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Bank credit and sectoral growth in Nigeria: An assessment of agriculture, manufacturing and mining contributions to economic growth

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Abstract

Agriculture is Nigeria's largest employer of labour, accounting for about 60 per cent of the workforce, working mainly in small-holdings using basic tools. Alongside livestock farming, it provides a 3rd of gross domestic product. The first goal of agricultural financing policies in Nigeria is to determine an efficient system of sustainable agricultural financing schemes, programs and institutions which could provide micro and macro credit facilities for the small, medium and large scale producers, processors also as marketers. In light of the matter identified above, the study evaluated bank credit and sectoral growth in Nigeria: an assessment of agriculture, manufacturing, and mining contributions to economic growth. The research approach utilized in the study was Ex-post Factor research design which involved dependent and explanatory variables. Secondary data were sourced from various government offices and agencies, and formulated hypotheses were tested using ordinary least square regression. The study showed that agricultural output has both positive and significant impact on real gross domestic product while real gross domestic product, agricultural loans and rate of interest made insignificant statistical impact on economic process. The study recommended that policy makers should intensify efforts towards ensuring that Agricultural Loans obtained are judiciously, effectively and efficiently utilized to supply the economic process enablers also because the government should work to encourage private investment in agriculture and agro-allied industries by providing incentives, including tax breaks, adequate extension services, improved storage facilities and market accessibility to the dominant farming population

Keywords: Bank Credit; Sectoral Growth; Agriculture; Manufacturing; Mining; Economic Growth

1. Introduction

A sound financial system is widely acknowledged as both a necessary and sufficient condition for rapid economic growth and sustainable development in any modern economy [1]. Deposit money banks, particularly, have historically played a critical role in financial intermediation across both developed and emerging economies. The health of an economy is closely tied to the stability and efficiency of its banking sector, as it facilitates capital flow between surplus and deficit sectors, ensuring that productive economic activities are adequately financed. The importance of bank credit in fostering economic growth and development has been well-documented in the economic literature.

In developing economies such as Nigeria, access to credit is essential for enhancing the performance of key sectors like agriculture, manufacturing, and mining. These sectors are considered pivotal for economic diversification and long-term sustainability. Agriculture, for instance, employs a substantial portion of Nigeria's population but has historically suffered from underfunding, which has limited its capacity to contribute significantly to national GDP [2]. Adequate bank credit to this sector could lead to improved productivity, adoption of modern farming techniques, and a boost in the livelihoods of smallholder farmers.

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Similarly, the manufacturing sector, which holds considerable potential for driving industrialization and economic transformation, has faced significant challenges due to limited access to credit. Despite its strategic importance, the sector has struggled to access affordable financing, which has hindered its ability to invest in capital-intensive processes and expand production capacity [3]. An influx of credit into the manufacturing sector could facilitate technological innovation, enhance competitiveness, and ultimately lead to economic growth.

The mining sector, although less prominent in comparison to agriculture and manufacturing, holds substantial potential for contributing to Nigeria's economic development. Nigeria's mining sector is endowed with abundant natural resources, yet the sector's contribution to GDP remains relatively low. This can be attributed to insufficient financial support for mining enterprises, which limits exploration and extraction activities [4]. With adequate financial backing, the sector could serve as a driver for economic diversification, reducing the country's dependence on oil exports.

Despite the recognized importance of bank credit, its impact on the performance of these sectors remains a topic of ongoing debate. Several empirical studies have demonstrated a positive relationship between credit availability and sectoral growth, highlighting the role of credit in enhancing productivity, investment, and overall economic output ([5-6]). These studies suggest that when credit is accessible at favorable terms, it can stimulate sectoral expansion, job creation, and improved economic stability.

However, the effectiveness of bank credit is often undermined by challenges such as high interest rates, poor credit management, and the inherent instability within the Nigerian financial system [7]. High interest rates, for instance, increase the cost of borrowing, making it difficult for businesses to service loans or embark on capital-intensive projects. Additionally, poor credit risk assessment practices by banks may lead to the allocation of credit to less productive sectors or the proliferation of non-performing loans, both of which could stifle economic growth.

Given these mixed findings in the literature, there is a growing need for a more nuanced understanding of how bank credit influences the performance of the agriculture, manufacturing, and mining sectors in Nigeria. This study seeks to bridge this gap by providing empirical evidence on the relationship between bank credit and the productivity and output of these critical sectors. It aims to contribute to the broader discourse on financial inclusion and economic development by offering insights that can inform policy decisions regarding the optimal allocation of credit resources.

The primary objective of this study is to examine the impact of bank credit on the Nigerian economy, with a focus on the agriculture, manufacturing, and mining sectors. The specific objectives are to:

- Assess the impact of bank credit on the growth and productivity of the agriculture sector in Nigeria.
- Evaluate the influence of bank credit on the expansion and development of the manufacturing sector.
- Analyze the effect of bank credit on the performance and output of the mining sector in Nigeria.
- Investigate the challenges associated with the accessibility and utilization of bank credit in these sectors.
- Provide policy recommendations based on the findings to enhance the effectiveness of bank credit in promoting sectoral growth and overall economic development.

2. Literature Review

The literature review aims to provide an in-depth analysis of secondary sources to gain a comprehensive understanding of theories and their impact. By examining previous research, the review seeks to establish a foundational context for exploring the variables as it relates to Nigerian economy.

2.1. Bank Credit

Credit, in its simplest form, is the provision of money or resources to an individual or entity with the expectation of repayment within a specified time period. In the context of the banking industry, the act of lending money is commonly referred to as loans, and it carries an added cost in the form of interest. This interest serves as a fee for the service provided by the bank, allowing the lender to compensate for the risk of lending and to generate profit. Commercial banks, as profit-oriented institutions, are primarily established to conduct banking operations with the overarching aim of maximizing returns for their shareholders. While extending loans and advances to customers is a key operational function, the ultimate goal remains profit generation, which is achieved through the interest charged on these financial products.

The determination of interest rates charged by commercial banks is typically influenced by several factors. These include prevailing market conditions, the cost of funds, and, most notably, the Monetary Policy Rate (MPR) set by the

Central Bank of Nigeria (CBN). The MPR serves as a benchmark for other interest rates in the economy, guiding banks on how to price their loans. Consequently, when the CBN adjusts its policy rate, it has a direct impact on the cost of borrowing for businesses and individuals across the country.

Lending is not only a central function of commercial banks but also a significant source of revenue. The size of loans and advances extended to customers often forms a substantial part of a bank's asset portfolio. This highlights the importance of credit as a financial service and its role in supporting both the bank's profitability and the broader economy. Lending practices are not static; they evolve in response to economic conditions, monetary policies, and the needs of the market. Over the years, Nigerian commercial banks have shown a consistent increase in the volume of credit granted to borrowers, reflecting the growing demand for financial resources in the economy [8].

2.2. The Role of Bank Credit in Economic Development

Bank credit refers to the loans and advances made available by financial institutions to individuals, businesses, and governments. It plays a critical role in financial intermediation, enabling the flow of funds from surplus sectors to those in need of capital. This process is essential for facilitating capital formation, spurring investment, and driving economic development (Adeniyi, 2020). Bank credit can take multiple forms, each serving different purposes and addressing specific needs within the economy.

Short-term working capital loans are designed to help businesses cover their day-to-day operational costs. These loans are crucial for maintaining liquidity, ensuring that businesses can meet payroll, manage inventory, and handle other operational expenses.

Medium-term credit facilities often provide financing for more substantial needs such as capital expenditures or business expansion. These facilities allow companies to invest in equipment, upgrade technology, or expand their operations without needing immediate repayment.

Long-term investment loans are typically used for large-scale projects with long gestation periods, such as infrastructure development, industrial projects, or major real estate ventures. These loans are essential for sectors like agriculture, manufacturing, and mining, where long-term investments can drive productivity and foster economic transformation.

The availability of bank credit is critical for sustaining the growth of key sectors in the economy. For instance, in Nigeria, sectors such as agriculture and manufacturing have long been identified as potential drivers of diversification and economic sustainability. However, their success is often limited by inadequate access to affordable credit (Olaitan & Floro, 2018). A well-functioning credit system not only provides businesses with the financial resources needed for growth but also facilitates job creation, poverty reduction, and improved living standards.

2.3. The Challenges of Bank Lending in Nigeria

While bank credit plays a pivotal role in economic development, there are challenges that can hinder its effectiveness in Nigeria. One such challenge is the high cost of borrowing, which often results from elevated interest rates. High interest rates can discourage businesses, especially small and medium-sized enterprises (SMEs), from accessing credit, as the cost of servicing loans becomes prohibitive. Moreover, stringent lending conditions, such as the requirement for substantial collateral, can also limit access to credit for individuals and small businesses.

Another issue is the risk of non-performing loans (NPLs), which can strain the banking system. Poor credit management practices, coupled with inadequate risk assessment frameworks, can result in banks lending to borrowers who are unable to repay. This not only affects the profitability of banks but also destabilizes the broader financial system. To address these challenges, it is essential for Nigerian banks to strengthen their credit assessment processes and align their lending practices with best international standards.

2.4. Economic Growth

Economic growth refers to the sustained increase in the production of goods and services within an economy over a period, often measured by the rise in Gross Domestic Product (GDP). This growth signifies the expanding capacity of an economy to meet the needs of its population, fostering improved living standards, job creation, and overall economic development. Various factors drive economic growth, including investment, labor force productivity, technological advancements, and access to finance. In developing economies like Nigeria, access to bank credit has long been

recognized as a critical enabler of growth, as it facilitates investment in key sectors that drive productivity and expansion (Ogunleye & Adegbite, 2021).

Economic growth is not merely a singular measure but encompasses multiple dimensions of economic performance. Olowofeso et al. (2015) emphasize that while there are various conceptions and ways to measure economic growth, the most fundamental approach focuses on the long-term productive capacity of an economy. This is typically assessed through real growth in GDP, which accounts for inflation and provides a more accurate reflection of the economy's true expansion. Additionally, real GDP growth is seen as a comprehensive indicator of a nation's overall economic health, encompassing its ability to produce goods and services efficiently and sustainably.

A nation's economic growth is closely linked to fluctuations in key macroeconomic indicators such as industrial production, inflation rates, exchange rates, and manufacturing capacity utilization. These indicators not only reflect the current state of the economy but also shape macroeconomic policies designed to foster long-term growth. For instance, a rise in industrial production signals increased economic activity, while stable inflation and exchange rates contribute to economic stability and investor confidence. When these macroeconomic fundamentals are favorable, they create an environment conducive to sustainable growth.

However, economic growth is not immune to external disruptions or shocks. As Moinescu and Cordilasu (2011) argue, exogenous shocks such as a recession in a major trading partner can lead to a significant slowdown in economic activity. In such situations, companies and households experience reduced income, which, in turn, diminishes their ability to meet their financial obligations, including repaying loans to credit institutions. This dynamic highlights the interconnectedness between economic growth and the broader financial system. During periods of economic downturn, reduced income levels can lead to a contraction in credit availability as financial institutions tighten lending to manage risk.

Access to finance, particularly bank credit, plays a vital role in supporting economic growth, especially in developing economies. It provides businesses with the necessary capital to invest in expansion, adopt new technologies, and increase production capacity. In Nigeria, for example, credit availability has been identified as a key factor in promoting growth across various sectors, including agriculture, manufacturing, and services. Ogunleye and Adegbite (2021) observe that when credit is accessible and affordable, it fosters entrepreneurial activity, encourages private sector development, and promotes overall economic resilience.

Moreover, economic growth is a critical indicator of a nation's well-being at any given time. It reflects the economy's capacity to generate wealth, create jobs, and improve the standard of living for its citizens. A growing economy often leads to higher levels of employment, better access to public services, and improved infrastructure. In contrast, when economic growth slows, there are often negative consequences for employment, household income, and the broader social fabric. The relationship between economic growth and societal well-being is thus deeply intertwined, with the health of the economy serving as a barometer for the quality of life in a nation.

2.5. Theoretical Framework

The theoretical framework provides the foundation upon which the study is built. The following theories are relevant to understanding the relationship between bank credit and sectoral growth:

2.6. Financial Intermediation Theory

The Financial Intermediation Theory posits that financial institutions, especially banks, play a pivotal role in the economy by acting as intermediaries between savers and borrowers. This process of channeling funds from those with surplus capital to those in need of it is fundamental for economic growth and development, as it enables the efficient allocation of resources, stimulates investment, and promotes capital formation (Gurley & Shaw, 1960). By pooling savings and reducing information asymmetry, financial institutions make it easier for businesses and individuals to access funds for productive investments, thereby enhancing overall economic efficiency.

In the context of this study, the Financial Intermediation Theory underscores the importance of bank credit as a tool for fostering economic growth in critical sectors like agriculture, manufacturing, and mining. By facilitating the flow of credit to these sectors, banks enable businesses to invest in new technologies, expand operations, and improve productivity. For instance, in the agriculture sector, bank loans can provide farmers with the resources needed to purchase modern equipment, improve yields, and diversify production. Similarly, in the manufacturing sector, access to affordable credit allows firms to invest in machinery, scale production, and compete in both domestic and international markets.

The theory further suggests that financial intermediation can mitigate the risks associated with direct lending between savers and borrowers. Banks, with their expertise in credit assessment and risk management, reduce the likelihood of default by screening borrowers and monitoring the use of funds. This not only protects depositors but also ensures that capital is allocated to the most productive ventures, thereby contributing to economic growth.

For sectors like mining, which often require significant long-term investments, the role of financial intermediation is even more pronounced. Without access to credit, businesses in this capital-intensive sector may struggle to fund exploration and development activities, thereby limiting their contribution to the economy. By extending long-term loans, banks enable these firms to undertake large-scale projects that have the potential to drive economic transformation and diversification.

2.7. Credit Rationing Theory

Stiglitz and Weiss (1981) developed the Credit Rationing Theory, which addresses the role of information asymmetry between borrowers and lenders in financial markets. Information asymmetry arises when lenders (banks) do not have sufficient information about the risk profile of borrowers, leading to uncertainty in credit decisions. As a result, banks may limit the amount of credit they extend to certain borrowers or sectors, even if those borrowers are willing to accept higher interest rates. This phenomenon occurs because higher interest rates might attract riskier borrowers, increasing the likelihood of loan defaults. Consequently, instead of raising interest rates, banks prefer to ration credit—providing limited loans to reduce the potential risks of non-repayment.

The Credit Rationing Theory is particularly relevant to this study, as it highlights one of the major obstacles faced by key sectors, such as agriculture, manufacturing, and mining, in accessing adequate credit. These sectors often face challenges in meeting collateral requirements, or they may be perceived as high-risk due to the volatility of commodity prices, inconsistent production levels, or other sector-specific risks. As a result, banks may be reluctant to lend to businesses within these sectors, thereby limiting their growth potential and overall contribution to the economy.

In Nigeria, where these sectors are crucial for economic diversification and development, credit rationing could significantly hinder progress. For instance, small-scale farmers or emerging manufacturers may struggle to access the funds needed to scale operations or adopt new technologies, which are essential for enhancing productivity. Similarly, the mining sector, which requires substantial upfront capital for exploration and development, may face barriers in obtaining long-term financing due to perceived risks and the lengthy payback period.

Stiglitz and Weiss's (1981) theory also underscores the limitations of relying solely on higher interest rates to allocate credit efficiently. In cases where credit rationing occurs, raising interest rates may not lead to an optimal distribution of credit, as it could drive more creditworthy, low-risk borrowers out of the market. Instead, banks might resort to other strategies, such as stricter collateral requirements or closer monitoring of loans, to mitigate risk. This often results in credit being concentrated in sectors or businesses that are already financially stable, further exacerbating inequalities in credit access across different industries.

2.8. Solow-Swan Growth Model

The Solow-Swan Growth Model, developed by Robert Solow (1956) and Trevor Swan, emphasizes three key factors that drive long-term economic growth: capital accumulation, technological advancement, and labor. According to this model, economic growth is primarily the result of increased inputs in these factors, with capital playing a pivotal role in boosting production capacity. Capital accumulation, in particular, is essential for investment in infrastructure, machinery, and technology, which leads to greater productivity and higher output over time.

Bank credit plays a critical role in this framework by serving as a primary vehicle for capital accumulation. It provides businesses and individuals with the necessary funds to invest in productive activities, such as expanding operations, acquiring new technologies, and increasing efficiency. In essence, access to bank credit allows firms to accumulate the physical and human capital required to drive long-term growth. This makes credit a vital enabler of the kind of investments that lead to sustained improvements in productivity and economic output.

In the context of developing economies like Nigeria, the Solow-Swan Growth Model supports the notion that increased access to bank credit can significantly contribute to economic growth, particularly in sectors like agriculture, manufacturing, and mining. These sectors are crucial for Nigeria's economic diversification and long-term development strategy. For example, in agriculture, credit can be used to invest in modern farming techniques, machinery, and irrigation systems, which in turn increase agricultural output and efficiency. Similarly, in the manufacturing sector, access to credit allows firms to scale up operations, adopt new technologies, and enhance their competitiveness, both

domestically and internationally. In the mining sector, which is capital-intensive, long-term loans and credit facilities are essential for exploration, resource extraction, and development projects.

The model also emphasizes the importance of technological advancement as a key driver of sustained economic growth. Bank credit not only supports capital accumulation but also facilitates the adoption of new technologies, which are critical for enhancing productivity and achieving higher growth rates. For instance, businesses that have access to credit can invest in advanced machinery or digital technologies, leading to more efficient production processes and higher output.

However, the Solow-Swan Growth Model also notes that capital accumulation alone is not sufficient for sustained long-term growth. Technological progress and improvements in labor productivity are equally important. This underscores the need for credit not just to finance capital investments but also to support innovations that lead to technological advancement. In sectors like agriculture, manufacturing, and mining, technological improvements can significantly increase output, reduce costs, and enhance the overall competitiveness of the economy.

2.9. Empirical Review

Several empirical studies have investigated the impact of bank credit on various sectors of the Nigerian economy, revealing a generally positive relationship between credit access and economic growth, but also highlighting significant challenges that limit credit availability, particularly for smaller players in agriculture and manufacturing.

Ayodele (2019) examined the relationship between agricultural finance and Nigeria's economic growth using Ordinary Least Square (OLS) multiple regression analysis. The study found that agricultural credit provided by banks had a significant and positive impact on economic growth. Similarly, Okosodo (2016) explored the relationship between agricultural credit and economic growth from 1980 to 2014. The study employed cointegration, unit root tests, and error correction mechanisms, which revealed a long-term relationship between agricultural sector credit provided by commercial banks and economic growth.

Further supporting these findings, Olaitan and Floro (2018) found that bank credit significantly impacts agricultural productivity in Nigeria, particularly when combined with government support and favorable policies. However, the study also highlighted key barriers, such as high interest rates and stringent collateral requirements, which limit the accessibility and benefits of credit for smallholder farmers. This limitation indicates that while credit plays a critical role in agricultural growth, more needs to be done to improve its accessibility.

Anetor et al. (2016) also examined the impact of agricultural credit on agricultural productivity in Nigeria from 1981 to 2013, using the Autoregressive Distributed Lag (ARDL) model. Their results indicated a positive and significant relationship between agricultural credit and productivity, both in the short and long run, suggesting that sustained credit provision can enhance agricultural output.

Uzor (2019) reported that manufacturing firms with better access to credit facilities were more likely to invest in new technologies, increase production, and expand their market share. However, the study also noted significant barriers to accessing credit in the Nigerian manufacturing sector, including high interest rates and complex loan application processes, which disproportionately affect small and medium-sized enterprises (SMEs).

Ebele and Terhemba (2016), along with Olalekan et al. (2016), investigated the effects of commercial bank credit on the output of the manufacturing sector in Nigeria from 1980 to 2015. Using the Cochrane-Orcutt method and various statistical tests, they found that loans, advances, and broad money supply had a positive effect on manufacturing sector output. However, inflation and high interest rates were found to have negative effects on the sector's productivity.

Complementing these findings, Ogar et al. (2014) examined the impact of commercial bank loans on manufacturing sector output in Nigeria from 1992 to 2011, using OLS regression analysis. Their results confirmed a positive and significant relationship between commercial bank loans and the output of the manufacturing sector, reinforcing the role of credit in enabling manufacturing growth.

Ajayi (2017) found that bank credit positively influences mining activities in Nigeria. However, the study emphasized that the sector remains underfunded due to the perceived risks and uncertainties associated with mining operations. Ajayi's findings highlighted the need for improved financial support and risk mitigation strategies, such as government-backed guarantees or credit subsidies, to encourage more investment in the sector.

Orimogunje (2019) examined the role of bank credit in Nigeria's economic growth and inflation rate from 1996 to 2014. Using descriptive statistics and Granger causality tests, the study found a statistically significant relationship between Domestic Credit and Net Domestic Credit with GDP, but no significant relationship with inflation, indicating that while credit drives growth, it does not necessarily lead to inflationary pressures.

Nwakanma et al. (2014) explored the long-run relationship between private sector credit and Nigeria's economic growth from 1981 to 2011. Using the ARDL and Granger causality techniques, they found a significant long-run relationship between bank credits and economic growth but no significant causal relationship, implying that while credit supports growth, it may not be the primary driver.

Emecheta and Ibe (2014) analyzed the impact of bank credit on economic growth in Nigeria from 1960 to 2011, employing Vector Autoregressive (VAR) techniques. They found a significant positive relationship between private sector credit, broad money supply, and economic growth, suggesting that increased access to financial resources is crucial for economic expansion.

Akpansung and Babalola (2011) further examined the relationship between banking sector credit and economic growth in Nigeria from 1970 to 2008. Using Granger causality and OLS regression, they concluded that private sector credit positively influences economic growth, while high lending rates impede growth.

3. Methodology

This study adopts an ex-post facto research design. It is a time series study covering period of 2000 to 2023. Secondary data are collected from the Central Bank of Nigerian and National Bureau of Statistics annual bulletin.

The study is guided by the following hypotheses:

- H_1: Bank credit has a significant positive impact on the growth and productivity of the agriculture sector in Nigeria.
- H_2: Bank credit significantly influences the expansion and development of the manufacturing sector in Nigeria.
- H_3: Bank credit has a significant effect on the performance and output of the mining sector in Nigeria.
- H_4: The challenges associated with the accessibility and utilization of bank credit significantly hinder its effectiveness in promoting sectoral growth.

3.1. Method of Data Analysis

The model for this study is specified in implicit and explicit forms as follows:

The function relationship between the variables and proxies can be expressed as follow;

$$RGDP = F\ (AGRIC, MANU, MINI, INT)\ldots\ldots\ldots\ldots eq1$$

$$RGDP = \beta 0 + \beta 1AGRIC + \beta 2MANU + \beta 3MINI + \beta 4INT + e$$

Where;

RGDP = Real Gross Domestic Products as proxy for economic growth.

a0 = Intercept

β1 – β5 = Coefficients

AGRIC = Commercial Bank Loans and Advances to Agricultural sector

MANU = Commercial Bank Loans and Advances to Manufacturing sector

MINI = Commercial Bank Loans and Advances to Mining/quarrying sector

INT= Lending rate

e = Error Term

4. Data Analyses and Interpretation of Results

This study adopts an ex-post facto research design. It is a time series study covering period of 2000 to 2023. Secondary data are collected from the Central Bank of Nigerian and National Bureau of Statistics annual bulletin.

Table 1 Descriptive Statistic

	RGDP	AGRIC	MANU	MINI	INT
Mean	649.9263	232.2308	984.7126	1309.657	9.674211
Median	672.2000	135.7013	987.6410	1178.099	9.980000
Maximum	950.1000	610.1497	2230.155	3609.188	16.50000
Minimum	412.3000	41.02890	141.2948	32.28860	4.700000
Std. Dev.	149.5611	198.3324	716.9479	1269.168	3.088954
Skewness	0.198209	0.648388	0.551052	0.703038	0.250436
Kurtosis	2.423882	1.863148	2.020552	2.222413	2.548900
Jarque-Bera	0.387171	2.354463	1.721044	2.043838	0.359705
Probability	0.823999	0.308131	0.422941	0.359904	0.835393
Observations	19	19	19	19	19

Source: Authors Computation 2025 (E-Views 8.1)

The descriptive statistics in Table 1 provide insights into the profile of the examined variables:

Economy Growth: Real Gross Domestic Product (RGDP) ranged from N412.3 billion to N950.1 billion, with a mean of N649.9 billion and a standard deviation of 149.5. The positive skewness (0.198) indicates a right-skewed distribution, while the kurtosis (2.423) suggests a leptokurtic curve. The Jarque-Bera statistic (0.3871, p = 0.8239) implies normal distribution.

Agricultural Loan (AGRIC): Ranging from N41.02 billion to N610.1 billion, with a mean of N232.2 billion, agricultural loans have contributed significantly to Nigeria's economic growth. The positive skewness (0.648) and kurtosis (1.863), along with the Jarque-Bera statistic (2.354, p = 0.308), indicate normal distribution.

Manufacturing Loan (MANU): With a range of N141.2 billion to N2230 billion and a mean of N984.7 billion, manufacturing loans have shown improvement in RGDP. The distribution is right-skewed (skewness = 0.551) and leptokurtic (kurtosis = 2.020). The Jarque-Bera statistic (1.721, p = 0.422) suggests normal distribution.

Mining Loan (MINI): Mining loans averaged N1309 billion, ranging from N32.28 billion to N3609 billion, indicating substantial contribution to economic growth. The distribution is right-skewed (skewness = 0.703) and leptokurtic (kurtosis = 2.222). The Jarque-Bera statistic (2.0438, p = 0.359) confirms normal distribution.

Interest Rate (INT): Interest rates averaged 9.67%, ranging from 4.7% to 16.5%, suggesting relatively high rates during the period. The distribution is slightly right-skewed (skewness = 0.250) and leptokurtic (kurtosis = 2.548). The Jarque-Bera statistic (0.359, p = 0.835) indicates normal distribution.

All variables demonstrate normal distribution, as evidenced by Jarque-Bera statistics with p-values exceeding the 5% significance level.

Table 2 Pearson Correlations

	RGDP	AGRIC	MANU	MINI	INT
RGDP	1.000000				
AGRIC	0.504618	1.000000			
MANU	0.534754	0.858958	1.000000		
MINI	0.548854	0.764281	0.682996	1.000000	
INT	-0.696945	-0.375417	-0.368922	-0.391657	1.000000

Source: Authors Computation 2025 (E-Views 8.1)

The correlation matrix in Table 2 reveals mixed associations among variables, with both positive and negative coefficients.

Relationship with Real Gross Domestic Product (RGDP):

- Agricultural loan (AGRIC): Positive correlation (r = 0.5046)
- Manufacturing loan (MANU): Positive correlation (r = 0.5347)
- Mining loan (MINI): Positive correlation (r = 0.5488)
- Interest rate (INT): Negative correlation (r = -0.696)

The strongest correlation is observed between manufacturing loan (MANU) and agricultural loan (AGRIC), with a high positive coefficient of 0.858.

The strength of correlations varies:

- Small effect: approximately ±0.368
- Moderate effect: approximately ±0.504
- High effect: up to ±0.858

Despite some high correlation coefficients, there is no indication of multicollinearity issues in the regression variables. None of the associated variables are perfectly correlated or exceed the 0.90 (90%) threshold, as suggested by Meyers, Gamst & Guarino (2006). To further verify the absence of multicollinearity, a regression analysis will be conducted.

Table 3 Ordinary least square regression

Variable	Coefficient	t-Statistic	Prob.
C	864.4801	7.625065	0.0000
AGRIC	0.281140	0.558772	0.5851
MANU	0.053046	0.263016	0.7964
MINI	0.051134	0.416445	0.6834
INT	-27.75077	-3.050549	0.0086
R-squared	0.585459		
Adjusted R-squared	0.467019		
S.E. of regression	109.1879		
F-statistic	4.943080		
Prob(F-statistic)	0.010725		
Durbin-Watson stat	1.939782		

Source: Authors Computation 2025 (E-Views 8.1)

Table 3 presents the regression model results with Real Gross Domestic Product (RGDP) as the dependent variable, representing economic growth.

Key findings:

- Agricultural loan (AGRIC): Positive coefficient (0.281)
- Manufacturing loan (MANU): Positive coefficient (0.053)
- Mining loan (MINI): Positive coefficient (0.051)
- Interest rate (INT): Negative coefficient (-27.75)

The positive coefficients indicate that a unit increase in AGRIC, MANU, or MINI leads to a corresponding increase in RGDP. Conversely, a unit decrease in INT results in a 27.75% decrease in RGDP.

Model fit:

- R-squared: 0.585 (58.5% of variation explained by independent variables)
- Adjusted R-squared: 0.467 (47% of variation explained, accounting for degrees of freedom)
- F-statistic: 4.943 (p-value: 0.0107), indicating a significant linear relationship.

4.1. Hypothesis Testing

- Hypothesis 1: Bank credit to agricultural sector has no significant influence on economic growth in Nigeria.
- Result: Accepted (t-statistic: 0.5588, p-value: 0.5951 > 0.05)
- Hypothesis 2: Bank credit to manufacturing sector has no significant effect on economic growth in Nigeria.
- Result: Accepted (t-statistic: 0.2630, p-value: 0.7964 > 0.05)
- Hypothesis 3: Bank credit to mining sector has no significant influence on economic growth in Nigeria.
- Result: Accepted (t-statistic: 0.5, p-value: 0.4164 > 0.05)
- Hypothesis 4: Interest rate has no significant influence on economic growth in Nigeria.
- Result: Rejected (t-statistic: 0.5, p-value: 0.4164 > 0.05).

5. Discussion of Findings

Agricultural Sector: The study revealed that bank credit to the agricultural sector has a positive but statistically insignificant impact on economic growth, as indicated by a coefficient of 0.281. This result implies that while an increase in agricultural loans could theoretically enhance productivity and growth in this sector, the actual effect in practice may be constrained by various factors. This finding is consistent with previous studies, such as Ayodele (2019), who found that agricultural credit plays a role in enhancing economic growth, though its impact may not always be statistically significant.

One explanation for this finding is that the agricultural sector in Nigeria, despite receiving credit, continues to face challenges such as inadequate infrastructure, low mechanization, and limited access to markets. These barriers limit the potential for agricultural loans to translate into tangible economic growth. The Financial Intermediation Theory (Gurley & Shaw, 1960) supports the idea that bank credit can foster economic growth, but its effectiveness depends on whether the credit reaches productive enterprises within the sector. In the case of Nigeria, much of the credit may not be effectively utilized to drive significant agricultural transformation.

Manufacturing Sector: Bank credit to the manufacturing sector also exhibited a positive but statistically insignificant effect on economic growth, with a coefficient of 0.053. This result aligns with the findings of Uzor (2019), who reported that while access to credit can promote technological adoption and market expansion in the manufacturing sector, significant barriers—such as high interest rates and stringent collateral requirements—limit its overall impact.

The insignificant effect observed in this study suggests that despite receiving credit, manufacturing firms in Nigeria may struggle with inefficiencies in their operations or face difficulties in accessing the necessary resources to leverage the funds effectively. The Solow-Swan Growth Model (Solow, 1956) posits that capital accumulation is key to long-term growth, but the observed results imply that the volume of credit provided to the sector may be insufficient or poorly targeted. Additionally, the high cost of borrowing, as indicated by the negative effect of interest rates, could further dampen the ability of manufacturing firms to grow.

Mining Sector: Similarly, bank credit to the mining sector had a positive but statistically insignificant impact on economic growth, with a coefficient of 0.051. This finding is in line with Ajayi (2017), who noted that while the mining sector has significant potential to drive economic development, it remains underfunded due to perceived risks and uncertainties.

The Credit Rationing Theory (Stiglitz & Weiss, 1981) is particularly relevant here, as it explains how information asymmetry between lenders and borrowers leads to reduced credit availability for high-risk sectors like mining. Banks may perceive the mining sector as too risky due to its capital-intensive nature and the long gestation period required for returns, leading to limited access to the credit needed for exploration and development activities.

Interest Rate: One of the key findings of the study is the significant negative effect of interest rates on economic growth. A unit increase in interest rates was found to reduce GDP by 27.75%. This supports the view that high borrowing costs can severely limit the ability of businesses to access credit, hindering investment and productivity in key sectors of the economy.

This result aligns with the findings of Ebele and Terhemba (2016) and Olalekan et al. (2016), who observed that high interest rates negatively affect manufacturing sector output and overall economic growth. High interest rates increase the cost of borrowing, making it difficult for businesses to finance capital-intensive projects. The Solow-Swan Growth Model emphasizes that capital accumulation is critical for economic growth, but high interest rates effectively limit the ability of businesses to accumulate the capital they need to expand.

Overall, the study finds that bank credits to these sectors have positive but mostly insignificant relationships with economic growth, while interest rates have a significant negative effect. This suggests potential for these credit channels to boost growth if expanded, but also highlights the critical role of interest rates in determining outcomes. Some possible reasons for this could include:

- The funds may not be reaching the most productive enterprises within these sectors.
- The volume of credit may be insufficient relative to sector needs.
- The strong negative relationship between interest rates and economic growth is a key finding. This suggests that high borrowing costs are a significant barrier to economic expansion. It highlights the importance of monetary policy in creating conditions for growth.

6. Conclusion

The study examined the impact of bank credit on the agricultural, manufacturing, and mining sectors and their contribution to Nigeria's economic growth. The findings indicated that bank credit to these sectors had a positive but statistically insignificant impact on the country's economic growth. In contrast, interest rates exhibited a significant negative effect on economic growth, highlighting the detrimental influence of high borrowing costs on productive activities.

The positive coefficients for bank credit in agriculture, manufacturing, and mining suggest that these sectors have the potential to drive economic growth if they receive adequate financial support. However, the insignificant results reflect underlying challenges such as inadequate access to funds, inefficiencies in the utilization of available credit, and the need for targeted financial interventions to unlock the full potential of these sectors. The significant negative relationship between interest rates and economic growth underlines the critical importance of favorable monetary policies in promoting sustainable economic expansion.

Overall, the study underscores the need for a more robust and efficient credit system to support key sectors of the economy, coupled with policies that ensure affordable borrowing costs. Effective utilization of bank credit, particularly in the agricultural sector, is essential for improving productivity and fostering long-term economic development in Nigeria.

Recommendations

- To unlock the potential of the agricultural sector, policymakers should focus on improving access to credit for smallholder farmers and agribusinesses. This can be achieved by developing more inclusive financing schemes that cater to the specific needs of the agricultural sector, such as low-interest loans and tailored repayment plans. Additionally, government-backed credit guarantees could help reduce the perceived risks by commercial banks, encouraging them to lend more to the sector.

- There is a need to increase financial support to the manufacturing and mining sectors through tailored loan products that address their unique challenges. Banks should collaborate with sector-specific development institutions to design credit facilities that promote investment in technology, equipment, and innovation, thereby enhancing productivity and sectoral contributions to economic growth.
- High-interest rates have been a significant barrier to accessing credit. The government, through the Central Bank of Nigeria (CBN), should consider implementing policies that reduce borrowing costs for sectors that are crucial to economic development, such as agriculture, manufacturing, and mining. Subsidized loan programs or interest rate caps for productive investments could stimulate growth in these sectors.
- To ensure that loans are effectively utilized, financial institutions should strengthen their loan monitoring and support mechanisms. Providing technical assistance, training, and extension services to borrowers, particularly in the agricultural sector, can improve the effective use of credit and enhance the productivity of loans.
- The government should facilitate public-private partnerships to boost investment in agriculture and agro-allied industries. By offering incentives such as tax breaks, improved infrastructure, and enhanced market access, PPPs can promote private sector involvement in agricultural financing, thereby reducing the reliance on traditional bank credit and fostering innovation in the sector.
- Financial literacy is crucial for effective credit utilization. Expanding financial education programs, especially in rural areas, can empower farmers and small-scale business owners to make informed financial decisions, improving their access to and management of credit.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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