

Investigating the Effects of Efficiency of Financial Institutions: Implications for Economic Growth in Nigeria

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ABSTRACT

Nigeria has been facing financial challenges through the decade. The economy has suffered several financial disequilibria ranging from wide swings in exchange rates to fluctuating price levels. This has prompted governmental authorities to adopt several economic and financial policy mix. Despite financial sector reforms in Nigeria, economic growth has remained volatile, raising concerns about whether improved efficiency of financial institutions is sufficient to stimulate sustainable growth. Hence, this study investigated the impact of the efficiency of financial institutions on economic growth in Nigeria. Data used for the study spanned from 1985-2024, and were sourced from the World Development Indicators (WDI) and International Monetary Fund (IMF) Financial Development Indicators. The study employed the Dynamic Ordinary Least Squares (DOLS) estimator, which effectively addresses key econometric challenges such as endogeneity and serial correlation, thereby providing more reliable long-run estimates. The findings provide strong empirical evidence that efficiency of financial institutions play a significant role in promoting economic growth in Nigeria. Efficiency of financial institutions had significant and positive effects on Nigeria's economic growth. Therefore, it is imperative that government and regulators should improve institutional efficiency through stronger regulation, governance, and FinTech adoption, and maintain a stable supervisory environment to enhance confidence, productive lending, and long-term economic growth. In addition, government should enhance the governance level in maintaining transparency in the financial institutions. This can be achieved through the regulating of existing financial authorities and their regulatory bodies. A robust efficiency of the financial institutions in Nigeria will result in a holistic developmental process.

Keywords: Economic Growth, Financial Institutions, Development, Reforms, Efficiency

INTRODUCTION

The financial system is important in the process of economic growth because of its ability to mobilise savings, allocate capital efficiently, facilitate investment, manage risk, and the transmission of monetary policy. The financial system has a key role in promoting economic growth, being able to mobilise savings, allocate capital properly, help investment, manage risk, and the transmission of monetary policy (Maciejewski & Głodowski, 2020). In addition to gaining access to financial services, the effectiveness of financial institutions in channeling financial resources into more efficient financial intermediation is critical to how saving becomes investment that contributes to long-term economic growth (Kidwell, 2016). They lower the cost of transactions, increase the availability of credit, increase capital productivity, and stimulate innovative development within the economy, all of which help to build an economy's productive capacity. Thus, efficiency of financial institutions has become an increasingly significant issue in the field of financial development and an important factor in sustainable economic growth, especially in developing countries, where financial markets are still in a state of development (Hill, 2026).

Nigeria has conducted in-depth reforms in the financial sector over the last four decades, aimed at enhancing the efficiency, stability and resilience of the financial sector (Ighoroje & Egedi, 2015). The financial sector has undergone substantial changes such as banking sector consolidation, financial liberalization, prudential

regulation, institutionalizing asset management, digital financial services and financial inclusion programmes. The economic growth performance of Nigeria, despite these reform efforts has been volatile, reflecting the impact of international oil prices volatility, macroeconomic instability, structural rigidities, institutional capacity weaknesses and external economic shocks. Although Nigeria's financial system has grown significantly in size, financial access and market depth, the questions that still linger are whether the operational efficiency of financial institutions has led to sustained growth in the economy (Mbutorand Uba, 2016).

Within the finance-growth literature, the theoretical link between financial institution efficiency and economic growth is very strong. Efficiently allocating resources among financial institutions should improve investment quality, decrease information asymmetries, decrease intermediation costs, and promote capital accumulation, which should lead to higher productivity and growth (Offor, 2025). But there is no clear proof. While some studies state that financial development is associated with economic growth via financial deepening, credit expansion and better access to finance, other studies indicate indirect, nonlinear or insignificant relationships, contingent on the institutional setting, the degree of financial development and country-specific features.

Furthermore, the current literature tends to be largely based on financial development indicators (such as banking sector size, financial depth, domestic credit, or financial inclusion) and only has relatively little literature that considers the efficiency dimension of financial institutions. Empirical studies in the Nigerian context have mostly concentrated on the impact of banking sector development, financial deepening, financial liberalization and financial inclusion on economic growth (Ochulor et al., 2025; Efayena & Olele, 2020). While these studies have yielded interesting conclusions, only a small number have examined whether the effectiveness of the financial institutions in carrying out their intermediation activities is an independent source of economic performance. This is relevant since large financial systems do not always indicate efficient systems. Financial institutions can grow in size and still remain with high operating costs, poor credit assessment, inefficient resource allocation and poor intermediation performance.

It is therefore relevant to investigate the efficiency of the financial institutions in addition to the usual approaches that take into account financial development and to gain a deeper understanding of how the financial sector facilitates economic growth. Another limitation of the existing literature relates to measurement and methodology. Most earlier works have used a single proxy of financial development and have used traditional econometric methods that might not be suitable to capture the long run equilibrium relationship between macroeconomic variables. The International Monetary Fund (IMF)'s Financial Institutions Efficiency Index, by contrast, is a multidimensional indicator of operational efficiency, which includes such measures as net interest margin, lending-deposit spread, non-interest income, overhead costs, and profitability. Such a composite indicator will provide a more detailed assessment of the effectiveness of financial intermediation than will any single banking indicator.

Moreover, the Dynamic Ordinary Least Squares (DOLS) estimator is especially suitable for estimating long-run relationships among cointegrated variables since it adjusts for endogeneity and serial correlation by incorporating leads and lags of the first difference of the regressors, yielding efficient and unbiased long-run estimates. In this background, this study examines the effect of financial institutions efficiency on economic growth in Nigeria for the period 1985 to 2024. The study takes a closer look at the possibility that increases in the efficiency of the financial sector help the economic growth, taking into account the productivity of the agricultural sector, industrialization, the impact of oil rents, inflation, and urbanization.

The study makes three important contributions to the existing finance-growth literature in that its research explicitly examines the efficiency aspect of financial development and uses the IMF Financial Institutions Efficiency Index along with Dynamic Ordinary Least Squares estimation technique. First, it builds on the existing evidence by considering financial institution efficiency and not just traditional measures of financial development. Second, it offers new empirical data for Nigeria, based on newer data which reflect key structural and policy shifts in the financial system. Third, it provides policy-relevant evidence on the link between the efficiency of financial institutions and sustainable economic growth in one of Africa's biggest economies.

The remainder of the paper is organized as follows. Section 2 reviews the theoretical and empirical literature on financial institution efficiency and economic growth. Section 3 describes the data, variable measurement, and empirical methodology. Section 4 presents and discusses the empirical findings, while Section 5 concludes the paper with policy implications and suggestions for future research.

LITERATURE REVIEW

This study is anchored on the McKinnon–Shaw Financial Liberalization Framework developed independently by McKinnon (1973) and Shaw (1973), which provides a foundational explanation of the finance–growth nexus. The framework posits that financial development is a critical growth catalyst, particularly in developing economies such as Nigeria. According to the theory, government-imposed distortions, commonly referred to as *financial repression*, including interest rate ceilings, directed credit programmes, high reserve requirements, and restrictions on capital flows, undermine the financial system efficiency (Nduka and Ogonna, 2025). These distortions reduce real interest rates, discourage savings mobilization, constrain private investment, and ultimately impede economic growth.

The McKinnon–Shaw framework argues that financial liberalization, through market-determined interest rates and reduced regulatory constraints, enhances the efficiency, access and depth of financial intermediaries. Higher real interest rates incentivize savings, expand the supply of loanable funds, and improve credit allocation toward productive investments (Fuller, 2015). This process strengthens capital accumulation and raises overall productivity, thereby fostering sustained economic growth. In the McKinnon (1973) complementarity hypothesis, money and physical capital are viewed as complementary, implying that improved access to financial services is essential for investment financing in economies characterized by self-financed investment. Shaw (1973), on the other hand, emphasizes the role of financial intermediaries in mobilizing savings and efficiently channeling them to deficit units. Within the Nigerian context, the framework provides a robust theoretical basis for examining how improvements in financial depth, access, efficiency, and banking sector development influence economic growth, particularly in an economy historically characterized by varying degrees of financial repression and reform.

Empirically, studies that have examined the impact of the efficiency of and access to financial institutions on economic growth in Nigeria are sparse, although a number of studies have investigated how financial institutions and broader financial sector development affect growth. Most of the existing evidence focuses on bank credit, non-bank financial institutions, and capital market development as channels through which the financial system stimulates economic performance. Within the banking sector literature, Manasseh et al. (2025) examined the growth effect of private sector credit and financial deepening in Nigeria using 1991 to 2021 economic data. Employing the cointegration test and “Autoregressive Distributed Lag” (ARDL) bounds approach, the study found that both private sector credit and financial deepening significantly enhance growth and maintain a stable long-run relationship. Similarly, Okafor et al. (2016) investigated the causal nexus between deposit money banks’ credit and growth over the 1981–2014 period using the “Vector Autoregressive” (VAR) Granger causality technique, and reported a unidirectional causality spanning from private sector credit to economic growth.

Olele (2020) using data from the Nigerian stock exchange factbooks between 1993 – 2013 on ten of the consolidated banks, the study examined the technical efficiency of banking firms in Nigeria, using the stochastic production frontier analytical framework. The variables used were investment security as output variable while loan and advances, share capital and labour were used as inputs variables. The findings from this study revealed among others, the existence of inefficiency in the production of investment security. Specifically, the technical efficiency associated with the production of investment security was 41 percent which indicates an underlying inefficiency of 51 percent. The study therefore recommends the adoption of diversified strategies by banking firms to improve the technical efficiency in the production of investment security.

Also, Olowofeso et al. (2015), using quarterly data from 2000:Q1 to 2014:Q4 and the Gregory–Hansen cointegration test with structural breaks and an error correction model, found that private sector credit positively and significantly affects output, although higher lending rates inhibit growth. Further evidence is provided by

Marshal et al. (2015), who used data spanning 1980–2013 to examine economic growth effect of domestic bank credit. Using regression-based analysis, they found that credit to both the private and government sectors positively and significantly affects GDP in the short-run, though the long-run relationship was weak. Similarly, Fapetu and Obalade (2015) assessed deposit money banks' loans and advances sectoral allocation effect across periods of regulation and deregulation, and found that the growth effect of bank credit depends significantly on the regulatory regime, with guided deregulation producing better outcomes. In the agricultural sector, Afolabi et al. (2021) employed economic data from 1981 to 2017 and the ARDL technique, revealing that credit to agriculture exerts a significant and positive short-run effect on growth.

Beyond commercial banking institutions, several studies have focused on non-bank financial institutions. Travkina et al. (2022) examined the role of non-bank financial institutions in Russia using structural, weight, and dynamic analytical methods, and concluded that while these institutions possess growth-enhancing potential, their effectiveness remains constrained by structural and institutional weaknesses. In Nigeria, Akintola and Adesanya (2022) analyzed data covering 2010 to 2019 utilizing the "Ordinary Least Squares" (OLS) method, and found that investments by non-bank financial institutions positively and significantly contribute to GDP growth. Likewise, Khowaja et al. (2020), using regression and Pearson correlation analysis for Pakistan, established a positive relationship between non-bank financial institutions' financing economic activities and performance. Similarly, Ugwunta and Ugwuanyi (2019), using Nigerian data from 1970 to 2010 and a generic regression model, found that insurance sector development significantly contributes to economic growth. In the same direction, Igbani and Iwedi (2015) employed annual time-series data from 1992 to 2014, using OLS, cointegration, and Granger causality tests, and concluded that the intermediation functions of finance companies significantly drive Nigeria's economic performance.

Olele (2019) estimated a translog production function for the Nigerian banking sector using data obtained mainly from various issues of the Nigerian stock exchange fact books spanning 1993–2013. The stochastic production frontier approach was adopted in analyzing the panel data collected on output (investment security and loans & advances) and input (total deposits, share capital and labour). The result showed that total deposit is a very significant input in the Nigerian banking sector's production process.

The capital market literature also provides useful insights into the finance–growth relationship. Ugbaja (2025) used balanced panel data for five West African countries covering 2005–2020, and employed fixed effects, random effects, and system GMM estimators. The outcome implies that stock market development, especially market capitalization, positively and significantly promotes economic growth, with stronger effects in Ghana and Nigeria. In the Nigerian context, Usman and Shehu (2023) examined the effect(s) of the capital market on growth using data from 2001 to 2022 and the OLS method, finding that the all-share index significantly improves GDP, although market capitalization and number of deals were statistically weak.

Similarly, Adegoke et al. (2025) employed the "Vector Error Correction Model" (VECM) on data from 1996 to 2023, and found mixed long-run effects of stock market indicators on growth. Supporting this, Adeneye (2024) analyzed 1999–2022 time-series data using the ARDL approach, and established that capital market development exerts significant short-run and long-run positive effects on Nigeria's real GDP. Evidence from outside Nigeria by Chikwira and Mohammed (2023), using a Vector Autoregressive (VAR) model with quarterly data from 2013 to 2022, also revealed a positive economic growth- stock market development nexus in Zimbabwe.

Olele, et al. (2018) investigated the Nigerian banking industry's total factor productivity growth between 1993 – 2013, an era that witnessed varying degrees of policy reforms in the industry. Data Envelopment Analysis (DEA) was employed in identifying the technical efficiency frontier. The findings from this study showed that the Nigerian banking industry generally operates with high efficiency which is indicative of an optimal input mix in production.

Overall, the empirical literature strongly supports the growth-enhancing role of financial institutions through credit expansion, financial intermediation, insurance, and capital market deepening. However, most existing studies focus broadly on financial development indicators, with limited attention to the specific roles of access

to financial institutions and institutional efficiency as separate dimensions of financial sector performance, particularly in Nigeria. Additionally, most studies focus on proxies such as private sector credit, market capitalization, and financial deepening, without explicitly isolating how the ease with which households and firms access formal financial services and the operational efficiency of these institutions influence growth outcomes. Yet, efficiency and access constitute two critical pillars of financial sector performance, as improved access facilitates savings mobilization, credit availability, and investment opportunities, while greater efficiency enhances resource allocation and reduces intermediation costs. Given Nigeria's ongoing financial sector reforms, digital banking expansion, and persistent growth challenges, it becomes imperative to empirically examine how these specific institutional dimensions shape economic growth. This study therefore seeks to fill this gap by providing evidence on the implications of access to and efficiency of financial institutions for Nigeria's economic growth.

METHODOLOGY

Data and Variables

This study relies on secondary time series data to x-ray the impact of efficiency of financial institutions on Nigeria economic growth. Annual data spanning the period 1985 to 2024 were employed in order to capture long-term impact of access to and efficiency of financial institutions on Nigeria economic growth. Data on growth, financial institution efficiency, and key macroeconomic control variables were elicited from the International Monetary Fund (IMF), Financial Development Indicators (FDI) and World Development Indicators (WDI), which provides reliable and internationally comparable data on financial development, and economic/social indicators. Variables used and their measurements are presented in Table 1.

Table 1: Description, Measurement, and Sources of Data

Variable	Description	Measurement	Source
Economic Growth	Growth in overall economic activity	Log of real GDP (%)	WDI (2025),
Financial Institutions Efficiency	Efficiency of financial intermediation	Index (0–1)	IMF (2025)
Inflation	General price level changes	Consumer Price Index (%)	WDI (2025)
Industrialization	Level of industrial activity	Industry value added (% of GDP)	WDI (2025)
Oil Rents	Income from oil resources	Oil rents (% of GDP)	WDI (2025)
Urban Population Growth	Rate of urbanization	Annual growth rate (%)	WDI (2025)
Agricultural Productivity	Efficiency of agricultural output	Agriculture value added growth rate	WDI (2025)

The International Monetary Fund (IMF) Financial Development Database, which was developed by Svirydzienka (2016), is used to determine the efficiency of financial institutions. The index reflects the effectiveness of the financial institutions in intermediating financial resources, not their size or accessibility. The Financial Institutions Efficiency Index is a composite index based on financial performance characteristics of the banking sector, such as: Net interest margin

- Lending–deposit spread
- Non-interest income to total income
- Overhead costs to total assets

- Return on assets

Return on equity These indicators are normalized using principal component methods to create an index ranging from 0 to 1, with scores closer to 1 reflecting greater financial intermediation efficiency, and scores closer to 0 reflecting relatively less efficient financial institutions with high operating costs, large intermediation spreads, and low profitability. Nigeria's figure (0.505) indicates a moderate efficiency of financial institutions. It signals that the financial sector in Nigeria has been significantly reformed, but significant room for improvement in terms of operational efficiency, cost of intermediation and resource allocation still exists.

Model Specification

This study specifies separate econometric models to x-ray the impact of efficiency of financial institutions on Nigeria economic growth. Economic growth is modeled as a function of access to financial institutions, as well as efficiency of financial institutions, alongside a common set of control variables, namely inflation, industrialization, oil rents, urban population growth, and agricultural productivity. This approach avoids multicollinearity among financial institution indicators and allows for a clearer assessment of the individual contribution of each measure to economic growth.

The general functional form of the models is expressed as:

$$EG_t = f(FI_t^i, INF_t, IND_t, OIL_t, UPG_t, AGR_t) \quad (1)$$

Where EG_t denotes economic growth, FI_t^i represents each financial institution indicator (efficiency of financial institutions); INF_t is inflation, IND_t denotes industrialization, OIL_t represents oil rents, UPG_t is urban population growth, and AGR_t denotes agricultural productivity.

Accordingly, the estimable linear models are specified as follows:

Model 1: Financial Institutions Efficiency

$$EG_t = \gamma_0 + \gamma_1 FIE_t + \gamma_2 INF_t + \gamma_3 IND_t + \gamma_4 OIL_t + \gamma_5 UPG_t + \gamma_6 AGR_t + \varepsilon_t \quad (2)$$

where all parameters are as previously defined, t denotes time, and ε_t represents the stochastic error term. These model specifications enable the study to estimate the long-run impact of efficiency of financial institutions on Nigeria's economic growth using the DOLS estimation technique.

Estimation Technique

This study employed time series econometric techniques to x-ray the impact(s) of efficiency of financial institutions on Nigeria's economic growth. The analysis began with the Augmented Dickey–Fuller (ADF) unit root test to ascertaining the stationarity properties of the variables and to avoid spurious regression results. Given that the variables were found to be integrated of order one, the Johansen cointegration test was subsequently applied to ascertain the existence of a long-run equilibrium relationship among economic growth, financial development, and the control variables in the model.

Upon establishing cointegration, the DOLS estimation technique was adopted to estimate the long-run nexus between the variables. The choice of DOLS is justified by its robustness in estimating cointegrated systems, as it corrects for potential serial correlation and endogeneity by including lags and leads of the first differences of the regressors (Muye & Muye, 2017). This approach ensures unbiased and efficient parameter estimates, particularly in small sample settings. Additionally, DOLS provides reliable long-run coefficients and valid statistical inference, making it suitable for policy-oriented analysis. Overall, the use of ADF, Johansen cointegration, and DOLS techniques enables a comprehensive assessment of both the long-run relationship and the magnitude of financial development impacts on the Nigeria's economic growth.

RESULTS

Descriptive analysis

Results from the descriptive analysis in Table 2 shows that Economic growth which is proxied by the natural logarithm of GDP, which has a mean value of 26.736. This transformation is employed to stabilize the variance of the series, reduce the influence of extreme values, and allow the estimated coefficients to be interpreted as elasticities, thereby facilitating meaningful economic interpretation.

Table 2: Descriptive Statistics

Variable	N	Mean	Std. Dev.	Min	Max
Economic Growth	39	26.736	.277	25.972	27.034
Financial Institutions Efficiency	39	.505	.072	.38	.67
Inflation	39	19.253	16.999	5.388	72.836
Industrialization	39	25.201	.092	24.976	25.345
Oil Rents	39	11.967	5.966	2.684	28.705
Urban Population Growth	39	4.596	.556	3.794	5.748
Agricultural Productivity	39	23.731	3.737	18.02	36.965

Source: Author's Computation from STATA output

For the key variables, efficiency of financial institutions efficiency is 0.505. Recall, the efficiency of financial institutions indicator ranges from 0 to 1. The descriptive statistics of Nigeria's financial development indicator (efficiency of financial institutions) reveal a generally low level of financial development. Looking at financial institutions, financial institutions' efficiency records a relatively higher mean of 0.505, implying that once access is obtained, financial institutions are moderately effective in allocating resources and providing services. This points to efficient gains within the banking sector, albeit benefiting a narrow segment of the economy.

Unit root analysis

Table 3 shows the stationarity test results carried out for the outcome variable; economic growth, the main predictor; financial institutions efficiency and the control variables; inflation, agriculture productivity, oil rents, industrialization, and urban population growth.

Table 3: Stationarity Test Using the Augmented-Dicker Fuller (ADF) Technique

Variables	ADF @ 1 st Difference		Order of Int.	Remarks
	Test Stat	5% Crit. Value		
Economic Growth	-6.082993	-3.540328	I(1)	Stationary at 1 st Difference
Financial Institutions Efficiency	-4.620831	-2.948404	I(1)	Stationary at 1 st Difference
Inflation	-4.561529	-2.963972	I(1)	Stationary at 1 st Difference
Agriculture Productivity	-6.941598	-2.945842	I(1)	Stationary at 1 st Difference
Oil Rent	-7.127682	-2.945842	I(1)	Stationary at 1 st Difference
Industrialization	-4.854650	-2.945842	I(1)	Stationary at 1 st Difference
Urban Population Growth	-5.588559	-2.943427	I(1)	Stationary at 1 st Difference

Source: Author's Computation.

The decision rule for the ADF test is that the p-value of the estimates should be significant at 0.05 level of significance as conventional used. Or, in absolute terms, the coefficient of the ADF test statistic should be greater

than the value of ADF critical value. From the output in table 4.2, all variables are stationary only after first differencing. This shows that the OLS cannot be utilized to estimate the relationships among the variables. Hence, the Dynamic OLS (DOLS) is used.

Cointegration test

Table 4 shows the cointegration test result carried out to ascertain whether a long-run nexus exists between financial institutions efficiency and other variables in the study. From the results in Table 4, the Johansen test output shows the presence of cointegration.

Table 4: Cointegration Test for the efficiency estimates

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.830528	192.2147	125.6154	0.0000
At most 1 *	0.747649	128.3123	95.75366	0.0001
At most 2 *	0.626758	78.74272	69.81889	0.0082
At most 3	0.471564	43.26369	47.85613	0.1263
Trace test indicates 3 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Source: Author's Computation

The Trace test indicates 3 cointegrating equations, showing that the series have a long-run nexus among themselves.

Regression results

The DOLS estimates are presented in Table 5. The estimated DOLS model has a high coefficient of determination ($R^2 = 0.970$), which means that the explanatory variables in the model account for about 97.0% of the long-run variation in economic growth. The overall model fit seems to be good at first sight. But the goodness of fit must be taken with a pinch of salt. These large R^2 values are not uncommon in cointegration models of time-series data, especially for macroeconomic data with trends.

Therefore, the value of R^2 is not necessarily a good indicator of model accuracy, as it does not rule out a possible model specification problem. Whether the estimated long-run relationship is valid will, therefore, depend on the explanatory power of the model as well as the findings of the stationarity and cointegration tests, the statistical significance of the estimated relationship's coefficients and the consistency of the estimated relationship's coefficients with the existing economic theory. The validity of the diagnostic tests and the theoretical consistency of the estimated coefficient values yield confidence in the estimated relations not being spurious; this is supported by the evidence of cointegration found in this study. However, the findings need to be viewed in light of the implicit assumption of the DOLS estimator: stability of parameters and of the long run equilibrium relationship across the sample period.

Additionally, the results Table 5 show that financial market efficiency has a significant and positive economic growth effect in Nigeria.

Table 5: Financial Institutions Efficiency and Economic Growth in Nigeria

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Financial Institutions Efficiency	1.058099	0.530746	1.993608	0.0773

Industrialization	1.821976	0.390391	4.667057	0.0012
Inflation	0.005784	0.002350	2.461232	0.0361
Oil Rents	0.026281	0.007454	3.525569	0.0065
Agricultural Productivity	0.002475	0.007319	0.338167	0.7430
Urban Population Growth	0.021454	0.054718	0.392084	0.7041
C	-20.54906	10.13832	-2.026869	0.0733
R-squared	0.970385	Mean dependent var		26.76782
Adjusted R-squared	0.888123	S.D. dependent var		0.228065
S.E. of regression	0.076283	Sum squared resid		0.052372
Long-run variance	0.002971			

Source: Author's Computation

The coefficient estimate of 1.058 means that the real GDP of a country is estimated to increase by 1.06 percent with a one-percent rise in the financial institution efficiency index, when all other variables are kept fixed. A 100% increase is unlikely given the range of the index is 0 to 1. An efficiency index improvement of 0.10 points, a more realistic gain, would correspond to an estimated gain of 0.106 percent in economic growth, demonstrating that small incremental improvements in the efficiency of financial institutions can bring about economically significant output gains.

The agricultural productivity coefficient is positive but insignificant at the 5% level, indicating that the positive effect of agricultural productivity on the economic growth of Nigeria could not be detected in the long run in the study period. Despite its significance as an employer and livelihood source, agriculture's contribution to aggregate economic growth could have been limited due to low mechanization, poor infrastructure, limited access to finance, climatic shocks and limited linkages with manufacturing and agro-processing industries. It seems therefore that the additional productivity gains of the sector may have been small enough to not create big economy-wide gains. This result supports the structural transformation literature that posits that agriculture has a better growth contribution when it is coupled with value addition, technological modernization and better linkages with other sectors of the economy.

The results of the regression analysis show a positive and statistically significant relationship between industrialization and economic growth, suggesting that expansion of the industrial sector has a positive impact on Nigeria's long run economic performance. Raising the level of industrial activity tends to increase production, encourage technological adoption, generate employment and increase labour productivity, which will lead to higher output, according to the estimated coefficient. This discovery further confirms the importance of industrialization in the process of structural transformation and development theories that argue that industrialization is a key driver of sustainable economic growth. The implications of the result indicate that policies that can bring greater competitiveness to industry, increased manufacturing capacity, and solutions to infrastructure problems are likely to yield significant growth dividends.

The relationship of oil rents and economic growth is positive and statistically significant, which means oil rents remain important drivers of economic growth in Nigeria. Rising oil rents increase government revenue, bolster foreign exchange revenues and provide fiscal resources for public investment in infrastructure and social services. But the results are used with caution as the economy is highly dependent on oil revenue, which implies that it is vulnerable to external price changes and can result in a stronger binding of the economy to a dependency on oil that in the past has hindered economic diversification. Thus, oil rents can enhance short-run growth, but sustainable long run development requires prudent management of the oil rent and further diversification of the productive base.

The coefficient of inflation on the economic growth is positive and is statistically significant. This appears to be counterintuitive but could be a result of times when the economy grew, aggregate demand grew, fiscal policy was expansionary, or the oil market was favourable. A period of such inflation can be accompanied by high rates

of investment and output without reducing economic activity. However, the outcome needs to be taken with a pinch of salt as persistently high inflation can lead to a rise in macroeconomic uncertainty, reduce investment, reduce purchasing power and can, ultimately, affect long-term economic growth. Hence, the positive coefficient does not mean that inflation is growth promoting, but rather that it is macroeconomic conditions in Nigeria in the sample period.

The increase in the urban population has a positive but statistically insignificant effect on economic growth, suggesting that urbanization alone has not had a significant impact on Nigeria's long-term economic growth performance. The result indicates that there has not been a parallel increase in productive employment, infrastructure, industrial development, and public service delivery, along with the rapid growth of urban population. This may have been partly tempered by congestion, unemployment, poor housing conditions and urban infrastructure constraints that have been linked to urban agglomeration and its potential benefits. The discovery suggests that urbanization can lead to economic development only when it is accompanied by proper urban planning, investment in infrastructure, and policies that can facilitate productive economic activities.

Overall, the results revealed that the positive impact of financial institutions' efficiency highlights the importance of effective intermediation in driving economic growth. Efficient financial institutions reduce transaction costs, manage risks more effectively, and channel funds toward high-return investment opportunities (Sajid et al., 2023). In the Nigerian context, enhancing banking efficiency through technological innovation, stronger supervision, and better corporate governance can significantly improve the financial sector's growth-enhancing role.

Dynamic Ordinary Least Squares (DOLS) is an estimator that can handle the problem of endogeneity for cointegrated variables by adding leads and lags of the first differences of the regressors, but has its shortcomings. Specifically, DOLS imposes a stable long-run equilibrium relationship between the variables and neglects the possible existence of structural breaks, parameters instability and nonlinear dynamics that could occur in Nigeria's economy during the study period. Moreover, extreme caution should be taken in interpreting the relatively high coefficient of determination ($R^2 = 0.970$) since cointegrated time-series models with trending macroeconomic variables can have high explanatory power. Therefore, the empirical results should be compared with the results of the unit root and cointegration tests, the diagnostic statistics and the consistency of the estimated parameters with the theory, but not only with the goodness-of-fit measure. These restrictions do not mean that the results are invalid but indicate that other long-run estimators and/or robustness analyses of the estimated relationships could be used in future studies to complement the DOLS estimates and to further confirm the stability of the estimated relationships.

CONCLUSION

This study examined the impact of financial development proxied by efficiency of financial institutions on economic growth in Nigeria using time series data covering the period 1985 to 2024. The findings provide strong empirical evidence that efficiency of financial institutions play a significant role in promoting economic growth in Nigeria. Although the descriptive analysis revealed that efficiency of financial institutions in the country remains relatively low, the econometric results demonstrate that improvements in the financial system have substantial growth-enhancing effects. The existence of a long-run relationship among the variables further elucidates the importance of sustained financial sector development for long-term economic performance. The results suggest that efficiency of financial institutions and essential in driving economic growth through efficient intermediation and other policy drives. Consequently, policies aimed at strengthening institutional efficiency are critical for accelerating Nigeria's economic growth. Overall, the study reinforces the relevance of the finance–growth nexus and highlights the essence of continuous financial sector reforms to support sustainable economic development.

Based on the results of this study, some important policy implications are drawn for the promotion of sustainable economic growth in Nigeria. The first thing that comes to mind is that the efficiency of financial institutions is

a positive factor, which implies that policies should not only aim to increase the size of the financial sector, but also at improving the quality of financial intermediation.

The Central Bank of Nigeria should continue to strengthen prudential regulation, promote digital financial service, strengthen credit risk management and encourage competition in banking to lower intermediation costs and improve financial resource allocation. Second, the major role played by industrialization underscores the importance of policies conducive to industrialization and effective investments. Reliable infrastructure and energy supply as well as incentives for value added production will increase the productivity of industry and speed up structural transformation.

Third, although oil rents have a positive effect on economic growth, the economy is still sensitive to the price of oil in the international market. Government should so invest the oil money in productive investments in infrastructure, education, technology and economic diversification to minimize long-term dependence on the petroleum sector.

Although inflation is associated with growth over the course of the study period, the positive coefficient of inflation should be treated with some circumspection because it can be a complication for macroeconomic stability in the long-term. As such, monetary and fiscal policy should remain targeted towards "price stability" and "productive investment" and economic expansion.

Lastly, while there was no significant statistical difference in agricultural productivity or urban population growth, such sectors still play a key role in inclusive development. They must be supported by further investment in agricultural modernization, rural infrastructure and planned urban development to enhance their role in long-term economic growth. Overall, the evidence shows that the most promising way to ensure Nigeria's long-term economic growth is to improve financial institutions' efficiency, through complementary reforms that foster industrialization, macroeconomic stability and economic diversification.

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Data Availability: Data will be provided by the corresponding author on reasonable request

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