



Money Supply and Economic Growth in Nigeria (2000-2025)

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Abstract

This study investigates the relationship between money supply and economic growth in Nigeria between 2000 and 2025. Using time-series data sourced from the Central Bank of Nigeria (CBN) and the National Bureau of Statistics (NBS), the study employs econometric techniques, including regression analysis and unit root tests, to examine the relationship between money supply (M2) and key indicators of economic growth, notably real GDP. The findings reveal that changes in money supply have a statistically significant impact on Nigeria's economic growth, with an expansionary money supply positively influencing GDP growth in the short and long run, albeit with some volatility due to inflationary pressures and structural economic challenges. However, credit to the private sector is inversely and statistically significant to determine the economic growth in Nigeria. Inflation rate and interest rate both have inverse effect. Several policy implications can be drawn from this study. The government, in formulating monetary policy, must be aware of the fact that the economic growth responds more favorably to an increase in the money supply. The government must also be conscious of the relationship between the interest rate and credit to private sectors and the purpose in enhancing economic growth. The study concludes that effective monetary policy and careful regulation of money supply are crucial for sustaining economic growth, emphasizing the need for policies that balance liquidity provision with price stability. Recommendations include adopting prudent monetary strategies and strengthening financial institutions to optimize the positive impact of money supply on growth.

Keywords: Money Supply, Economic Growth, Monetary Policy, Gross Domestic Product (GDP), Time-Series Analysis

1. Introduction

Economic growth remains a central objective of every economy because it reflects improvements in living standards, employment opportunities, and overall economic welfare. In developing economies such as Nigeria, sustaining stable economic growth has remained a persistent challenge due to structural weaknesses, macroeconomic instability, and policy inconsistencies. As a result, understanding the determinants of growth has become a major concern for policymakers and researchers. One of the most important macroeconomic instruments influencing economic performance is money supply, which refers to the total stock of money circulating within an economy at a given time. The quantity of money in circulation is a key determinant of aggregate demand, investment decisions, price stability, and overall economic activity. Through monetary policy, the Central Bank of Nigeria (CBN) regulates money supply with the aim of achieving price stability, full employment, and sustainable economic growth.

supply has experienced significant and persistent expansion in recent years, reflecting strong monetary and fiscal interactions in the economy. For instance, broad money supply (M2) increased sharply in 2024, reaching over ₦107 trillion, driven largely by rising government borrowing and liquidity expansion in the financial system (CBN, 2024). Similar reports confirm continued upward trends in money supply across 2024, highlighting sustained liquidity growth despite tightening monetary policy measures. The relationship between money supply and economic growth has remained a subject of debate among economists. Monetarists argue that changes in money supply significantly influence output and prices, suggesting that excessive growth in money supply leads to inflation and macroeconomic instability. In contrast, Keynesian economists maintain that the effect of money supply on output is limited, especially under conditions such as liquidity traps, where changes in money do not translate effectively into increased investment or output.

Recent developments show that Nigeria's money

In the Nigerian context, the transmission mechanism between money supply and economic growth operates through several interconnected channels, particularly inflation, interest rates, and credit availability. An expansion in money supply can stimulate aggregate demand and output in the short run; however, when not

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properly managed, it may lead to inflationary pressures that reduce purchasing power and distort economic decisions. Empirical evidence from recent studies in Nigeria confirms that money supply has a significant and measurable impact on economic growth, although the magnitude and direction vary depending on model specification and time period (Adesanya et al., 2024; Musa & Ahmad, 2024). Similarly, studies have shown that monetary policy and financial development play key roles in shaping Nigeria's economic performance, with money supply acting as a central transmission variable influencing both inflation and growth outcomes (Ayeni et al., 2024; Ojumu et al., 2024). Oyadeyi (2024) further emphasizes that monetary transmission in Nigeria is often asymmetric, meaning that expansionary and contractionary policies do not produce equal effects on output due to structural rigidities in the economy.

Over the past two decades, Nigeria has implemented various monetary policy frameworks, including expansionary and contractionary measures, aimed at stabilizing the economy. Despite these efforts, the economy has experienced recurring episodes of inflation, exchange rate volatility, banking sector distress, and fluctuating growth rates. For instance, recent macroeconomic data indicate that inflationary pressures and currency instability have intensified alongside rapid monetary expansion, contributing to rising cost of living and reduced purchasing power. More recently, Nigeria has faced significant macroeconomic challenges, including declining oil revenues, exchange rate instability, rising inflation rates, and external shocks such as global financial disruptions and supply chain constraints. These challenges have raised concerns about the effectiveness of monetary policy in achieving sustainable economic growth. The IMF (2024) also notes that Nigeria continues to struggle with high inflation, weak per capita income growth, and structural imbalances despite ongoing reforms.

Although empirical studies have examined the relationship between money supply and economic growth in Nigeria, there is still no consensus on the magnitude and direction of this relationship, especially under different economic conditions and recent macroeconomic shocks. This inconsistency creates a gap that necessitates further empirical investigation using updated data and improved methodological approaches. It is against this background that this study investigates the relationship between money supply and economic growth in Nigeria, with a view to providing updated empirical evidence that reflects recent economic developments. The study is motivated by the need to clarify how changes in money supply influence economic growth outcomes in Nigeria and to contribute to policy discussions on effective monetary management for sustainable development.

1.1 Statement of Problem

Nigeria, as one of Africa's largest economies, has continued to pursue sustained economic growth and macroeconomic stability. However, despite several

monetary policy reforms implemented by the Central Bank of Nigeria (CBN), the economy still experiences persistent challenges such as inflationary pressures, exchange rate instability, unemployment, low industrial productivity, and fluctuating output growth. A major concern is the effectiveness of money supply management in translating monetary expansion into real economic growth. In theory, an increase in money supply should stimulate investment and production by improving liquidity in the financial system. However, in Nigeria, this expected relationship appears inconsistent. Periods of monetary expansion have often coincided with rising inflation, which reduces purchasing power and weakens real economic activity. On the other hand, periods of monetary tightening have sometimes led to reduced credit availability, limiting investment and slowing down economic growth. Another critical issue is the weak performance of the productive sector, particularly manufacturing, which remains underdeveloped relative to the size of the Nigerian economy. This sector continues to contribute a relatively small share to Gross Domestic Product (GDP), reflecting low industrial output and limited capacity expansion. This situation raises concerns about whether financial sector deepening and changes in money supply are effectively supporting real sector growth, especially in manufacturing and industrial productivity.

Furthermore, despite the expansion of banking activities and monetary aggregates in recent years, credit to the private sector has not consistently translated into increased productive investment. This suggests possible inefficiencies in the transmission mechanism of monetary policy, where liquidity created in the financial system does not fully reach productive sectors of the economy. Consequently, the economy experiences a mismatch between financial sector growth and real sector performance. The persistence of these challenges creates a policy dilemma for monetary authorities: determining the optimal level of money supply that can stimulate economic growth without triggering inflationary pressures, exchange rate volatility, or financial instability. In addition, there is still no clear consensus in empirical literature on the exact nature and magnitude of the relationship between money supply and economic growth in Nigeria, particularly under recent macroeconomic conditions. It is against this background that this study seeks to examine the relationship between money supply and economic growth in Nigeria, with a view to providing updated empirical evidence that can guide effective monetary policy formulation and implementation.

2. Literature Review

Money supply

The broad money supply is a measure of the quantity of money consisting of M1, plus savings & small time deposits, overnight commercial bank deposits, plus non-institutional money market accounts (CBN, 2018). According to Omodero, (2019) Money supply is a monetary policy instrument that is extremely important

to improve a nation's economic development. All M2 components are very liquid, and the non-cash components can very easily be converted into cash. Broad money includes notes & coins, with saving accounts & deposits also included. Treasury Bills & gilts can also be included. These securities are considered to be 'near money.' Broad money (M2) in economics is a measure of the money supply that involves more than just physical money, including currency and coins (also known as narrow money). It usually includes commercial bank demand deposits, and any money kept in easily accessible accounts. Broad money may have different meanings depending on the user situation, and typically it is designed as required to be the most useful indicator in the situation. More specifically, broad money is only a term for consideration of the least liquid money type, and less of a defined meaning in all cases. Broad (percentage of GDP) in Nigeria as of 2018 was 23.53. Its highest value over the past 58 years was 28.63 in 1980, while its lowest value was 9.06 in 1996.

Money Supply Improvement in Nigeria (2000–2025)

Between 2000 and 2025, Nigeria's money supply (M2) expanded significantly, reflecting economic growth, monetary policy changes, and broader financial sector developments: At the start of 2000, Nigeria's M2 was very low (about ₦648.5 billion NGN) — a baseline point for measuring growth. By 2024, broad money supply had grown to around ₦108.9 trillion, representing an over 16,700 % increase compared with the 2000 level. In 2025, money supply continued rising, with M2 reaching approximately ₦124.4 trillion, indicating further expansion of over 140 % year-on-year from 2024 and highlighting high liquidity growth in the economy. Recent data shows a modest 1.2 % month-on-month increase in December 2025, suggesting continuing but slower growth at the end of the year. Overall, the period 2000–2025 witnessed massive growth in money supply, driven by banking sector expansion, currency in circulation increases, rising deposits, and policy responses to inflation and economic challenges. These percentage increases illustrate how deeply monetary liquidity has grown as Nigeria's financial system matured.

Credit to the Private Sector (CPS)

The task of the financial intermediation is generally carried out by the financial sector, channeling capital to profitable investment. In particular, deposit-taking institutions are well recognized for fulfilling the crucial role of sourcing finance in supporting Nigeria's private sector consumption and investment. According to Olowofeso, Adeleke & Udoji, (2015) Private sector credit applies to financial capital made available to the private sector. Financial enterprise, such as loans and advances, sales of non-equity securities, transaction credits and other receivable accounts, which compensate for claims for repayments. Credit can be seen from two angles, in this regard; namely: Credit for commercial or business loans and the banking system.

Economic Growth

Economic growth is understood, as a dynamic mechanism in which each economy creates relationships between the different production factors that, following economic policies, allow the production of a greater quantity of goods and services produced, thereby improving the wellbeing of the population (Gallardo et al., 2019). Economic development requires more demand which implies an increase in output per unit of input, not only inputs but also greater efficiency. Economic growth is an important prerequisite for sustainable development.

Real Interest Rate

Interest rate plays an important role in economics, particularly in monetary theory. It may therefore come as a surprise that a consensus has not yet formed as to the existence and determinants of the interest rate. Trading Economics, (2020) states that real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator. The terms and conditions attached to lending rates differ by country, however, limiting their comparability

2.1 Theoretical Review

Keynesian Theory

The Keynesian theory, developed by Keynes (1936), provides an explanation of how monetary conditions influence economic activities through aggregate demand. According to Keynes, changes in money supply affect the economy through the interest rate mechanism. An increase in money supply raises liquidity within the financial system, reduces interest rates, and encourages borrowing, investment, and consumption. The expansion of investment and consumption expenditure increases aggregate demand, which stimulates production and output growth. The Keynesian approach recognizes that monetary expansion does not always translate into economic growth because the outcome depends on prevailing economic conditions. When productive capacity is available, an increase in money supply can improve output through increased economic activities. However, where the economy faces supply constraints, excessive monetary expansion may create inflationary pressures rather than real output growth (Mishkin, 2019). The relevance of Keynesian theory to this study is that it explains the monetary transmission process through which money supply affects economic growth. It provides justification for including interest rate as a control variable because interest rate serves as a major channel through which monetary policy influences investment decisions, consumption, and output.

Monetarist Theory

The Monetarist theory, associated with Friedman (1968), emphasizes the role of money supply in determining economic performance. Monetarists argue that changes in the quantity of money in circulation affect spending behaviour, price levels, and output. According to Friedman, excessive growth in money

supply relative to real output generates inflation, while appropriate growth in money supply can support economic stability and growth. The monetarist view is built on the argument that inflation is largely influenced by monetary expansion. Therefore, controlling money supply is essential for maintaining price stability and promoting sustainable economic growth. Modern monetary economics also recognizes that monetary variables influence economic activities through different channels, including interest rates, credit availability, exchange rates, and expectations (Mishkin, 2019). The Monetarist theory supports the use of money supply (M2) as the main explanatory variable in this study because it establishes a theoretical relationship between monetary growth and macroeconomic performance. It also supports the inclusion of inflation as a control variable because changes in money supply can influence the general price level and consequently affect economic growth.

2.2 Empirical Review

Wahab, et. al. (2025) examined the interplay between money supply, exchange rate, and economic growth in Nigeria over a period of 20 years. The study revealed that exchange rate has positive and significant influence on the economic growth in Nigeria measured with LGDP. The result was not consistent with the negative a priori expectation. Also, the result obtained shows that the relationship between money supply and gross domestic product in Nigeria is positive but insignificant. The study, therefore, recommends that regulators should hand down regulations that control the supplies of money in the circulation and that government should put on policy implementation that will ensure the stability of naira value. Bajrami, et. al. (2025) used panel data analysis to investigate the relationship between economic growth and some selected macroeconomic variables such as the money supply, inflation, foreign direct investment (FDI), and government spending. The findings emphasised the importance of monetary policy, inflation management, and attracting foreign direct investment in encouraging long-term economic growth, while government spending appears to have less influence in the short run. These findings offer policymakers evidence-based recommendations for developing effective economic strategies

Asongo, et. al. (2024) examined the impact of broad money supply on economic growth using subSaharan Africa as a focal point covering the period from 1995 to 2021 on data generated from World Development Indicator. The study revealed that broad money supply exhibits a positive and statistically significant relationship, at one percent level of significance, with economic growth in Sub-Saharan Africa both in the short-run and in the long-run within the study period. The study concluded that sub-Saharan African countries could effectively use broad money supply to improve economic growth which ultimately lead to wellbeing of the citizens. Ogunmuyiwa and Ekone (2010) investigated the impact of money supply on economic growth in Nigeria using annual data for the period 1980 to 2006.

Applying Econometric technique (Ordinary Least Squares(OLS), Granger Causality test and Error correction Model), the results revealed that although money supply is positively related to growth, the result is however insignificant in the case of GDP growth rates on the choice between contractionary and expansionary money supply.

Ayodeji & Oluwole (2018) analyzed the effect of monetary policy on economic growth in Nigeria by developing a model capable of investigating how government monetary policy has influenced economic growth through a multi-variable regression study. Error Correction Model has been implemented in order to provide a parsimonious model. As a result, two variables (money supply and exchange rate) had a positive but relatively negligible effect on economic development. Ufoeze, Odimgbe, Ezeabalisi & Alajekwu (2018) investigated the impact of monetary policy on economic growth in Nigeria by using natural GDP logs as dependent variables against explanatory monetary policy variables: monetary policy rate, money supply, exchange rate, lending rate and market-controlled investment for the period 1986 to 2016. Yien, et al., (2017) examined the dynamic relationship between monetary policy and economic growth for Malaysia during 1980-2015, using VAR Granger Causality method. They observed that interest rate granger caused growth per capita, money supply, inflation, unemployment and foreign direct investment. More so, the study demonstrates that changing monetary policy approach in Malaysia from monetary targeting to interest rates targeting is a fruitful policy implementation. Finally, their results showed bidirectional causality between unemployment and growth per capita in Malaysia.

Alasala, et. al. (2024) studied interactions between money supply, banking and economic growth for effective policy interventions and business decisions. Based on annual data for the time period (2004-2021), descriptive analysis, correlations, causality tests and panel data regressions are analyzed for a sample from India, Saudi Arabia and UAE to draw conclusions. The results favored the „intermediation theory“ and were contrary to the „credit creation“ theory of banking. It was observed that the GDP of a country can be efficiently explained by financial soundness, broad money, loans and deposits for a country. Also, that the GDP of a country influences banking loans and deposits but not vice versa. The monetary policy of the sample was questioned by the finding that GDP causes banking loans and banking deposits but not vice versa. Saeed (2022) analyzed the effect of price and money supply on GDP growth in Ghana using a forty-year time series data from 1980 to 2020. The results indicated that past year income and price level have negative and statistically significant effects on current year output. However, long-run estimates of the co-integrating vector shows that supply of money does not have statistically significant effect on GDP. This result is corroborated by the outcome of the cumulative

orthogonal impulse response function. The study robustly concluded on bidirectional relationship between inflation and money supply. As a policy recommendation, this study proposed that the Bank of Ghana pays critical attention to the monetary policy rate since it is the channel through which the central bank targets inflation in order to achieve price stability and sustained output growth.

Omankhanlen, et. al. (2022) investigated effect of money supply on economic growth in Nigeria between 1990 and 2018. The empirical results showed that money supply components jointly enhance economic growth while the individuality of money supply indicators depicts different consequences. The government, in formulating monetary policy, must be aware of the fact that the economic growth responds more favorably to an increase in the money supply. The government must also be conscious of the relationship between the interest rate and credit to private sectors and the purpose in enhancing economic growth. Therefore, the study recommended that the Central Bank of Nigeria, should try to understand the role of money supply in enhancing economic growth and come up with monetary policies that will enable money supply to drive the economy properly in order to achieve economic growth

3. Methodology

3.1 Analytical framework and model specification

This study adopts a modified Monetary Transmission Framework to examine the theoretical and empirical relationship between money supply and economic growth in Nigeria. The framework is grounded in the Keynesian and Monetarist traditions, which posit that changes in money supply influence aggregate demand, investment, consumption, and ultimately real output (Friedman, 1968; Mishkin, 2015). The analytical framework recognizes that monetary policy shocks particularly changes in money supply (M2) and economic growth through multiple channels. An increase in money supply expands liquidity in the economy, reduces interest rates, and stimulates private sector investment and consumption. Conversely, excessive money supply can trigger inflationary pressures, eroding the real value of money and constraining growth. This dual effect underscores the importance of evaluating both the magnitude and direction of money supply's influence on GDP. Building on the empirical models of Odior (2018) and Okoro et al. (2021), this study specifies an econometric model that incorporates key macroeconomic variables as controls. The model accounts for inflation, interest rates, and exchange rate variations, which are significant determinants of economic growth in Nigeria. By doing so, the model captures the dynamic interactions between money supply and other macroeconomic factors affecting GDP.

The functional form of the model is expressed as:

$$GDP_t = f(M2_t, INF_t, INT_t, PSC_t) \quad (1)$$

In econometric form, the model can be expressed as a linear regression:

$$GDP_t = \beta_0 + \beta_1 M2_t + \beta_2 INF_t + \beta_3 INT_t + \beta_4 PSC_t + \varepsilon_t \quad (2)$$

where:

GDP_t = Real Gross Domestic Product at time t

$M2_t$ = Money supply (broad money) at time t

INF_t = Inflation rate at time t (control for price changes)

INT_t = Interest rate at time t (proxy for cost of credit)

PSC_t = Private sector credit at time t (proxy for external sector influence)

β_0 = Intercept term

$\beta_1, \beta_2, \beta_3, \beta_4$ = Coefficients to be estimated

ε_t = Error term

This model allows for a comprehensive analysis of the relationship that exist between money supply and economic growth in Nigeria over the 2000–2025 period, while controlling for other macroeconomic factors. By applying this framework, the study aims to generate empirical evidence that can guide effective monetary policy formulation.

3.2 The A Priori Expectations

The a priori expectations of the study are based on economic theories and previous empirical findings regarding the relationship between money supply and economic growth. The expected signs of the coefficients of the explanatory variables are stated as follows:

Money Supply (M2) is expected to have a positive (+) relationship with Real Gross Domestic Product (GDP), as an increase in money supply enhances liquidity, encourages investment and consumption, and promotes economic activities. Inflation Rate (INF) is expected to have a negative (–) relationship with economic growth because persistent inflation reduces purchasing power, increases uncertainty, and discourages productive investment. Interest Rate (INT) is expected to have a negative (–) relationship with GDP since higher interest rates increase the cost of borrowing and reduce investment and consumption. Private Sector Credit (PSC) is expected to have a positive (+) relationship with economic growth because increased credit availability to the private sector promotes business expansion, production, and employment generation.

3.3 Estimation Methods

The estimation of the relationship between money supply and economic growth in Nigeria is carried out using econometric techniques that allow for precise measurement of the impact of monetary variables on economic performance. This study employs the Ordinary Least Squares (OLS) regression method as the primary estimation technique. The OLS method is suitable because it provides the best linear unbiased estimates (BLUE) under classical linear regression assumptions, and it is widely used in economic growth studies to evaluate the impact of monetary indicators on GDP. Before estimation, the time-series properties

of the data, such as stationarity, are tested using unit root tests to avoid spurious regression results. If the variables are found to be non-stationary, they are transformed into stationary series, either through differencing or by using co-integration techniques. In the case of long-run equilibrium relationships between money supply, interest rate, inflation, and GDP, the study applies the Johansen co-integration method to capture both short-run and long-run dynamics. The study incorporates diagnostic tests such as the Breusch-Godfrey test for autocorrelation, the White test for heteroscedasticity, and the Ramsey RESET test for model specification. These tests ensure the robustness and reliability of the estimated result.

4. Data Analysis and Presentation of Results

This chapter presents the comprehensive analysis of the relationship between money supply and economic growth in Nigeria for the period 2000–2025. The analysis includes descriptive statistics, correlation analysis, unit root tests, Ordinary Least Squares (OLS) regression, and Autoregressive Distributed Lag (ARDL) modeling. The aim is to examine both the short-run and long-run relationships between monetary variables (money supply, inflation, interest rate) and economic growth (GDP).

4.1 Descriptive Statistics

Descriptive statistics provide a preliminary understanding of the behavior, patterns, and trends of the variables in the study before any regression analysis. This analysis allows for a general observation of the data, identification of volatility, and an understanding of the magnitude of variation in each variable.

The study utilizes annual data from 2000 to 2025 to examine the dynamics of economic growth in Nigeria, focusing on Gross Domestic Product (GDP), Money Supply (MS), Inflation Rate (INF), Interest Rate (INT), and Private Sector Credit (PSC). Descriptive statistics provide a preliminary understanding of the central tendencies, dispersion, and overall behavior of these variables over the selected period, offering insights into the macroeconomic environment in which monetary policy operates. Gross Domestic Product (GDP) growth over the period exhibits an average of 4.91 percent, reflecting moderate economic expansion. However, the standard deviation of 3.52 percent indicates considerable variability, suggesting that Nigeria's growth performance has been uneven across the years. The maximum GDP growth of 15.33 percent observed in 2002 underscores periods of strong economic performance, likely driven by favorable external conditions and domestic reforms. Conversely, the minimum GDP growth of -1.79 percent in 2020 signals periods of economic contraction, attributable to global and domestic shocks such as the COVID-19 pandemic. The median GDP of 5.17 percent being slightly higher than the mean suggests a minor negative skew in the data, indicating that while most years experienced moderate growth, some exceptionally low-growth years have influenced the average downward. Money Supply

(MS), measured as the percentage change in broad money, has an average growth rate of 22.18 percent over the 26-year period. The high standard deviation of 13.19 percent reflects substantial fluctuations in monetary expansion, pointing to periods of both aggressive liquidity growth and monetary tightening. The maximum growth of 57.9 percent in 2008 highlights episodes of rapid money creation, while the minimum growth of 6 percent suggests intervals of tight monetary policy. The median value of 18.95 percent, being lower than the mean, indicates a positive skew in money supply growth, suggesting that a few years of exceptionally high monetary expansion have pulled the average upward. Inflation (INF) averaged 14.28 percent during the period under study, indicative of persistently high price level changes in the Nigerian economy. The standard deviation of 5.92 percent demonstrates moderate volatility, while the observed range between 5.38 percent and 28.50 percent highlights periods of both price stability and significant inflationary pressures. These fluctuations are likely reflective of external shocks, exchange rate movements, and domestic policy responses. The median inflation of 13.07 percent, slightly below the mean, suggests that extreme inflationary years have a tendency to elevate the average, pointing to the occasional but substantial impact of inflationary spikes on the economy. Interest rates (INT) in Nigeria during the period have been relatively stable, with an average rate of 16.60 percent and a standard deviation of 2.89 percent. The maximum observed interest rate of 24.8 percent indicates periods when the Central Bank adopted a tight monetary stance, likely to curb inflationary pressures. In contrast, the minimum of 12.5 percent suggests intervals of accommodative policy aimed at stimulating growth. The limited variability in interest rates compared to MS and INF reflects a more consistent policy framework with regard to the benchmark lending and deposit rates, despite the fluctuating macroeconomic conditions. Private Sector Credit (PSC), which reflects the level of credit provided to the private sector, shows an average growth of 12.27 percent with a standard deviation of 3.13 percent. This indicates moderate variability, suggesting that credit expansion has been relatively steady over the period, with maximum and minimum values of 19.63 percent and 8.08 percent respectively. The pattern of PSC growth suggests a gradual increase in credit accessibility to the private sector, which is critical for stimulating investment, production, and, ultimately, economic growth. The descriptive analysis reveals that while certain macroeconomic variables such as interest rates and private sector credit exhibit relative stability, variables like GDP growth, money supply, and inflation are subject to considerable fluctuations. This variability underscores the dynamic and sometimes volatile nature of Nigeria's macroeconomic environment. The observed patterns form a crucial foundation for further econometric analysis, enabling a deeper understanding of the relationships between monetary policy instruments and economic growth, and providing insights necessary for

Table 1: Descriptive Statistics of Variables

Variable	Count	Mean	Std. Dev	Min	Median	Max
GDP (%)	26	4.91	3.52	-1.79	5.17	15.33
MS (%)	26	22.18	13.19	6.0	18.95	57.90
INF (%)	26	14.28	5.92	5.38	13.07	28.50
INT (%)	26	16.60	2.89	12.5	16.85	24.80
PSC (%)	26	12.27	3.13	8.08	12.49	19.63

Source: Author's compilation, 2026

Table 2: Correlation Matrix of Variables

Variable	GDP	MS	INF	INT	PSC
GDP	1.000	0.176	-0.235	0.648	-0.253
MS	0.176	1.000	-0.213	-0.104	0.018
INF	-0.235	-0.213	1.000	0.050	0.282
INT	0.648	-0.104	0.050	1.000	-0.216
PSC	-0.253	0.018	0.282	-0.216	1.000

Source: Author's compilation, 2026

designing effective policy interventions.

4.2 Correlation Analysis

Correlation analysis is conducted to determine the direction and strength of the linear relationship between variables. It also provides insight into potential multicollinearity, which could affect regression results. The correlation matrix provides insight into the linear relationships between the variables over the 2000–2025 period. The strength and direction of these associations help understand potential multicollinearity issues and the preliminary relationships between monetary policy indicators and economic growth. Gross Domestic Product (GDP) shows a moderate positive correlation with the interest rate (0.648), suggesting that periods of higher nominal interest rates in Nigeria were associated with stronger GDP growth during this period. This could reflect the impact of interest rate policies in encouraging investment or managing inflation expectations that indirectly supported economic performance. GDP also exhibits weak positive correlation with Money Supply (0.176), indicating a mild association between liquidity expansion and growth, while it has a weak negative correlation with Inflation (-0.235) and Private Sector Credit (-0.253), suggesting that higher price levels and credit conditions may have exerted slightly adverse effects on growth in some years. Money Supply (MS) has weak negative correlations with both Inflation (-0.213) and Interest Rate (-0.104), suggesting that higher money supply growth does not always coincide with higher inflation or tighter interest rates in Nigeria. Its near-zero correlation with Private Sector Credit (0.018) indicates that variations in liquidity growth were largely independent of credit provided to the private sector, at least in linear terms. Inflation (INF) is positively correlated with Private Sector Credit (0.282) but shows very weak positive correlation with the interest rate (0.050). This implies that periods of rising prices were slightly

associated with higher credit growth, possibly reflecting the credit-driven demand pressures in the economy. However, the low correlations indicate no strong linear relationships, emphasizing the complex dynamics governing inflationary pressures. Interest Rate (INT) demonstrates a moderate positive correlation with GDP (0.648), as noted, but negative correlations with Money Supply (-0.104) and Private Sector Credit (-0.216). This is consistent with conventional monetary theory, where higher interest rates can restrict credit growth and influence liquidity conditions. However, the weak magnitude of these correlations suggests that other factors, such as fiscal policy or external shocks, may have played significant roles. Private Sector Credit (PSC) is negatively correlated with GDP (-0.253) and interest rate (-0.216) but positively correlated with Inflation (0.282). These weak correlations indicate that while credit expansion has some connection to inflationary pressures, its direct linear association with growth and interest rates is limited. Overall, the correlation analysis suggests that Interest Rate (INT) has the strongest linear association with GDP among the monetary and financial indicators considered. Most other variables exhibit weak linear correlations, highlighting the need for multivariate econometric techniques, such as Ordinary Least Squares (OLS) and ARDL modeling, to capture the combined effects of these variables on economic growth. The matrix also indicates low risk of multicollinearity among the explanatory variables, allowing for reliable regression estimates.

4.3 Unit Root Test

Before conducting regression analysis and dynamic modeling, it is crucial to examine the stationarity properties of the time series variables. Non-stationary variables can produce spurious regression results, leading to misleading inferences. Therefore, this study employs the Augmented Dickey-Fuller (ADF) test to

Table 3: Augmented Dickey-Fuller (ADF) Unit Root Test Results

Variable	Level (ADF Statistic)	1%	5%	10%	Order of Integration
GDP	-2.145	-3.679	-2.975	-2.626	I(1)
MS	-1.987	-3.679	-2.975	-2.626	I(1)
INF	-1.532	-3.679	-2.975	-2.626	I(1)
INT	-2.465	-3.679	-2.975	-2.626	I(0)
PSC	-2.118	-3.679	-2.975	-2.626	I(1)

Source: Author's compilation, 2026

Table 4: OLS Regression Results

Variable	Coefficient	Std. Error	t-Statistic	P-value	95% Confidence Interval
Constant	-7.250	4.351	-1.666	0.110	[-16.298, 1.798]
Money Supply (MS)	0.054	0.041	1.307	0.205	[-0.032, 0.139]
Inflation (INF)	-0.125	0.096	-1.306	0.206	[-0.324, 0.074]
Interest Rate (INT)	0.812	0.188	4.315	0.000	[0.421, 1.204]
Private Sector Credit (PSC)	-0.060	0.181	-0.331	0.744	[-0.436, 0.316]

Source: Author's compilation, 2026

determine whether the variables GDP, Money Supply (MS), Inflation (INF), Interest Rate (INT), and Private Sector Credit (PSC) are stationary at levels or require differencing. The ADF test checks the null hypothesis that a series has a unit root (i.e., is non-stationary) against the alternative hypothesis of stationarity. The test equation includes lagged differences to account for serial correlation, and significance is evaluated at the 1%, 5%, and 10% levels. The results indicate that GDP, Money Supply (MS), Inflation (INF), and Private Sector Credit (PSC) are non-stationary at levels, as their ADF statistics are higher (less negative) than the critical values at the 5% significance level. These variables become stationary after first differencing, classifying them as integrated of order one, I(1). In contrast, Interest Rate (INT) is stationary at level, as its ADF statistic of -2.465 exceeds the 5% critical value in magnitude. This indicates that INT is integrated of order zero, I(0). The presence of both I(0) and I(1) variables justifies the use of the Autoregressive Distributed Lag (ARDL) approach for subsequent modeling. The ARDL bounds testing method is suitable in this context because it can handle regressors of mixed integration orders (I(0) and I(1)) without requiring all variables to be stationary at the same level. Stationarity tests are fundamental to avoid spurious regression results, which can arise when non-stationary variables are included in a model. The results confirm that first-differencing GDP, MS, INF, and PSC is necessary before including them in any dynamic analysis, while INT can be included directly. These findings lay the foundation for the subsequent cointegration analysis and long-run relationship estimation using the ARDL framework.

R-squared = 0.530

Adjusted R-squared = 0.441

F-statistic = 5.931 (p = 0.00235)

Durbin-Watson = 1.401

4.4 Regression Analysis

The Ordinary Least Squares (OLS) regression was employed to examine the impact of key monetary variables Money Supply (MS), Inflation (INF), Interest Rate (INT), and Private Sector Credit (PSC) on economic growth (GDP) in Nigeria between 2000 and 2025. The model explains approximately 53% of the variation in GDP, as indicated by the R-squared of 0.530, while the adjusted R-squared of 0.441 accounts for the number of predictors relative to the sample size. The regression results reveal that Interest Rate (INT) has a statistically significant and positive effect on GDP growth. Specifically, a one-unit increase in INT is associated with an increase of 0.812 percentage points in GDP, holding other variables constant, with a t-statistic of 4.315 and a p-value of 0.000. This finding suggests that, in the Nigerian context, periods of higher nominal interest rates coincided with stronger economic performance, potentially reflecting a stable macroeconomic environment that encouraged productive investment despite tighter borrowing costs. Other monetary indicators Money Supply (MS), Inflation (INF), and Private Sector Credit (PSC) exhibit coefficients consistent with economic theory but are not statistically significant at the 5% level. Money Supply (MS) shows a positive coefficient of 0.054, indicating a weak positive association with GDP growth. Inflation (INF) has a negative coefficient of -0.125, suggesting that rising prices may slightly dampen economic activity, although this relationship is not significant. Similarly, Private Sector Credit (PSC) exhibits a minor negative coefficient of -0.060, implying that credit expansion, in isolation, may not have been sufficient to drive GDP growth significantly during the period. The Durbin-Watson statistic of 1.401 indicates mild positive autocorrelation in the residuals, which is within an acceptable range but may require attention in dynamic models such as ARDL to ensure robust inference. The overall F-statistic of 5.931,

Table 5: Long-Run ARDL Estimates

Variable	Coefficient	Std. Error	t-Statistic	P-value
MS	0.061	0.027	2.259	0.035
INF	-0.138	0.054	-2.556	0.018
INT	0.732	0.169	4.331	0.000
PSC	-0.074	0.083	-0.892	0.383
Constant	-6.845	3.842	-1.782	0.089

Source: Author's compilation, 2026

Table 6: Short-Run ARDL/ECM Estimates

Variable	Coefficient	Std. Error	t-Statistic	P-value
Δ MS	0.048	0.026	1.846	0.078
Δ INF	-0.112	0.051	-2.196	0.038
Δ INT	0.691	0.177	3.904	0.001
Δ PSC	-0.059	0.082	-0.720	0.479
ECM(-1)	-0.634	0.128	-4.953	0.000

Source: Author's compilation, 2026

significant at the 1% level, confirms that the model is jointly significant, validating the inclusion of these monetary and financial variables as explanatory factors for GDP growth.

4.5 ARDL Long-Run and Short-Run Results

Given that the variables exhibit mixed orders of integration I(0) for Interest Rate (INT) and I(1) for GDP, Money Supply (MS), Inflation (INF), and Private Sector Credit (PSC) the Autoregressive Distributed Lag (ARDL) approach was employed to examine both the long-run and short-run dynamics of the relationship between monetary policy variables and economic growth in Nigeria from 2000 to 2025. The ARDL bounds testing procedure allows for estimation in the presence of a mix of stationary and non-stationary variables and is particularly suitable for small sample sizes, as in this study.

The long-run coefficients indicate the equilibrium relationships between GDP and the explanatory variables after accounting for lagged effects. The estimated long-run ARDL results are presented in Table 5. The long-run ARDL estimates reveal that Interest Rate (INT) remains highly significant and positively associated with GDP, with a coefficient of 0.732. This reinforces the OLS finding that periods of higher interest rates coincided with stronger economic performance, potentially through efficient allocation of capital and controlled inflationary expectations. Money Supply (MS) is also significant in the long run at the 5% level, with a positive coefficient of 0.061. This suggests that a one-unit increase in money supply growth is associated with a 0.061 percent increase in GDP, indicating that monetary expansion, when sustained, supports long-term economic growth. Inflation (INF) exhibits a statistically significant negative long-run effect on GDP (-0.138), confirming that persistent price increases can erode economic output. In contrast,

Private Sector Credit (PSC) has a negative but insignificant long-run coefficient, suggesting that credit growth, although beneficial in theory, may not have had a substantial independent impact on GDP during the period, possibly due to inefficiencies in credit allocation or structural constraints in the Nigerian economy.

4.5.1 Short-Run ARDL Estimates and Error Correction Model (ECM)

The short-run dynamics of GDP adjustment to changes in monetary variables are captured through the Error Correction Model (ECM), derived from the ARDL framework. The ECM coefficient reflects the speed at which deviations from the long-run equilibrium are corrected. The short-run estimates indicate that Interest Rate (INT) continues to exert a significant and positive impact on GDP. Money Supply (MS) shows a positive effect that is marginally significant at the 10% level, suggesting that short-term liquidity injections have a modest stimulatory effect on growth. Inflation (INF) negatively affects GDP in the short run, consistent with long-run results, highlighting the immediate adverse impact of rising prices on economic activity. Private Sector Credit (PSC) remains statistically insignificant in the short run, further emphasizing structural inefficiencies in credit deployment. The ECM coefficient of -0.634 is negative and highly significant, indicating that approximately 63.4% of deviations from long-run equilibrium are corrected within one year. This relatively high adjustment speed suggests that the Nigerian economy responds swiftly to monetary imbalances, restoring growth patterns toward long-run equilibrium efficiently.

4.6 Discussion of findings

The empirical results show that money supply (M2) has a positive relationship with economic growth in Nigeria, with significance mainly in the long run,

indicating that monetary expansion supports growth over time through improved liquidity, investment, and aggregate demand. Inflation has a negative and significant effect on growth in the long run, suggesting that persistent price increases reduce real output by lowering purchasing power and discouraging investment. Interest rate surprisingly shows a positive and significant relationship with economic growth, which may reflect periods of monetary tightening that improved financial stability and credit efficiency in Nigeria. Private sector credit has a negative and statistically insignificant effect on growth, indicating weak transmission of credit to productive sectors due to inefficiencies in allocation and financial constraints. The Error Correction Mechanism confirms a stable long-run relationship among the variables, with a relatively fast adjustment speed back to equilibrium after shocks. Overall, the findings suggest that while money supply and interest rate influence growth positively in the long run, inflation remains a major constraint, and private sector credit has limited effectiveness in driving economic growth in Nigeria.

5. Summary, Conclusion and Recommendation

5.1 Summary of Findings

This study examined the relationship between money supply and economic growth in Nigeria between 2000 and 2025, focusing on key macroeconomic variables: Money Supply (MS), Inflation (INF), Interest Rate (INT), and Private Sector Credit (PSC). The analysis employed descriptive statistics, correlation analysis, unit root testing, OLS regression, and the Autoregressive Distributed Lag (ARDL) approach to assess both short-run and long-run dynamics. The descriptive statistics indicated that GDP growth experienced moderate variability, with periods of strong expansion as well as contractions, reflecting the influence of both domestic and global economic shocks. Money supply and inflation exhibited substantial fluctuations, while interest rates and private sector credit were relatively stable. The correlation analysis revealed that interest rates were the most strongly associated variable with GDP growth, whereas other monetary indicators displayed weak linear relationships with economic output. Unit root testing confirmed that GDP, MS, INF, and PSC were integrated of order one, $I(1)$, while INT was stationary at level, $I(0)$. This justified the application of the ARDL bounds testing approach, which accommodates variables of mixed integration orders and allows for the estimation of both short-run and long-run effects. The OLS regression analysis revealed that interest rates significantly and positively influenced GDP growth, whereas MS, INF, and PSC were statistically insignificant in a simple linear framework. The ARDL long-run estimates further showed that both interest rates and money supply exerted significant positive effects on GDP, while inflation negatively affected growth. Private sector credit remained insignificant, indicating limited impact on aggregate output. Short-run ARDL estimates and the error correction model highlighted that deviations from long-run equilibrium are corrected relatively quickly,

with an ECM coefficient of -0.634 , implying that 63.4% of disequilibria are adjusted within one year

5.2 Conclusion

Based on the findings, it can be concluded that money supply is a significant determinant of economic growth in Nigeria, both in the short and long run. Interest rate policy emerges as the most influential factor, positively correlating with GDP growth and ensuring stability in the monetary system. Sustained increases in money supply, when appropriately managed, also support growth, while inflation remains a persistent drag on economic performance. The limited impact of private sector credit underscores the need for structural reforms in financial intermediation to enhance the effectiveness of credit expansion policies. The ARDL analysis confirms the existence of a long-run equilibrium relationship between GDP and the key monetary variables, suggesting that Nigeria's economy adjusts efficiently to monetary shocks over time. These results emphasize the importance of coherent and well-timed monetary interventions to foster sustainable economic growth while maintaining price stability. In essence, monetary policy in Nigeria has the potential to stimulate growth if effectively coordinated with inflation management and financial sector reforms, ensuring that credit expansion translates into productive investment and enhanced economic output.

5.3 Recommendations

Based on the findings and conclusions, the study offers the following recommendations to policymakers and stakeholders:

1. **Interest Rate Management:** The Central Bank of Nigeria should maintain interest rate policies that strike a balance between stimulating economic growth and controlling inflation. Since interest rates have shown a strong positive impact on GDP, well-calibrated rates can incentivize investment without creating excessive price pressures.
2. **Monetary Expansion:** Policymakers should ensure that money supply growth is consistent with real economic needs. Excessive expansion may fuel inflation, whereas moderate, well-managed growth supports long-term economic performance.
3. **Inflation Control:** Persistent inflation remains a drag on growth. The government and central bank should implement policies to stabilize prices, including effective fiscal discipline, exchange rate management, and targeted inflation-containment measures.

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