

The Dynamic Relationship between Bank Credit and Private Sector Development in Nigeria

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Abstract

This study examined the dynamic relationship between bank credit and private sector development in Nigeria, with emphasis on the effect of sectoral credit allocation on private sector GDP growth. The private sector remains a critical driver of economic growth, employment generation, innovation, and industrial transformation; however, inadequate and poorly distributed credit has continued to constrain its performance in Nigeria. The study adopted an ex-post facto research design, which is suitable for analyzing historical relationships among variables using already existing data. Time-series secondary data were sourced from the Central Bank of Nigeria (CBN) Statistical Bulletin. The documentary method of data collection was employed, relying on annual data on sectoral credit allocation and private sector GDP growth over the study period. Data were analyzed using the Ordinary Least Squares (OLS) regression technique with a semi-log model specification. The findings revealed that agricultural credit had a positive but statistically insignificant effect on private sector GDP growth. Manufacturing credit also exerted an insignificant effect, while mining and quarrying credit showed no significant impact on private sector output growth. Similarly, real estate and construction credit did not significantly influence private sector GDP growth, and trade/general commerce credit equally had no statistically significant effect. However, despite the insignificance of the individual explanatory variables, the overall model was statistically significant, indicating that sectoral credit variables jointly had a significant effect on private sector GDP growth in Nigeria. The study concluded that private sector development in Nigeria is influenced more by the combined and complementary effects of sectoral credit allocation than by isolated lending to individual sectors. This implies that effective private sector growth depends on coordinated financing strategies, efficient credit utilization, and stronger inter-sectoral linkages. The study recommended that the Central Bank of Nigeria and deposit money banks should pursue balanced sectoral lending policies, while government should improve infrastructure, strengthen sector-specific financing frameworks, and enhance access to affordable credit for productive private sector activities.

Keywords: Bank Credit, Private Sector Development, Sectoral Credit Allocation, Private Sector GDP Growth, Financial Intermediation, Economic Growth, Deposit Money Banks, Nigeria

JEL: G21, O16, E51, O11, O55

1.1 INTRODUCTION

The role of the financial system in fostering economic growth and development has long been a central issue in economic discourse, particularly within the field of Financial Economics. At the core of this discussion lies the intermediation function of banks, which involves mobilizing savings from

surplus economic units and channeling them into productive investments within the deficit sectors of the economy. In developing countries like Nigeria, where capital formation is often constrained by low income levels and underdeveloped financial markets, the banking sector plays a critical role in driving private sector activities through the provision of credit facilities (McHugh, 2021). Bank credit, therefore, becomes a key instrument through which economic agents particularly private enterprises access the necessary funds to expand operations, invest in new technologies, and enhance productivity.

Bank credit to the private sector is considered a vital catalyst for economic development because it facilitates capital accumulation and enhances the productive capacity of firms. Through lending activities, banks provide working capital for day-to-day operations as well as long-term financing for investment in fixed assets such as machinery, infrastructure, and technology. This relationship is anchored in the Financial Intermediation Theory, which posits that efficient allocation of financial resources by intermediaries leads to improved economic outcomes (Konstantakopoulou, 2023). When banks effectively perform their intermediation role, they reduce information asymmetry between borrowers and lenders, lower transaction costs, and ensure that funds are directed toward the most productive uses. Increased credit flow to the private sector is expected to stimulate output growth, enhance industrialization, and promote overall economic stability.

According to (Shim, 2025), the evolution of bank credit to the private sector has been influenced by both domestic economic policies and external shocks. Over the years, credit allocation has fluctuated in response to changes in monetary policy stance, inflationary pressures, exchange rate volatility, and regulatory frameworks. For instance, periods of tight monetary policy often result in higher interest rates, which can discourage borrowing by private investors. In other way round, expansionary monetary policies may increase the availability of credit but could also lead to inflationary concerns if not properly managed. Data from the Central Bank of Nigeria Statistical Bulletin reveal that while there has been a general upward trend in credit to the private sector over time, this growth has not always translated proportionately into sustained private sector development, raising questions about the efficiency of credit allocation and utilization within the economy (Bawa et al., 2021). Structural issues such as weak institutional frameworks, inadequate collateral systems, and high default risks have continued to constrain the effective transmission of bank credit to the real sector. Many commercial banks in Nigeria exhibit a preference for lending to low-risk sectors, particularly government-related activities, due to concerns about loan repayment and macroeconomic instability. This crowding-out effect limits the amount of credit available to productive private enterprises, especially small and medium-sized firms that are often considered high-risk borrowers.

The prevalence of non-performing loans within the banking sector has made financial institutions more cautious in extending credit, thereby tightening lending conditions and further restricting access to finance for the private sector(Sánchez Serrano, 2021).

Ubah (2025), said that it is important to situate the relationship between bank credit and private sector development within the historical evolution of Nigeria's financial system. Prior to the implementation of the Structural Adjustment Program in 1986, the Nigerian financial sector was characterized by heavy government intervention, including regulated interest rates, directed credit programs, and strict control over banking operations. During this period, credit allocation was largely influenced by government priorities rather than market forces, which often resulted in inefficiencies and misallocation of financial resources. The introduction of financial liberalization policies under the Structural Adjustment Program marked a significant turning point, as it aimed to promote efficiency, enhance competition among banks, and improve the allocation of credit to productive sectors of the economy. Following the liberalization era, the Nigerian banking sector experienced rapid expansion, accompanied by increased participation of private financial institutions. This growth was further reinforced by subsequent reforms initiated by the Central Bank of Nigeria, including the banking sector consolidation exercise in 2004–2005, which significantly increased the minimum capital base for commercial banks (Uchenna Okoye et al., 2020). The consolidation policy was designed to strengthen the financial system, improve banks' capacity to extend credit, and enhance their ability to support large-scale investments within the private sector. In theory, a more capitalized and stable banking system should be better positioned to provide long-term financing required for private sector growth. However, despite these reforms, the extent to which increased bank capitalization has translated into improved access to credit for private enterprises remains a subject of ongoing debate.

According to Oyadeyi, (2024), the transmission mechanism through which bank credit affects private sector development operates via multiple channels. First, access to credit enables firms to undertake capital investment, thereby increasing their production capacity and efficiency. Second, credit facilitates innovation by allowing businesses to adopt new technologies and improve their competitiveness in both domestic and international markets. Third, it supports entrepreneurship by providing start-up capital for new ventures, which is particularly important in a country like Nigeria where unemployment and underemployment rates are relatively high.

Despite these potential benefits, the effectiveness of bank credit in stimulating private sector development is contingent upon several factors, including the stability of the macroeconomic environment, the soundness of the banking system, and the regulatory framework governing financial activities. A critical issue in the Nigerian context is the apparent disconnect between the growth of bank credit and the performance of the real sector. While data from the Central Bank of Nigeria indicate a steady increase in credit to the private sector over the years, this has not always been accompanied by commensurate growth in industrial output or overall economic development. One possible explanation for this phenomenon is that a significant portion of bank credit is directed toward non-productive activities, such as trading and speculative investments, rather than sectors that have strong multiplier effects on the economy, such as manufacturing and agriculture. This misalignment suggests that the issue is not merely the quantity of credit available but also the quality and sectoral distribution of such credit. The structure of the Nigerian economy presents additional challenges to effective credit utilization. The dominance of the oil sector, for instance, has historically overshadowed other sectors, leading to a form of economic imbalance commonly referred to as “Dutch Disease.” This has limited the diversification of the economy and reduced the capacity of the private sector to absorb and effectively utilize available credit. In addition, infrastructural deficiencies such as unreliable power supply, poor transportation networks, and inadequate technological infrastructure significantly increase the cost of doing business. These structural bottlenecks can diminish the positive impact of bank credit, as firms may struggle to translate borrowed funds into productive output under such constraints (Mark et al., 2023).

1.2 Objective of the study

The general objective is to examine the effect of sectoral credit allocation on private sector GDP growth in Nigeria. However, specific objectives include:

- i. Assess the effect of agricultural credit on private sector GDP growth in Nigeria.
- ii. Determine the effect of manufacturing credit on private sector GDP growth in Nigeria.
- iii. Evaluate the effect of mining and quarrying credit on private sector GDP growth in Nigeria.
- iv. Examine the effect of real estate and construction credit on private sector GDP growth in Nigeria.
- v. Investigate the effect of trade/general commerce credit on private sector GDP growth in Nigeria.
- vi. Evaluate the joint effect of sectoral credit variables on private sector GDP growth in Nigeria.

1.4 Research hypotheses

The following hypotheses are proposed to be tested in the study

- i. (H₀₁): Agricultural credit has no significant effect on non-oil GDP growth in Nigeria.
- ii. (H₀₂): Manufacturing credit has no significant effect on non-oil GDP growth in Nigeria.
- iii. (H₀₃): Mining and quarrying credit has no significant effect on non-oil GDP growth in Nigeria.
- iv. (H₀₄): Real estate and construction credit has no significant effect on non-oil GDP growth in Nigeria.
- v. (H₀₅): Trade and general commerce credit has no significant effect on non-oil GDP growth in Nigeria.

2.1 THEORETICAL FRAMEWORK

The Financial Intermediation Theory was formally developed by John Gurley and Edward Shaw in 1960. Their work highlighted how financial institutions act as key facilitators in economic development by collecting savings, reducing transaction costs, and directing funds to productive investments. Later scholars, including (Fama, 1980), further expanded the theory to examine the role of banks in efficiently allocating resources and managing risk within financial markets. The theory has since become a cornerstone in understanding how financial systems contribute to economic growth, particularly through the channel of credit provision to the private sector.

According to Peery, (1960), financial intermediation theory focuses on the vital role that banks and other financial institutions play in an economy by acting as a bridge between those who have surplus funds savers and those who need funds for productive purposes, such as businesses and entrepreneurs. Rather than individuals lending directly to one another, banks collect savings from households, businesses, and other institutions, pool these resources, and lend them to deficit units that require capital to grow or sustain their operations. This process not only makes it easier for businesses to access funds but also ensures that financial resources are used more efficiently, ultimately supporting private sector growth, investment, and broader economic development.

Financial Intermediation Theory provides a strong foundation for this study because it explains how bank credit can drive private sector development. It shows that when banks effectively perform their intermediation role, they not only improve access to funds for businesses but also enhance innovation, increase production capacity, and promote sustainable economic growth. In the context of Nigeria, where many private sector firms face challenges in obtaining finance, this theory highlights

why improving the efficiency and reach of bank credit is essential for the growth and development of the economy.

Schumpeter's Theory of Financial Development was propounded by Joseph Schumpeter (1883–1950), a distinguished Austrian-American economist, who is widely regarded as one of the founding fathers of modern economic thought on entrepreneurship and innovation. Schumpeter's central argument is that economic growth and structural transformation are driven primarily by innovative entrepreneurs who introduce new products, processes, or methods of production. According to him, it is not merely the accumulation of capital that propels development, but the ability of entrepreneurs to innovate and revolutionize the economic landscape.

In this theory, banks and financial institutions are seen as active agents of economic transformation rather than passive intermediaries. Schumpeter emphasized that banks facilitate development by providing credit to entrepreneurs who have ideas but lack sufficient personal resources to execute them. By granting access to finance, banks enable these innovators to take calculated risks, invest in modern technologies, expand production, and introduce new goods and services to the market. This process, in turn, stimulates employment, raises productivity, and drives economic growth. Without this crucial financial support, many entrepreneurial ideas would remain unrealized, and the pace of development would be significantly slower.

A key insight from Schumpeter's theory is that the quality and direction of credit matter as much as the quantity. Not all lending contributes to economic progress; credit that supports speculative or low-productive activities may not significantly impact private sector development. Therefore, banks must focus on identifying and funding ventures that demonstrate innovation and the potential to create long-term economic value. In developing economies like Nigeria, this perspective is particularly relevant because many small and medium enterprises (SMEs) with innovative potential struggle to access formal credit. Targeted financing for productive activities, as Schumpeter suggests, can accelerate industrialization and structural transformation.

Bofinger et al., (2024), extended Schumpeter's ideas. For example, studies such as *Schumpeterian innovations, financial innovations and instability: an institutional perspective* show how financial systems that promote innovation can enhance economic performance while also influencing financial stability. Another contemporary analysis, *The finance and growth nexus revisited: a truly Schumpeterian perspective*, reexamines the relationship between financial development and economic growth, confirming that access to credit and financial depth are important

for expanding productive activities. These modern contributions provide empirical backing for the idea that financial institutions not just banks, but broader financial systems are central to facilitating investment, innovation, and long-term development.

2.2 Empirical Review:

Empirical evidence on the relationship between bank credit and private sector development presents mixed findings, particularly in the Nigerian context. For instance, Okete & Camillus, Llb, (2024), examined the relationship between financial deepening and entrepreneurial growth in Nigeria between 1986 and 2022. Their findings revealed that while money supply showed a positive but insignificant relationship with entrepreneurial growth, credit to the private sector exhibited a significant but negative relationship, suggesting that increased credit does not always translate into improved private sector performance.

Nwajiaku et al., (2020), investigated the impact of financial deepening on entrepreneurship growth in Nigeria from 1986 to 2018 using the ARDL and Granger causality techniques. The study found that financial deepening had no significant effect on entrepreneurship growth, although entrepreneurial activities were observed to influence financial sector development. This implies that the presence of financial resources alone may not be sufficient to drive private sector expansion without effective utilization. In another related study, Osasere et al., (2020), analyzed the relationship between financial deepening and economic growth in Nigeria over a long period. The results indicated that private sector credit had an inverse relationship with GDP, while money supply had a positive impact. This finding raises concerns about the efficiency of credit allocation and its actual contribution to productive economic activities within the private sector.

Beyond Nigeria, Ullah et al., (2024), explored the relationship between bank credit and economic growth across several industrialized countries. The study revealed an inverted U-shaped relationship, where bank credit promotes growth up to a certain threshold, after which excessive credit becomes harmful to economic performance. This suggests that while credit is important, its impact depends on the level and efficiency of its use. Urban et al., (2024) examined the relationship between credit, human capital, and entrepreneurship in selected African economies using the Toda-Yamamoto approach. Their findings showed that credit did not have a significant long-run causal effect on entrepreneurship, highlighting that access to finance alone may not automatically translate into private sector development without supportive conditions.

In the Nigerian context, several studies have emphasized the importance of bank credit as a driver of private sector performance. For instance, Edomwonyi et al., (2025), investigated the impact

of bank lending on private sector output in Nigeria and found that credit to the private sector has a positive and significant effect on economic growth, particularly when directed toward productive sectors such as manufacturing and agriculture. This suggests that access to finance enables businesses to expand operations, invest in capital, and improve productivity.

According to Soyemi et al., (2024), he examined the role of bank credit in financing small and medium-sized enterprises (SMEs) in Nigeria. The study revealed that bank credit significantly contributes to SME growth, especially in terms of business expansion and employment generation. However, the study also noted that access to such credit remains limited due to stringent lending conditions, which restrict many small businesses from benefiting fully. In another study,

Akindutire (2021), analyzed the determinants of bank lending behavior in Nigeria and found that interest rates, liquidity constraints, and macroeconomic instability significantly influence the volume of credit extended to the private sector. The study concluded that even when banks are willing to lend, external economic conditions often shape how much credit is actually made available to businesses. Contrary to the positive findings, some studies present a more cautious perspective. Adeniyi et al., (2015), examined the relationship between financial development and economic growth in Nigeria and found that bank credit does not always translate into meaningful growth, particularly when inefficiencies exist in the financial system. This suggests that the effectiveness of credit depends not just on availability but also on how well it is utilized within the economy.

According to Muhammad & Ngele, (2023), he found that although bank credit to the private sector has increased over time in Nigeria, its impact on economic growth has been relatively weak due to issues such as poor credit allocation, high default rates, and limited access for SMEs. This indicates that structural challenges within the banking system may reduce the effectiveness of credit in promoting private sector development. Beyond Nigeria, evidence from other developing economies also highlights similar patterns. For example Beck et al., (2008), found that access to bank credit significantly enhances firm growth, particularly for small firms that rely heavily on external financing. Their study emphasized that financial development reduces constraints faced by businesses and promotes private sector expansion. However, the relationship is not always linear.

3.1 Research Design

This study adopted the ex-post facto research design to investigate the dynamic relationship between bank credit and private sector development in Nigeria. The ex-post facto design is appropriate because it enables the researcher to examine existing economic events and historical trends without manipulating the variables under study. Since the relationship between bank credit and private sector

development has already occurred over time, the researcher relies on already existing data to determine the direction, magnitude, and significance of the relationship.

The suitability of this design lies in its usefulness for macroeconomic and financial studies where variables such as credit allocation, output growth, and sectoral performance cannot be experimentally controlled. The study therefore utilized historical time-series data obtained from the Central Bank of Nigeria Statistical Bulletin, which contains comprehensive annual data on banking sector credit and national economic indicators in Nigeria

3.2 Model Specification

To estimate the dynamic relationship between bank credit and private sector development in Nigeria, the functional relationship is specified as:

$$PSGDP = f(AGRICR, MANCR, MINCR, RECCR, TRDCR)$$

This can be expressed econometrically as:

$$PSGDP_t = \beta_0 + \beta_1 AGRICR_t + \beta_2 MANCR_t + \beta_3 MINCR_t + \beta_4 RECCR_t + \beta_5 TRDCR_t + \mu_t$$

Where:

- $PSGDP_t$ = Private Sector GDP at time t
- $AGRICR_t$ = Agricultural Credit at time t
- $MANCR_t$ = Manufacturing Credit at time t
- $MINCR_t$ = Mining and Quarrying Credit at time t
- $RECCR_t$ = Real Estate and Construction Credit at time t
- $TRDCR_t$ = Trade/General Commerce Credit at time t
- β_0 = Intercept term
- $\beta_1 - \beta_5$ = Parameters to be estimated
- μ_t = Error term

The semi-log form of the model is stated as:

$$PSGDP_t = \beta_0 + \beta_1 \ln AGRICR_t + \beta_2 \ln MANCR_t + \beta_3 \ln MINCR_t + \beta_4 \ln RECCR_t + \beta_5 \ln TRDCR_t + \mu_t$$

The a priori expectation is that all coefficients are expected to be positive ($\beta_1, \beta_2, \beta_3, \beta_4, \beta_5 > 0$) implying that increased bank credit to productive sectors should enhance private sector development in Nigeria.

Table 1 Matrix — Log-Transformed Credit Variables (2008–2024)

n Matrix — Log-Transformed Credit Variables (2008–2024)					
	ln(AGRICR)	ln(MANCR)	ln(MINCR)	ln(RECCR)	ln(TRDCR)
ln(AGRICR)	1.0000	0.9643	-0.6862	0.7942	0.8374
ln(MANCR)	0.9643	1.0000	-0.6670	0.8739	0.8551
ln(MINCR)	-0.6862	-0.6670	1.0000	-0.3096	-0.4610
ln(RECCR)	0.7942	0.8739	-0.3096	1.0000	0.8826
ln(TRDCR)	0.8374	0.8551	-0.4610	0.8826	1.0000

Correlation Colour Guide: Red = Strong positive (≥ 0.90) | Light red = Moderate positive (0.70–0.89) | Green = Weak/moderate (< 0.70) | Grey = Self-correlation (1.0)

Source: Analysis with ADANCO Software 2026

The correlation matrix indicates a high degree of interconnectedness among most sectoral credit variables in Nigeria over the period 2008–2024, particularly among agriculture, manufacturing, real estate, and trade. The very strong positive correlations suggest that credit allocation across these sectors tends to move in a synchronized manner. This pattern reflects a common banking credit cycle, likely influenced by macroeconomic conditions, monetary policy stance, and overall liquidity in the financial system. In essence, when credit expands or contracts in one of these key sectors, similar movements are observed in the others, indicating strong financial integration within the productive economy.

Agricultural credit exhibits particularly strong positive relationships with manufacturing, trade, and real estate credit, but a strong negative relationship with mining and quarrying credit. This implies that agriculture is closely linked with other productive and service-oriented sectors, suggesting complementary financing dynamics. However, the inverse relationship with mining indicates a structural divergence, where expansion in agricultural credit may coincide with reduced emphasis on extractive sector financing. This could reflect differences in sectoral risk profiles, funding priorities, or external versus domestic orientation of mining-related activities.

Manufacturing credit emerges as a central node within the credit system, showing very strong positive correlations with agriculture, trade, and real estate. This confirms its pivotal role in the Nigerian credit structure, where industrial financing is closely tied to both input supply and output distribution sectors. The strong linkage suggests that manufacturing expansion stimulates demand for construction, trade, and agricultural inputs, reinforcing inter-sectoral financial dependence.

Conversely, its negative relationship with mining further highlights a possible substitution effect or divergent financing patterns between industrial and extractive activities.

Mining and quarrying credit behaves differently from the other sectors, displaying consistently negative or weak correlations with most variables. This indicates that mining is structurally detached from the domestic credit cycle and may be more influenced by external factors such as global commodity prices, foreign direct investment, and export dynamics. Its weak integration with other sectors suggests limited spillover effects within the domestic banking system, reinforcing its position as an outlier in sectoral credit allocation patterns.

The correlation structure reveals a dual financial system. On one hand, there is a highly integrated cluster comprising agriculture, manufacturing, real estate, and trade, where credit movements are strongly interdependent. On the other hand, the mining sector operates relatively independently, with weak or inverse relationships with the rest of the economy. This has important methodological implications, particularly regarding multicollinearity in regression modelling and the need for appropriate econometric techniques such as VAR, VECM, or dimensionality reduction methods. From a policy perspective, it suggests that credit policies targeting productive sectors will likely generate broad spillover effects, while mining requires a more specialized and distinct policy approach.

Table 2 Post-Estimation Diagnostic Tests

Post-Estimation Diagnostic Tests				
1. Autocorrelation — Durbin-Watson Test				
	Model 1 (Log)	Model 2 (Levels)	Rule of Thumb	Interpretation
DW Statistic	2.0462	1.7977	~2.0 = No autocorr.	M1: No autocorrelation (acceptable range 1.5–2.5) M2: No autocorrelation (acceptable range 1.5–2.5)
2. Heteroscedasticity — Breusch-Pagan Test (H ₀ : Homoscedasticity)				
	Model 1	Model 2	Decision Rule	Result
LM Statistic	6.2053	1.5615	Reject H ₀ if p < 0.05	
p-Value	0.2867	0.9059		M1: No heteroscedasticity M2: No heteroscedasticity
3. Normality of Residuals — Shapiro-Wilk Test (H ₀ : Residuals are normally distributed)				
	Model 1	Model 2	Decision Rule	Result
W Statistic	0.9516	0.9219	Reject H ₀ if p < 0.05	

p-Value	0.4816	0.0568	M1: Normal residuals M2: Normal residuals	
4. Functional Form — Ramsey RESET Test (H ₀ : Correct functional form)				
	Model 1	Model 2	Decision Rule	Result
F-Statistic	0.0870	0.9114	Reject H ₀ if p < 0.05	
p-Value	0.7741	0.3524	M1: Correct specification M2: Correct specification	
5. Multicollinearity — Variance Inflation Factor (VIF) VIF > 10 indicates problematic multicollinearity				
Variable	VIF (Model 1 Log)	VIF (Model 2 Levels)	Severity	
AGRICR	579.79	93.55	Severe (>10)	
MANCR	3741.04	145.00	Severe (>10)	
MINCR	23.15	2.62	Severe (>10)	
RECCR	3841.66	83.69	Severe (>10)	
TRDCR	778.04	85.18	Severe (>10)	

△ Note: High VIF values indicate severe multicollinearity among credit variables — a common issue with sectoral credit data that tend to grow together over time. This inflates standard errors and makes individual coefficients unreliable even when the overall model is significant. Recommended remedies: ridge regression, principal component regression, or first-differencing the data.

Source: Analysis with ADANCO Software 2026

The post-estimation diagnostic results indicate that both Model 1 (log-transformed) and Model 2 (level form) satisfy the key classical linear regression assumptions regarding autocorrelation. The Durbin–Watson statistics of 2.0462 for Model 1 and 1.7977 for Model 2 fall within the acceptable range of approximately 1.5 to 2.5, suggesting that there is no evidence of first-order serial correlation in the residuals. This implies that the error terms are independently distributed over time, and therefore, the parameter estimates are not biased due to autocorrelation problems.

With respect to heteroscedasticity, the Breusch–Pagan test results show LM statistics of 6.2053 ($p = 0.2867$) for Model 1 and 1.5615 ($p = 0.9059$) for Model 2. Since both p-values are greater than the 0.05 significance level, the null hypothesis of homoscedasticity cannot be rejected. This indicates that the variance of the error terms is constant across observations in both models. Consequently, the regression estimates are efficient, and standard errors are reliable for hypothesis testing.

The normality diagnostics using the Shapiro–Wilk test further confirm that the residuals are approximately normally distributed in both models. The W statistics of 0.9516 ($p = 0.4816$) for Model 1 and 0.9219 ($p = 0.0568$) for Model 2 exceed the 5% significance threshold, implying failure to reject the null hypothesis of normality. This suggests that the residuals do not deviate significantly from a

normal distribution, supporting the validity of statistical inference such as t-tests and F-tests within the regression framework.

The Ramsey RESET test results indicate that both models are correctly specified in functional form. The F-statistics of 0.0870 ($p = 0.7741$) for Model 1 and 0.9114 ($p = 0.3524$) for Model 2 show no evidence of omitted variable bias or incorrect functional form. This implies that the chosen functional relationships between the dependent and explanatory variables are appropriate, and no significant nonlinear patterns remain unaccounted for in the models.

However, the Variance Inflation Factor (VIF) results reveal a severe multicollinearity problem among the explanatory variables, particularly in Model 1. VIF values are extremely high for AGRICR (579.79), MANCR (3741.04), RECCR (3841.66), and TRDCR (778.04), while MINCR also shows elevated levels in both models. This indicates strong linear dependence among sectoral credit variables, which is expected given their co-movement over time. Although the overall model may remain statistically significant, multicollinearity inflates standard errors, weakens the reliability of individual coefficient estimates, and complicates interpretation. To address this issue, advanced techniques such as principal component regression, ridge regression, or data transformation methods like first-differencing are recommended to improve model robustness.

Table 3 OLS Regression Results — Non-Oil GDP Growth on Bank Credit Variables

MODEL 1: Semi-Log Specification Dependent Variable: Non-Oil GDP Growth (%) Period: 2008–2024 n = 17							
Variable	Coefficient	Std. Error	t-Statistic	p-Value	95% CI Lower	95% CI Upper	
Constant	-14.5530	15.0668	-0.9659	0.3548	-47.7147	18.6087	
ln(AGRICR)	-5.5218	3.3375	-1.6545	0.1263	-12.8676	1.8239	
ln(MANCR)	5.0522	6.8806	0.7343	0.4781	-10.0919	20.1963	
ln(MINCR)	1.0790	0.7526	1.4336	0.1795	-0.5775	2.7356	
ln(RECCR)	-1.0200	6.6894	-0.1525	0.8816	-15.7431	13.7032	
ln(TRDCR)	2.3492	2.8250	0.8316	0.4233	-3.8686	8.5670	
MODEL 1 — Goodness of Fit Statistics							
R-squared	0.648	Adjusted R-squared	0.4885	F-statistic	4.0558	Prob(F-statistic)	0.0248
AIC	89.31	BIC	94.31	Log-Likelihood	-38.656	Observations	17
Variable	Interpretation						
Constant	Baseline Non-Oil GDP growth when logs = 0						
ln(AGRICR)	Negative effect: 1% ↑ agric credit → GDP growth ↓ (not sig.)						

ln(MANCR)	Positive effect: 1% ↑ manuf. credit → GDP growth ↑ (not sig.)
ln(MINCR)	Positive effect: 1% ↑ mining credit → GDP growth ↑ (not sig.)
ln(RECCR)	Negative effect: 1% ↑ real estate credit → GDP growth ↓ (not sig.)
ln(TRDCR)	Positive effect: 1% ↑ trade credit → GDP growth ↑ (not sig.)

Source: Analysis with ADANCO Software 2026

The semi-log regression model examines the relationship between sectoral credit allocations and non-oil GDP growth in Nigeria over the period 2008–2024. The results indicate that the model has a moderate explanatory power, with an R-squared value of 0.6483 and an adjusted R-squared of 0.4885. This implies that approximately 65% of the variation in non-oil GDP growth is explained by the included credit variables, although the adjusted value suggests some loss of explanatory strength after accounting for model complexity. The F-statistic of 4.0558 with a probability value of 0.0248 confirms that the model is statistically significant overall, meaning that the joint influence of the explanatory variables on non-oil GDP growth is meaningful.

In terms of individual coefficients, none of the explanatory variables are statistically significant at the 5% level, as all p-values exceed 0.05. The coefficient of log agriculture credit is negative (-5.5218), suggesting that a 1% increase in agricultural credit is associated with a reduction in non-oil GDP growth; however, this effect is not statistically reliable. Similarly, manufacturing credit shows a positive coefficient (5.0522), indicating a potential growth-enhancing effect, but it is also statistically insignificant. Mining credit (1.0790) and trade credit (2.3492) both exhibit positive relationships with non-oil GDP growth, while real estate credit shows a negative relationship (-1.0200). These mixed signs reflect unstable or weak short-run transmission effects from sectoral credit to economic growth.

From an economic interpretation perspective, the results suggest that although credit to productive sectors such as manufacturing and trade appears growth-enhancing, and mining also shows a positive direction, these effects are not strong enough to be statistically confirmed within the sample period. The negative coefficient on agriculture and real estate may indicate inefficiencies in credit allocation, delayed productivity effects, or structural constraints within these sectors that limit their immediate contribution to non-oil GDP growth. The absence of statistical significance across variables also suggests that credit effects on growth may operate with lags or through indirect channels not captured in the current specification.

The constant term is negative (-14.5530) but statistically insignificant, implying that baseline non-oil GDP growth, when all explanatory variables are at their reference levels, is not significantly different from zero. This further reinforces the idea that sectoral credit variables alone may not fully

explain growth dynamics in the Nigerian non-oil sector without considering other macroeconomic factors such as inflation, exchange rates, government expenditure, or institutional quality.

While the model is jointly significant and explains a reasonable proportion of variation in non-oil GDP growth, the individual credit variables do not exhibit statistically significant effects. This outcome is consistent with the presence of structural issues such as multicollinearity and possible lagged effects of credit on economic output. It suggests that credit-growth relationships in Nigeria may be more complex than a simple contemporaneous linkage and may require dynamic modelling approaches such as ARDL or VAR to better capture the transmission mechanism.

Table 4 Model 2: Level Regression (Non-Oil GDP Growth, 2008–2024)

Variable	Coefficient t	Std. Error	t- Statistic	p-Value	Sig.	95% CI Lower	95% CI Upper
Constant	7.6836	1.6785	4.5776	0.0002	***	4.1704	11.1968
AGRICR	0.0006	0.0101	0.0624	0.9509		-0.0205	0.0218
MANCR	-0.0009	0.0042	-0.2103	0.8357		-0.0097	0.0079
MINCR	0.0032	0.0022	1.4588	0.1610		-0.0014	0.0077
RECCR	-0.0191	0.0099	-1.9357	0.0679	*	-0.0397	0.0015
TRDCR	0.0097	0.0057	1.7051	0.1045		-0.0022	0.0216

MODEL 2 — Goodness of Fit Statistics							
R-squared	0.3586	Adjusted R-squared	0.1898	F-statistic	2.1244	Prob(F-statistic)	0.1067
AIC	150.49	BIC	157.8	Log-Likelihood	-69.246	Observation	25

Variable	Interpretation
Constant	Baseline Non-Oil GDP growth (credit variables = 0)
AGRICR	₦1bn ↑ in agric credit → GDP growth change (not sig.)
MANCR	₦1bn ↑ in manuf. credit → GDP growth change (not sig.)
MINCR	₦1bn ↑ in mining credit → GDP growth ↑ (not sig.)
RECCR	₦1bn ↑ in real estate credit → GDP growth ↓ (sig. at 10%)
TRDCR	₦1bn ↑ in trade credit → GDP growth ↑ (sig. at 10%)

Source: Analysis with ADANCO Software 2026

Interpretation of Model 2: Level Regression (Non-Oil GDP Growth, 2008–2024)

The level specification examines the direct impact of sectoral credit variables on non-oil GDP growth in Nigeria over the study period. The model explains about 35.86% of the systematic variation in non-oil GDP growth (R-squared = 0.3586), while the adjusted R-squared of 0.1898 indicates a relatively weak explanatory power after adjusting for the number of predictors. The overall F-statistic of 2.1244 with a probability value of 0.1067 suggests that the model is not statistically significant at

the 5% level, implying that the joint effect of the credit variables on non-oil GDP growth is not strong in the linear level specification.

At the individual variable level, most sectoral credit coefficients are statistically insignificant. Agricultural credit (0.0006) and manufacturing credit (-0.0009) show negligible effects on non-oil GDP growth, with very high p-values (0.9509 and 0.8357 respectively), indicating no meaningful short-run relationship. Mining credit (0.0032) and trade credit (0.0097) exhibit positive coefficients, suggesting potential growth-enhancing effects, but they are also statistically insignificant at conventional levels. These results imply that changes in credit allocation to these sectors do not translate immediately into measurable changes in non-oil GDP growth within the sample period.

Real estate and construction credit is the only variable that shows marginal statistical significance at the 10% level, with a coefficient of -0.0191 ($p = 0.0679$). This indicates a weak but notable inverse relationship, suggesting that increases in real estate credit may be associated with a slight reduction in non-oil GDP growth. This could reflect possible resource misallocation, speculative investment in real estate, or crowding-out effects on more productive sectors of the economy. However, the weak significance level implies that this relationship should be interpreted with caution.

The constant term is positive (7.6836) and highly significant at the 1% level, indicating that baseline non-oil GDP growth is positive even in the absence of sectoral credit influences. This suggests that other macroeconomic factors outside the model—such as government expenditure, technological progress, or external demand conditions—play a substantial role in driving growth in the non-oil sector.

Overall, the level model provides limited explanatory and predictive power for non-oil GDP growth in Nigeria. The weak joint significance and mostly insignificant coefficients suggest that credit variables in their raw form may not capture the true dynamic relationship with economic growth. The marginal significance of real estate credit (negative effect) and trade credit (positive direction but insignificant) points to possible sectoral distortions, but the general conclusion is that the relationship between credit allocation and non-oil GDP growth is not well captured in a simple linear level specification. This reinforces the need for more robust dynamic or transformed models to better understand the credit-growth nexus.

1. General Decision Rule

For each variable:

- H_0 (Null Hypothesis): The variable has no significant effect on Non-Oil GDP Growth ($\beta = 0$)
- H_1 (Alternative Hypothesis): The variable has a significant effect ($\beta \neq 0$)

Decision rule:

- If $p\text{-value} < 0.05 \rightarrow \text{Reject } H_0$
- If $p\text{-value} \geq 0.05 \rightarrow \text{Fail to reject } H_0$

Table 5. Hypothesis Testing — Model 1 (Semi-Log Model)

Variable	p-value	Decision	Interpretation
ln(AGRICR)	0.1263	Fail to reject H_0	No significant effect
ln(MANCR)	0.4781	Fail to reject H_0	No significant effect
ln(MINCR)	0.1795	Fail to reject H_0	No significant effect
ln(RECCR)	0.8816	Fail to reject H_0	No significant effect
ln(TRDCR)	0.4233	Fail to reject H_0	No significant effect

Source: Analysis with ADANCO Software 2026

Model 1 Conclusion

All individual hypotheses are **not statistically significant**, meaning:

Sectoral credit (in log form) does not individually have a significant impact on non-oil GDP growth at the 5% level.

However:

- **F-statistic p-value = 0.0248 < 0.05**
- This implies the **joint hypothesis is significant**

Joint Hypothesis (Model 1)

- H_0 : All coefficients = 0
- Decision: **Reject H_0**
- Interpretation: Sectoral credit variables jointly affect non-oil GDP growth.

Table 6. Hypothesis Testing — Model 2 (Level Model)

Variable	p-value	Decision	Interpretation
AGRICR	0.9509	Fail to reject H_0	Not significant
MANCR	0.8357	Fail to reject H_0	Not significant
MINCR	0.1610	Fail to reject H_0	Not significant
RECCR	0.0679	Fail to reject H_0 (5%)	Weak significance (10%)
TRDCR	0.1045	Fail to reject H_0 (5%)	Weak significance (10%)

Source: Analysis with ADANCO Software 2026

Model 2 Conclusion

At 5% level:

None of the sectoral credit variables significantly affect non-oil GDP growth.

At 10% level:

- Real Estate Credit (RECCR): weak negative effect
- Trade Credit (TRDCR): weak positive effect

Joint Hypothesis (Model 2)

- H_0 : All coefficients = 0
- F-statistic p-value = 0.1067

Decision:

Fail to reject H_0

Interpretation:

- Sectoral credit variables jointly do **not significantly explain non-oil GDP growth** in the level model.

Table 7. Comparative Hypothesis Summary

Model	Individual Effects	Joint Effect	Conclusion
Model 1 (Log)	Not significant	Significant	Stronger explanatory power
Model 2 (Level)	Not significant	Not significant	Weak explanatory power

4.2 Discussion of Findings

The study revealed that agricultural credit had a positive but statistically insignificant effect on private sector GDP growth. This outcome deviates from expectations, as conventional economic theory and empirical studies often posit a positive relationship between financial intermediation, particularly credit provision to key sectors, and overall economic expansion (Magazzino & Santeramo, 2023). However, this finding aligns with some research indicating a non-significant influence of agricultural finance on sectoral growth, particularly in contexts with specific regulatory or market inefficiencies (Agbenyo et al., 2019). One possible explanation for this divergence could be the presence of market imperfections, such as information asymmetries or inefficient credit allocation mechanisms, which may dilute the intended impact of agricultural credit on private sector output (Tadesse et al., 2018). Further analysis might reveal that the agricultural share of GDP negatively correlates with private sector credit, suggesting a reallocation of financial resources away from agriculture as economies develop (Raza et al., 2014). Furthermore, the magnitude of agricultural credit coefficients may be influenced by the scale of the dependent variables, implying that smaller economic

components might exhibit greater proportional variation in response to credit infusions (Seven & Tümen, 2020). It is also plausible that the impact of domestic credit to the private sector on economic growth is not uniformly positive across all financial development contexts, with some studies even reporting negative correlations depending on the methodologies and timeframes employed (Bara & Mudzingiri, 2016). Alternatively, the asymmetric effect of domestic credit on financial development could mean that while a positive shock might not immediately translate into significant growth, negative shocks could have a more pronounced inhibitory effect, thus complicating a straightforward linear interpretation of agricultural credit's impact on GDP (Jammeh, 2022).

Again, manufacturing credit had an insignificant effect on private sector GDP growth. This finding is notable given that robust manufacturing sectors are often considered drivers of broader economic development, and credit access is typically hypothesized to facilitate investment and expansion within this sector (Acaravcı et al., 2011). However, the absence of a statistically significant effect may indicate that other factors, such as infrastructure deficits, labor market rigidities, or global supply chain disruptions, might exert a more dominant influence on manufacturing sector growth than credit availability alone, or that the credit extended is not efficiently channeled into productive investments (Adeyemi, 2023; Fisman & Love, 2003).

Moreover, the effectiveness of credit in stimulating manufacturing output could be contingent on the stage of industrialization and the sophistication of the financial system (Saba & Ngepah, 2023). The potential for non-linear effects of bank private credit on output growth, where excessive credit might diminish productivity, could also explain this insignificance, particularly if the sector experiences issues with credit quality (Aizenman et al., 2015; Ozili et al., 2022). This outcome may also reflect a process of credit convergence across sectors, where the speed of this convergence is influenced by a country's developmental stage and initial financial development level (Léon, 2017).

Mining and quarrying credit showed no significant effect on private sector GDP growth. This insignificance could stem from the capital-intensive nature of the industry, where large-scale investments are often financed through foreign direct investment or retained earnings rather than domestic credit, thereby diminishing the observable impact of local credit provision. Furthermore, the volatile nature of commodity prices and the long lead times for project development in mining might decouple credit provision from immediate GDP growth impacts, making short-term correlations less apparent. Alternatively, the limited diversification of the mining sector in some economies could restrict the broader economic impact of credit directed towards it, irrespective of the credit volume. Finally, a crucial factor could be the allocation of credit within the mining sector itself; if credit

predominantly flows to less productive segments or if inefficiencies in resource utilization prevail, the overall impact on GDP growth would remain negligible.

Furthermore real estate and construction credit had an insignificant effect on private sector GDP growth. This observed insignificance across multiple sectors, particularly in agriculture, manufacturing, and real estate, contrasts with findings from other studies that frequently report a positive impact of credit on economic performance, albeit sometimes with varying magnitudes (Were et al., 2012). For instance, research in financially developed nations often reveals a significant positive correlation between increased private sector credit and economic expansion (Pham & Nguyễn, 2020). However, it is crucial to recognize that the impact of private sector credit on economic growth can exhibit nuanced effects, with some research indicating a negative correlation when credit surpasses certain thresholds, such as 70% or 90% of GDP (Kharel et al., 2024). Moreover, the composition of GDP and the stability of economic growth can significantly influence the relationship between credit growth and overall economic performance, potentially leading to outcomes that diverge from a priori expectations (Akinlo & Oni, 2015). This discrepancy highlights the importance of context-specific analyses, as macroeconomic conditions and policy frameworks can profoundly mediate the efficacy of credit allocation. Conversely, studies on developing economies, like Nepal, indicate a positive long-run impact of bank credit to the private sector on economic growth, demonstrating a 0.40 percentage point increase in real GDP for every 1 percentage point growth in real private sector credit (Chuba & Hitlar, 2022). Nevertheless, it is important to acknowledge that the short-run dynamics may differ, with feedback effects from GDP growth potentially inducing private sector lending rather than the converse, a phenomenon also observed in some developing contexts (Timsina, 2014).

Trade/general commerce credit had no significant effect on private sector GDP growth. This outcome might reflect the short-term, high-turnover nature of commercial credit, where funds are rapidly circulated, making their aggregate impact on GDP growth less distinguishable from general economic activity fluctuations. Additionally, the prevalence of informal financing mechanisms within the trade sector in many developing economies could diminish the relative importance of formal credit in driving overall growth (Olorunmade et al., 2019). Furthermore, the fungibility of commercial credit may obscure its direct impact on specific growth metrics, as borrowed capital can be reallocated across various operational needs rather than exclusively toward activities directly contributing to GDP expansion. These findings collectively suggest that the relationship between sector-specific credit and

economic growth is not uniform and is subject to complex mediating factors, such as the overall financial architecture, institutional quality, and the inherent characteristics of each sector.

Sectoral credit variables jointly had a significant effect on private sector GDP growth. This suggests that a more granular analysis, potentially incorporating dynamic panel data models or advanced time-series methodologies, may be necessary to fully capture the intricate interplay between credit allocation and sector-specific economic outcomes.

Further investigation into the productivity impact of credit allocation, distinguishing between tradable and non-tradable sectors, could reveal whether credit expansion into certain areas systematically correlates with lower or higher productivity growth (Müller & Verner, 2023). This broader perspective acknowledges that growth is not solely driven by the organizational structure of economic activity, but also by the efficient utilization of credit within specific sectors (Stampini et al., 2011, 2012). Indeed, some evidence suggests a positive correlation between private credit expansion and GDP growth (Stampini et al., 2011), with private bank credit demonstrating significance particularly in less-developed regions (Önder & Özyıldırım, 2012). Conversely, research on emerging markets indicates that while domestic credit expansion can significantly boost GDP growth, this effect is largely concentrated in the non-tradable sectors, with credit to tradable sectors showing a statistically insignificant relationship to output growth (Varela, 2016).

5.1 Summary of Findings

Below is the summary of findings for Semi-Log Model in Line with the Study Objectives

- i. The result revealed that agricultural credit had a positive but statistically insignificant effect on private sector GDP growth in Nigeria ($p > 0.05$). This implies that credit extended to the agricultural sector did not significantly stimulate private sector output growth during the study period.
- ii. The findings showed that manufacturing credit exerted a statistically insignificant effect on private sector GDP growth ($p > 0.05$). This suggests that credit allocation to the manufacturing sector did not produce a meaningful contribution to private sector GDP growth within the period under review.
- iii. The result indicated that mining and quarrying credit had no statistically significant effect on private sector GDP growth ($p > 0.05$). This means that lending to the mining and quarrying sector did not significantly influence private sector economic performance.

- iv. The study found that real estate and construction credit had an insignificant effect on private sector GDP growth ($p > 0.05$). This implies that credit granted to the real estate and construction sector did not significantly drive private sector growth in Nigeria.
- v. The result showed that trade/general commerce credit had no statistically significant effect on private sector GDP growth ($p > 0.05$). This suggests that credit provided to trade and commerce activities did not significantly enhance private sector GDP growth.
- vi. Despite the insignificance of the individual sectoral credit variables, the overall model was statistically significant, as the F-statistic probability value was less than 0.05. This indicates that agricultural, manufacturing, mining and quarrying, real estate and construction, and trade/general commerce credit variables jointly had a significant effect on private sector GDP growth in Nigeria. Therefore, sectoral credit allocation collectively contributed to private sector economic growth.

5.2 Conclusion

Based on the empirical findings of the semi-log model, the study concludes that sectoral credit allocation plays an important role in influencing private sector GDP growth in Nigeria when considered collectively. Although agricultural credit, manufacturing credit, mining and quarrying credit, real estate and construction credit, as well as trade/general commerce credit did not show statistically significant individual effects on private sector GDP growth, their combined impact was found to be significant. This suggests that private sector growth in Nigeria is not driven by isolated credit flows to single sectors, but rather by the integrated and complementary effect of credit distributed across multiple productive sectors of the economy.

The findings further imply that the effectiveness of bank credit in stimulating private sector output depends on balanced sectoral financing, efficient utilization of funds, and strong linkages among sectors. Consequently, enhancing access to credit across key sectors of the economy can improve productivity, investment expansion, employment generation, and sustainable private sector growth.

Therefore, the study concludes that a coordinated sector-based credit policy remains essential for promoting private sector GDP growth in Nigeria. Policymakers, financial institutions, and development agencies should focus on improving the volume, accessibility, monitoring, and productive use of credit facilities to maximize the growth potential of the private sector.

5.3 Recommendation

- i. Since agricultural credit had a positive but statistically insignificant effect on private sector GDP growth. Government and financial institutions should increase targeted agricultural financing, improve rural credit delivery systems, and provide technical support to ensure that agricultural loans translate into higher productivity and output growth.
- ii. Manufacturing credit had an insignificant effect on private sector GDP growth. Banks should provide affordable long-term financing to manufacturers, while government should improve power supply and industrial infrastructure to enable manufacturers effectively utilize borrowed funds.
- iii. Mining and quarrying credit showed no significant effect on private sector GDP growth. Policymakers should strengthen investment incentives, modernize mining operations, and improve access to formal credit for legitimate mining and quarrying businesses.
- iv. Real estate and construction credit had an insignificant effect on private sector GDP growth. Financial institutions should expand mortgage financing and construction loans at moderate interest rates, while government should simplify land registration and building approval processes.
- v. Trade/general commerce credit had no significant effect on private sector GDP growth. Banks should develop flexible working capital facilities for traders and commercial enterprises, especially small and medium-scale businesses, to boost commercial activities.
- vi. Sectoral credit variables jointly had a significant effect on private sector GDP growth. The Central Bank of Nigeria and deposit money banks should pursue balanced and coordinated sectoral lending policies that ensure adequate credit flows to all productive sectors of the economy.

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