1}^k \alpha_{2i} \Delta \ln(EXDC_{t-i}) + \sum_{i=1}^k \alpha_{3i} \Delta \ln(REXDC_{t-i}) + \lambda ECM_{t-1} + \mu_t$$

where  $\Delta$  is the difference operator,  $k$  is the optimal lag length selected by the Akaike Information Criterion (AIC),  $ECM_{t-1}$  is the one-period lagged error correction term, and  $\mu_t$  is the white-noise error term. The coefficient  $\lambda$  measures the speed of adjustment back to long-run equilibrium.

### Estimation Techniques

The analysis proceeds in four stages:

1. **Stationarity Testing:** The Augmented Dickey-Fuller (ADF) test is employed to determine the order of integration of the variables. The Phillips-Perron (PP) test is also conducted for robustness.

2. **Cointegration Analysis:** The Johansen (1991) cointegration technique (Trace and Maximum Eigenvalue tests) is used to examine the existence of a long-run relationship among the non-stationary variables.
3. **Long-run and Short-run Estimation:** If cointegration is established, the long-run coefficients are derived, and an ECM is estimated to analyse short-run dynamics.
4. **Granger Causality Test:** The Vector Error Correction Model (VECM) Granger causality test is conducted within the cointegrated framework to determine the direction of causality between the variables.

Diagnostic tests (serial correlation, heteroskedasticity, normality) are performed to ensure the robustness of the model (Engle & Granger, 1987).

## RESULTS AND DISCUSSION

### Descriptive Statistics and Trends

**Table 1: Descriptive Statistics of Variables (in Logarithms)**

Variable	Mean	Std. Dev.	Skewness	Kurtosis	Jarque-Bera (Prob.)
LPCGDP	2.931	1.540	0.235	4.545	0.213
LRDC	4.726	0.927	0.070	1.459	0.151
LEXDC	9.674	3.056	-0.422	3.810	0.215
LREXDC	4.578	0.885	0.110	1.492	0.159

Note: The Jarque-Bera test probabilities > 0.05 fail to reject the null hypothesis of normality for all series.

**Source: Author’s computation using EViews 13 (2025).**

The descriptive statistics indicate moderate dispersion and approximate normal distribution, validating their suitability for econometric analysis (Gujarati & Porter, 2009). A plot of the variables (not shown for brevity) reveals that while per capita GDP has shown volatile but generally positive trends, fiscal decentralization indicators have experienced significant fluctuations, closely tied to oil revenue cycles and political changes.

### Unit Root Test Results

**Table 2: ADF and PP Unit Root Test Results**

Variable	ADF Statistic (Level)	ADF Statistic (1st Diff.)	PP Statistic (Level)	Order of Integration
<b>LPCGDP</b>	-3.513**	---	-3.521**	<b>I(0)</b>
<b>LRDC</b>	-1.136	-9.063***	-1.245	-9.101*** <b>I(1)</b>
<b>LEXDC</b>	-4.282***	---	-4.275***	<b>I(0)</b>
<b>LREXDC</b>	-1.455	-9.080***	-1.501	-9.114*** <b>I(1)</b>

Note: \*\*\*, \*\* denote significance at the 1% and 5% levels, respectively. Optimal lag for ADF selected via AIC. PP test bandwidth selected using Newey-West.

**Source: Author’s computation using EViews 13 (2025).**

The results indicate a mixed order of integration: LPCGDP and LEXDC are stationary at level I(0), while LRDC and LREXDC are stationary after first differencing I(1). This mixture justifies the application of the Johansen cointegration procedure, which is robust to such scenarios.

## Cointegration Results

**Table 3: Johansen Cointegration Test**

Hypothesized No. of CE(s)	Trace Statistic	5% Critical Value	Prob.**	Max-Eigen Statistic	5% Critical Value	Prob.**
None *	126.317	47.856	0.000	104.086	27.584	0.000
At most 1	22.231	29.797	0.273	15.872	21.131	0.254

**Note:** \* indicates rejection of the null hypothesis of no cointegration at the 5% significance level. \*\* denotes probability values that are statistically significant at the 5% level.

**Source:** Author's computation using EViews 13 (2025).

Both the Trace and Maximum Eigenvalue tests reject the null hypothesis of no cointegration at the 5% level but fail to reject the hypothesis of at most one cointegrating equation. This confirms the existence of one stable long-run equilibrium relationship between fiscal decentralization and economic growth in Nigeria, aligning with theoretical expectations (Oates, 1999).

## Error Correction Model Results

**Table 4: Long-run Coefficients and ECM Estimates**

Long-run Equation	Coefficient	t-Statistic	Prob.
LRDC	<b>0.916</b>	1.974	<b>0.007</b>
LEXDC	<b>-0.556</b>	-21.730	<b>0.000</b>
LREXDC	<b>-0.283</b>	-2.226	<b>0.012</b>
Constant	1.244	3.112	0.004
Short-run ECM	Coefficient	t-Statistic	Prob.
$\Delta$ LRDC	0.041	3.244	<b>0.003</b>
$\Delta$ LEXDC	-0.766	-14.722	<b>0.000</b>
$\Delta$ LREXDC	0.822	2.533	<b>0.016</b>
ECM(-1)	<b>-0.360</b>	-4.646	<b>0.000</b>
Constant	0.022	1.855	0.073

Note: The ECM(-1) coefficient measures the speed of adjustment.

**Source:** Author's computation using EViews 13 (2025).

The long-run results are revealing:

- Revenue Decentralization (LRDC):** Positively and significantly related to economic growth ( $\beta=0.916$ ,  $p=0.007$ ). A 1% increase in the share of subnational revenue is associated with a 0.92% increase in per capita GDP in the long run. This supports the efficiency hypothesis of Oates (1999), suggesting that greater revenue autonomy for states and localities fosters better resource allocation and accountability.
- Expenditure Decentralization (LEXDC):** Negatively and significantly related to growth ( $\beta=-0.556$ ,  $p=0.000$ ). This finding reflects the Nigerian reality where subnational governments have major spending responsibilities but lack fiscal discipline, accountability, and technical capacity, leading to wasteful expenditures and poor public service delivery, a scenario predicted by Prudhomme (1995). This finding is consistent with recent evidence from Nigeria indicating that weak public financial management systems at the subnational level exacerbate inefficiencies in decentralized spending (Chenge, 2024; Oklobia & Mahmud, 2025).

3. **Simultaneous Decentralization (LREXDC):** The negative coefficient ( $\beta=-0.283$ ,  $p=0.012$ ) suggests that in Nigeria's institutional context, decentralizing both revenue and expenditure powers *together* does not yield a net positive growth effect. This likely indicates that the negative institutional externalities of expenditure decentralization (corruption, inefficiency) outweigh the potential benefits of concurrent revenue autonomy.

The short-run dynamics show similar directional impacts. Critically, the error correction term **ECM(-1)** is negative (-0.360) and highly significant ( $p=0.000$ ), confirming the established long-run relationship. It indicates that approximately 36% of any disequilibrium in one period is corrected in the next, showing a moderately speedy return to long-run equilibrium.

### Granger Causality Results

**Table 5: VECM Granger Causality/Block Exogeneity Wald Tests**

Null Hypothesis (Dependent Variable: $\Delta$ LPCGDP)	Chi-sq	Prob.
$\Delta$ LRDC does not Granger Cause $\Delta$ LPCGDP	5.217	0.074
$\Delta$ LEXDC does not Granger Cause $\Delta$ LPCGDP	3.891	0.143
<b><math>\Delta</math>LREXDC does not Granger Cause <math>\Delta</math>LPCGDP</b>	<b>6.452</b>	<b>0.040</b>
Null Hypothesis (Dependent Variable: $\Delta$ LREXDC)	Chi-sq	Prob.
$\Delta$ LPCGDP does not Granger Cause $\Delta$ LREXDC	7.118	0.028

Source: Author's computation using EViews 13 (2025).

The Granger causality tests within the VECM framework reveal a specific bidirectional causal relationship between simultaneous decentralization (REXDC) and economic growth (PCGDP). This suggests a feedback loop: changes in the degree of combined fiscal decentralization influence growth, and the level of economic development, in turn, affects the scope and nature of decentralization (Musgrave, 1959; Barro, 1990). No significant short-run causal links were found from revenue or expenditure decentralization alone to growth in this specific test.

## CONCLUSION AND POLICY IMPLICATIONS

The results suggest that the structure of fiscal federalism has played an important role in shaping Nigeria's economic growth trajectory from 1985 to 2024. The key finding is nuanced: revenue decentralization promotes growth, while expenditure decentralization and the simultaneous decentralization of both revenue and expenditure powers hinder it under Nigeria's prevailing institutional conditions.

The positive impact of revenue decentralization highlights the growth potential of empowering subnational governments with greater control over their resource base, fostering accountability and local innovation. Conversely, the negative impact of expenditure decentralization highlights the severe institutional deficits, including weak financial management, corruption, and lack of transparency, that plague many state and local governments in Nigeria. The negative coefficient for simultaneous decentralization is a stark warning that merely granting more fiscal powers without first building strong institutions can be counterproductive.

These findings lead to concrete, sequenced policy recommendations for Nigeria:

1. **Prioritize Revenue Autonomy:** Reform the vertical revenue allocation formula to incentivize and increase the share of internally generated revenue (IGR) for states and local governments. Strengthen their capacity to collect taxes like property rates and levies efficiently.
2. **Build Institutional Capacity Concurrently:** Before or alongside any further devolution of spending powers, massive investment in building the technical, administrative, and accountability capacity of subnational governments is non-negotiable. This includes public financial management reforms, e-governance, and anti-corruption mechanisms at the state level. Recent studies emphasize that without

institutional reforms, decentralization reforms may deepen inequality and fiscal irresponsibility rather than promote growth (Umar, 2024; Oklobia & Mahmud, 2025).

3. **Enhance Intergovernmental Fiscal Coordination:** Strengthen institutions like the Federation Account Allocation Committee (FAAC) and the National Economic Council (NEC) to improve coordination, ensure fiscal discipline, and manage macroeconomic stability. Implement a strong fiscal rules framework applicable to all tiers of government.
4. **Foster Performance-Based Grants:** A portion of federal transfers could be tied to clear performance indicators in service delivery and IGR improvement, creating positive incentives for subnational governments.

In essence, for fiscal federalism to become an engine for sustainable and inclusive economic growth in Nigeria, decentralization must be deliberately calibrated and accompanied by a deep, unwavering commitment to institutional strengthening and good governance at all levels.

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