FINANCIAL INCLUSION AND ECONOMIC GROWTH IN NIGERIA

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ABSTRACT
This study examined the effect of financial inclusion on economic growth in Nigeria, spanning the period 1986 to 2023. An ex-post facto research design was employed to investigate variables such as credit to the private sector, interest rate and inflation as indicator variables for financial inclusion against economic growth. Using Augmented Dickey-Fuller unit root test. The results revealed a mixed order of integration, which justifies the use of the ARDL bounds testing approach. The findings of this study suggested that financial inclusion variables exerted a strong and statistically significant positive effect on economic growth in Nigeria, both in the short run and in the long run. Conversely, the evidence suggested that credit to the private sector, interest rates, and inflation do not exert long-run influence. We recommended that financial sector regulators should adopt incentive mechanisms to encourage banks to establish more branches in areas with low financial penetration prioritizing literacy campaigns to equip citizens with the knowledge of inflation and interest rate. In addition, fostering innovation through financial technology can complement traditional banking by offering low-cost, scalable financial solutions that extend the reach of financial services and reduce the burden of physical infrastructure expansion.
Key words: Financial Inclusion, Economic Growth and ARDL.

1.0 Introduction

Chude and Chude (2022), posited that provision of affordable financial services to all segments of the society that will promote growth of small and medium scale enterprises and improve households' welfare is known as financial inclusion. In addition, financial inclusion has been considered a veritable tool that provides rural adult population and developing economies with financial resources needed for enhanced inclusive economic growth (Akhil, 2016).

However, economic growth of rural communities and the nation at large is believed to be faster when larger portion of adult population of a society have easy access to financial services and products which gives them the opportunity to access different investment opportunities, saving possibilities, credit options, low-cost payments and structures (Abbas & Atanda, 2019).

Abbas and Atanda (2019), reported that financial inclusion (FI), within the broader context of inclusive growth, is viewed as an important means to tackle poverty and inequality and to address sustainable development goals (SDGs). This access to financial services would improve financial soundness and security of all citizens and reduce income inequality in the country which would automatically promote inclusive economic growth. Ali, Hashmi, Nazir, Bilal & Nazir (2022) argued that the problem of increasing poverty level and economic stagnation or backwardness in Nigeria at large can be addressed by increasing people's access to formal banking financial services and products. This expansion of formal financial services' availability, accessibility and utilization has proven to be crucial to economic growth and development policy goals of both developed and less developed nations, Nigeria inclusive (Obi, 2022).

According to the Nigerian Financial Inclusion Strategy (NFIS, 2018), financial inclusion is achieved when adult Nigerians have easy access to a broad range of formal financial services that meet their needs and are provided at an affordable cost in order to improve growth.

The depth of financial inclusion is expected to spur output growth into higher indices through making loanable funds available at low interest rate for investment and economic purposes where they are needed. Harnessing and accumulating these resources provide a huge source of cheap long-term investable capital (Eton, et al. 2019). Most economies that have not embraced financial inclusion properly are mostly structured that a lot of funds flow in the informal sector which is detrimental to society and the individuals (Wokabi and Fatoki, 2019; Okonkwo, 2021). As far as the individual is concerned, absence of financial inclusion forces the unbanked into non-formal banking sectors characterized by high interest rates and small amount of available loanable funds.

This lends credence to the importance of institutions in the process of financial intermediation (Wokabi and Fatoki, 2019). The goals of financial inclusion can be met largely by initiative of banking sector to cut across various

strata of the society, regions, gender and income, and encourage the public to embrace banking habit in both developed and developing countries, Nigeria, inclusive. There is therefore the need to act swiftly and collaboratively in pursuit of financial inclusion objectives in Nigeria. Through financial inclusion, more people will be involved in the formal financial system by having more of the currency in circulation in the banking system, provision of more credit for productive purposes, and ultimately enhancing GDP growth (Akhil, 2016 and Wokabi and Fatoki 2019).

Despite being the most populous nation in Africa, about 36% of Nigeria's citizens are financially excluded, that is, those with no access to deposit money banks, microfinance banks, mobile money (Fntech), insurance and pension (Musa, Salisu & Magaji, 2022). This could be attributable to certain factors, such as illiteracy, inflation, high interest rate (lending rate), lack of information, etc. which make them to rely on informal sector that accounts for about 65% of the country's GDP which is risky and costly (Wibowo et al., 2023). Extant literature such as Nma and Callistus (2022), Singh and Ghosh (2021) and Sakanko et al. (2019) revealed that financial inclusion has impact on economic growth in Nigeria, yet, the financial inclusion gaps still remain wide (36%) and economic growth rate is at 2.54% which shows that their findings are mixed and inconclusive. The question is what is the impact of financial inclusion on economic growth in Nigeria? Findings from this study would inform policymakers and stakeholders on what need to be done further to promote financial inclusion and economic growth in Nigeria.

Thus, the main objective of this study is to examine the effect of financial inclusion on economic growth in Nigeria.

Specifically, other objectives are to:

1. Investigate the effect of credit to private sector on GDP in Nigeria,
2. Examine the effect of inflation on RGD in Nigeria,
3. Assess the effect of interest rate on GDP in Nigeria, and
4. Evaluate the effect of exchange rate on GDP in Nigeria.

2.0 Theoretical Literature

2.1.1 Finance-led growth theory

This theory was advanced by Goldsmith (1969), Shaw (1973). The theory believed that financial development of any nation plays a vital role in promoting its economic growth. It further argued that faster economic growth is achievable in a well-developed financial system that has financial deepening, financial intermediation, easy access to credits or loans and risk management. The theory equally argued that enhanced economic growth can be achieved through different channels among which is improved resource allocation, increased investment, enhanced economic efficiency and increased access to financial services and products that lead to poverty reduction (Ali et al., 2020).

2.1.2 Theory of Financial intermediation

This theory was advanced by Schumpeter (1934), Goldsmith (1969) and Shaw (1973). The central theme of this theory is that financial institutions which comprises of money and capital markets play veritable roles by making sure that surplus funds (savings) are mobilised from surplus units to deficit units that help in the promotion of economic growth and development of any nation. The theory showed an existence of a direct relationship between demand for money and physical accumulation of capital. This means that, it is only when money is available in an economy that physical accumulation of capital and investment will thrive well. The theory believed that financial intermediaries (financial institutions) exist for the purposes of savings mobilization to be channeled into the productive investment and production that promotes inclusive economic growth and to solve the problem of information asymmetries, to strengthen resources allocation and to ensure liquidity in the economy. This theory points to the need to provide inclusiveness in the distribution of financial services and products among people that need them especially rural dwellers as earlier pointed by Oti et al. (2022) and Afolabi (2020)

2.1.3 Theoretical framework

The theoretical foundation of this paper is the finance-led growth theory. This theory is also called supply-leading responses. This theory is adopted as theoretical anchor of this paper as it believes that finance plays a pivotal role in promoting economic growth of a country through its channels of financial inclusion and investment performance from the savings provided by formal financial institutions. This can be used to improve technological advancement that triggers economic growth through its impacts on human capital development and employment generation. The theory was adopted due to the need for economic financialization and the rising impact of finance sector of both developed and less developed countries triggered by the global financial crisis of 2008.

The implication of this theory is that, for a country to stimulate its economic activities, there is need for an improved access to financial services through the channel of financial inclusion of all adult individuals and

businesses most especially those in rural areas. The theory was pursued in Nigeria as financial inclusion policy considering its impacts on domestic productive investment performance and promotion of economic growth of both urban and rural communities in Nigeria.

2.2 Empirical Review

Eton, et al. (2019) opined that notwithstanding the bright outlook of financial inclusion derived from financial technology adoption, several challenges still linger. These include limited outreach of the brick-and-mortar model, especially in rural areas, high and sticky levels of financial illiteracy, high lending rates leading to high interest spread between lending and deposit rates, and low saving and poor loan repayment culture. Responsiveness to the numerous means of financial inclusion remains a means of achieving such task. Before the advent of digital banking, financial exclusion has manifested prominently in Nigeria with the bulk of the money in the economy staying outside the banking system. The subject of financial exclusion has therefore been a major economic test that has received the consideration of the various governments over the past eras.

Nwafor and Yomi (2018) explained that policy and research initiatives must then focus on involuntary exclusion as it can be addressed by appropriate economic programs and policies which can be designed to increase income levels, reduce poverty, bridge income inequality gap and correct market failures and imperfections. Previously, the Nigerian economy was predominantly a cash-based economy with significant proportion of the narrow money stock in the form of currency outside the banking system. Although the average ratio of the currency outside the banking sector (COBs) to narrow money supply (M) trended downward from 61.1 per cent 1 in the 1960s to 44.3 per cent in the 1970s and later to 40.9 per cent in the 1980s, the value, in nominal terms, was still high considering the growth in the level of narrow money in the economy. The decline in the ratio was attributable to a combination of developments, including increased literacy and government policies directed at encouraging financial sector growth.

The CBN, during this period, initiated rural banking programme directing banks to open branches in the rural areas, encouraging Nigerians to use financial institutions and products more. The crisis in the banking industry during the 1990s eroded the confidence of the populace in the industry. The problem was aggravated by the excessive spending of the political class leading to the increase in the level of currency outside the banking system. The ratio of currency outside the banking system moved up to 47.7 per cent by end of the 1990s. The stirred use of the financial services declined the ratio of currency in the informal sector to 38.2 per cent by the end of 2005. In a cross-country comparative analysis of the financial exclusion rate using the same measure of the ratio of the currency outside the banking system to narrow money supply, Martin Oluba (2008), compared the financial exclusion levels in Switzerland, USA, Venezuela, Nigeria, Pakistan, India and Argentina in four and half decades (1960 – 2005), although each country with a different objective.

The goal of financial inclusion seems to vary from country to country and several commitments and policies have been in difficult form for implementation (Anyanwu, Ananwude and Nnoje, 2018). He found that Nigeria had not really done badly in comparative terms even though there was need to accelerate the exclusion rate reduction.
Akhil (2016) posited that in 2012, Nigeria introduced the National Financial Inclusion Strategy (NFIS) and promoted it as a key driver in becoming one of the world's largest economies. The goal of NFIS is to decrease the number of Nigerians without access to financial services from 46.3% to 20% by the year 2020. In Nigeria, the population that has access to financial services increased from 36.3% in 2010 to 43% in 2012, 48.6% in 2014 and remained at that level in 2016 while the banking public increased from 30% in 2010 to 32.5%, 36% and 38.3% in 2012, 2014 and 2016 respectively. The other formal financial institutions including the microfinance banks, insurance companies, pension funds and similar service providers grew between 2010 (6.3%) and 2016 (10.3%). The informal sector (Non-Governmental Organizations (NGOs) and financial cooperatives) declined from 17.4% in 2010 to 9.8% in 2016. The main aim of the study is to examine the effect of financial inclusion on economic growth in Nigeria. The study therefore decomposed financial inclusion and examined the effects of number of commercial banks' branches, currency in circulation, currency outside banks, commercial banks' credit to private sector, loans and deposits of rural branches of commercial banks on economic growth in Nigeria.

Nwafor and Yomi (2018) studied the relationship between financial inclusion and economic growth in Nigeria. Two hypotheses were formulated; corresponding data (spanning from 2001 to 2016) were obtained and tested using Two staged Least Squares Regression Method. Findings revealed that financial inclusion have significant impact on economic growth in Nigeria and that financial industry intermediation have not influenced financial inclusion within the period under review. It was recommended that Nigerian banks should develop financial products to reach the financially excluded regions of the country as this will increase GDP per capital of Nigeria and consequently economic growth.

In a related study, Okonkwo (2021) evaluated the effect of available microfinance banks' products in rural communities via rent savings, child education, new born and daily savings account on women empowerment. A descriptive survey design was utilized to realize our objective. Two hundred (200) questionnaires were distributed to respondents, out of which one hundred and ninety (190) were fully completed and used for the analysis. The study recommended the creation of more women tailored products by microfinance banks. This will avail them the opportunity to choose from variety of products and services that specifically suit their needs. Furthermore, collateral for women to access finance from these microfinance banks should be community/socially based rather than individually based.

Zulkhibri and Ghazal (2017) studied income, education, age, gender, urban-rural classification and access, as key drivers of financial inclusion and analysed their impact on the likelihood of being banked in Nigeria. The study used a survey of over 20,000 respondents in 37 states in Nigeria from 2008 to 2016. Being a woman, a youth and living in a rural area, however, have significant negative effects on financial inclusion. Lastly the lower the average travel time to the nearest branch of a bank, the more likely an individual will be financially included in Nigeria. The findings will inform policy interventions in areas such as financial literacy and poverty alleviation.
Aina and Oluyombo (2014) investigated the economy of financial inclusion in Nigeria, they found that though access to bank accounts is high, a majority of the respondents operate savings accounts. However, bank account ownership penetration ratio of 1.4 accounts to an adult including inactive accounts is very low. The use of bank accounts in receiving money from, and sending money to family members living far away helps to service and maintain good family bond typical of Africans where family ties are held in high esteem. Most adults use their accounts between one and five times in a month but 24.01% of the accounts are inactive in receiving deposits while 6.91% are inactive for withdrawal in a month (CBN, 2020). The most popular non-cash payment methods are ATM/Debit card and wire transfer/on-line payment, 59.58% of those who save used a bank account, 32.5% save with cooperative societies while 26.25% used daily contributors and rotational savings scheme (CBN, 2020).
Swammy (2012) studied a simple model showing the impact of financial inclusion on monetary policy in Nigeria between 1980 and 2012. The result of the study supported the notion that growing financial inclusion would improve the effectiveness of monetary policy. However, the coefficient of the number of bank branches has the wrong sign and this is explained by the fact that, in opening branches, banks mainly pursue profits but not financial inclusion which is a policy objective, so that there are clusters of branches which are under-utilized while numerous locations which are considered not favourable for balance sheets are under-branched.

Ogbonna (2022) investigated the effects of financial inclusion on economic growth in Nigeria from 1992 to 2018. Selected variables for financial inclusion include; currency outside banking, currency in circulation, microfinance banks' deposits, number of commercial bank branches, commercial banks' credit to private sector, loans and deposits of rural branches of commercial banks. On the other hand, nominal GDP was the selected measure of economic growth. The result revealed that currency in circulation had an insignificantly positive relationship as well as a causal effect on economic growth in Nigeria. Likewise, loans extended by rural branches of commercial banks also have a positive and significant relationship and causal effect on economic growth in Nigeria. Deposits of rural branches of commercial banks have causal effect on GDP in Nigeria and a positive relationship though not significant. The study recommended that the government and monetary authorities should ensure the promotion of banking service and the establishment of bank branches deeper in the rural areas and equally support these banks to meet the demands of these areas efficiently.

3.0. Methodology

3.1 Research Design

This study used an ex-post facto research design which relies on secondary data in examining the research objectives. Specifically, this study used tabular presentation of data to explain the movement of variables of interest over time. Also, modern econometric technique will be used to evaluate the study's research objective so as to draw statistical inference for policy recommendations. To empirically verify the effect of financial inclusion on economic growth, Ordinary Least Squares (OLS) analytical technique will be employed. Also, secondary data from Bank reports and statistical bulletins spanning the period 1994 to 2021will be used. In achieving the objective of this study, an estimation of a modified linear regression model will be followed. Consistent with the literature discussion, the financial inclusion model is specified as follows:

3.2 Model Specification

$RGDP_{it}=\alpha 0+\alpha FININC+\beta \Sigma CV_{it}$ Equation (1)

Where: RGDP is Real Gross Domestic Product, FININC is financial inclusion and ΣCV_{it} is a vector of control variables. Financial inclusion is proxied by the Interest rate (INT), Inflation (INFL), Credit to Private sector (CPS) and Exchange rate (EXCH).

$RGDP_{it-1}= \alpha_0+\alpha 2INT_{it-1}+\alpha 3INFL_{it-1}+\alpha 4CPS_{it-1}+\varepsilon it$ Equation (2)

3.3 Pre-Estimation Diagnostic

3.3.1 Unit Root Test

All variables in the analysis were tested for unit roots. This study adopted the Phillip-Perron (PP) tests for stationarity developed by Perron (1997), a modified Dickey-Fuller (DF) test, adjusted on a generalized least squares (GLS) detrending series known as the DF-GLS test proposed by Elliot, Rothenberg and Stock (1996) and the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test in its unit root tests. There is wider acceptability in the literature that the PP test evaluates the time series properties of the variables. The PP test is specified by Equation 3 as:

$$\theta_{\alpha}^{*} = \theta_{\alpha}\left[\frac{\gamma_{\circ}}{\omega_{\circ}}\right]^{\frac{1}{2}} - \frac{T(\omega^{\circ} - \gamma^{\circ})[se(\varphi)]}{2\omega_{\circ}^{\frac{1}{2}}s} \qquad \text{Equation 3}$$

where, φ is the estimate, and θ_{α} is the t-ratio of φ, $se(\varphi)$ is the coefficient standard error, and s is the standard error of the regression equation. ω° and γ° are the residual spectrum at zero frequency and consistent estimate of the error variance respectively. The PP test is applied specially to test the unit roots in our economic regime switch analysis.

However, the PP test is not infallible. The test is susceptible to low power statistic and size distortion problems. Hence, to get rid of these challenges in our data, we also employ the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) test, which is believed to possess these challenges at a minimal rate (see for instance, McCarthy, 2015). A more clearly seen difference between the KPSS test and the PP test is in the statement of the null. In the KPSS, the null hypothesis is that the variable in question is stationary and the decision criteria is to accept the null only if the absolute value of the calculated statistic is below the critical value at the accepted level of significance (Ekong and Ekong, 2017). The test statistic is obtained by regressing the residuals of a regression on the independent variables of the original regression and is given by Equation 3 as:

$$KPSS = \frac{1}{T^{2}} \cdot \frac{\sum_{t=1}^{T} S_{t}^{2}}{\varpi_{\infty}^{2}} \qquad \text{Equation 4}$$

where, $S_t = \sum_{s=1}^{t} \hat{e}_s$ is a partial sum, ϖ_{∞}^{2} is the HAC estimator of the variance of $\hat{e}_t$, T is the Sample size.

The DF-GLS test also possesses good size and power properties (Elliot, Rothenberg and Stock, 1996; Aziakpono and Wilson, 2013). The t statistic is generated from the parameters gotten from Equation 4;

$$\Delta y_{t}^{d} = \vartheta y_{t-1}^{d} + \delta_{1}\Delta y_{t-1}^{d} + \ldots . + \delta_{p}\Delta y_{t-p}^{d} + \mu_{t} \qquad \text{Equation 5}$$

where, y_t^d is the detrended data series; Δ is the difference operator; $\vartheta, \delta_1, \delta_p$ are parameters to be estimated and μ_t is the error term.

3.4. A Priori Expectation

INT < 0; GDPG > 0; INFL<0>; CPS>0; 0<EXCH>0.

Interest rate (INT), Inflation (INFL), Credit to Private sector (CPS), Gross Domestic Product (GDP), Exchange Rate (EXCH).

4.0 Interpretation and Discussion of Findings

To empirically investigate the relationship between financial inclusion and economic growth in Nigeria, the study employed an Autoregressive Distributed Lag (ARDL) modeling framework. The dependent variable in the model is real gross domestic product (RGDP), while the explanatory variables include exchange rate (EXCH) as a direct proxy for financial inclusion, credit to the private sector (CPS), interest rate (INT), and inflation rate (INF), which jointly capture the operational and macroeconomic environment within which financial inclusion unfolds.

The first step in the analysis involved testing the stationarity properties of the variables using the Augmented Dickey-Fuller (ADF) unit root test as shown in table 1. The results revealed a mixed order of integration, which justifies the use of the ARDL bounds testing approach. Specifically, exchange rate (EXCH), credit to the private sector (CPS), and real GDP (RGDP) were found to be integrated of order one, i.e., I(1), while inflation (INF) and interest rate (INT) were stationary at level, i.e., I(0). The absence of any I(2) variable confirms the appropriateness of the ARDL framework in capturing both the short-run and long-run dynamics of the model.

Table 1: ADF Unit Root Test Result

Variables	ADF Test Statistics	Critical Values			P Values	Remarks
		1%	5%	10%		
EXCH	-5.171892	-3.626784	-2.945842	-2.611531	0.0001	I(1)
CPS	-5.169062	-3.639407	-2.951125	-2.614300	0.0002	I(1)
INF	-3.243272	-3.621023	2.943427	-2.610263	0.0253	I(0)
INT	-4.851663	-3.621023	-2.943427	-2.610263	0.0003	I(0)
RGDP	-3.326277	-3.626784	-2.945842	-2.611531	0.0209	I(1)

Following the stationarity tests, the study conducted the bounds test for cointegration to ascertain the presence of a long-run equilibrium relationship among the variables as shown in table 2. The computed F-statistic of 9.61 significantly exceeds the upper critical bounds at the 5% level, confirming the rejection of the null hypothesis of no long-run relationship. This suggests that financial inclusion, proxied by the expansion of bank branches, along with the accompanying macroeconomic variables, jointly determine the long-run trajectory of economic growth in Nigeria. This finding is congruent with prior studies that have established long-term linkages between financial sector development and growth outcomes in developing countries.

Table 2: Bound Test Result

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-statistic	9.610975	10%	2.45	3.52
K	4	5%	2.86	4.01
		2.5%	3.25	4.49
		1%	3.74	5.06
Actual Sample Size	34		Finite Sample: n=35	
		10%	2.696	3.898
		5%	3.276	4.63
		1%	4.59	6.368

The long-run ARDL estimates as shown in Table 3 reveal that only the coefficient of exchange rate (EXCH) is statistically significant at the 1% level, with a positive elasticity of approximately 1.69%. This implies that a 1% increase in GDP is associated with a 1.69% increase in exchange rate in the long run, holding other factors constant. This result underscores the fundamental role of export boosting and financial inclusion in promoting inclusive economic growth. It suggests that increasing in exchange rate (depreciation) enhances export through cheap prices and thereby improve availability of loanable funds that enhance access to credit, and promote investment, all of which are essential channels for stimulating productive economic activity.

In contrast, the coefficients of credit to the private sector (CPS), interest rate (INT), and inflation (INF) were not statistically significant in the long-run equation, despite exhibiting the expected negative signs. The insignificance of CPS is particularly concerning, as it implies that despite the expansion in credit availability, the impact on GDP has not been substantial. This may be reflective of weak intermediation efficiency in the Nigerian financial system, where credit is often directed towards non-productive or speculative sectors. Alternatively, the lack of significance could stem from structural constraints such as high default rates, asymmetric information, and inadequate risk assessment mechanisms, which hinder the effective transmission of credit to productive economic uses. Similarly, the negative and insignificant coefficients of INT and INF suggest that macroeconomic instability may dilute the efficacy of financial policy instruments in engendering long-term growth when not properly managed.

Table 3: Long Run Equation

Levels Equation				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
(EXCH)	0.016923	0.450447	3.740996	0.0025
CPS	-0.216218	0.141038	-1.533051	0.1492
INT	-0.228389	0.165526	-1.379779	0.1909
INF	-0.035721	0.020787	-1.718460	0.1094
EC = LOG(RGDP) - (1.6851*LOG(BBR) -0.2162*CPS -0.2284*INT				
-0.0357*INF)				

In the short-run dynamics captured by the error correction model in Table 4, several important observations emerge. The coefficient of the error correction term (CointEq(-1)) is -0.0925 and statistically significant at the 1% level, confirming the existence of a self-correcting mechanism that restores long-run equilibrium in response to short-run shocks. However, the speed of adjustment is relatively slow, with only 9.25% of disequilibrium corrected annually. This points to the presence of structural rigidities and frictions in the Nigerian financial and economic system that hinder swift convergence to equilibrium.

Short-run coefficients of the first, second, and third lags of the differenced of exchange rate (EXCH)) are positive and statistically significant, reinforcing the argument that increasing exchange rate has a consistent and immediate impact on economic activity. This aligns with the theory that financial inclusion, when facilitated through banking proximity and density, reduces transaction costs, lowers the barrier to formal financial services, and catalyzes economic engagement, especially among marginalized populations.

The contemporaneous change in credit to private sector (CPS) negatively and significantly affects GDP while its lagged values are positive and significant. This dichotomy may reflect a lagged realization of the benefits of credit in the real sector, whereby initial disbursement does not immediately translate to output increases due to time-to-build and gestation effects associated with investment. This suggests that short-term contractions in growth may occur as resources are reallocated or as credit flows into sectors with delayed productivity payoffs, only for the growth benefits to materialize in subsequent periods.

Regarding interest rates, the first lag of the differenced interest rate (D(INT(-1))) has a positive and significant effect on GDP, while the current differenced value (D(INT)) is marginally negative. This could be indicative of an initially contractionary effect of higher interest rates on consumption and investment, followed by a possible stimulating effect as higher rates improve bank profitability and attract capital flows. Such a pattern highlights the complex and time-dependent nature of interest rate transmission mechanisms in the Nigerian context.
The lagged differenced values of inflation (INF) all carry positive and significant coefficients, suggesting that moderate inflation in the short term may be associated with higher GDP. This may appear counterintuitive, but it resonates with the Phillips Curve proposition, wherein mild inflation accompanies economic expansion. In developing economies, inflationary pressures can sometimes arise from demand-pull factors reflecting increased economic activity. However, sustained inflation remains a threat to macroeconomic stability and could erode real incomes if left unchecked.

Table 4: ARDL Error Correction Regression

ARDL Error Correction Regression				
Dependent Variable: DLOG(RGDP)				
Selected Model: ARDL(4, 3, 3, 2, 4)				
Sample: 1986 2023				
Included observations: 34				
ECM Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.476225	0.058179	8.185462	0.0000
DLOG(RGDP(-1))	-0.072451	0.132364	-0.547362	0.5934
DLOG(RGDP(-2))	-0.122308	0.139538	-0.876521	0.3967
DLOG(RGDP(-3))	-0.605919	0.118717	-5.103903	0.0002
D(EXCH)	0.216849	0.046355	4.678012	0.0004
D(EXCH(-1))	0.196394	0.053647	3.660876	0.0029
D(EXCH(-2))	0.183958	0.053522	3.437061	0.0044
D(CPS)	-0.009559	0.001896	-5.042618	0.0002
D(CPS(-1))	0.005183	0.002108	2.458537	0.0287

D(CPS(-2))	0.004596	0.001673	2.746484	0.0166
D(INT)	-0.003115	0.001486	-2.096564	0.0562
D(INT(-1))	0.008698	0.001510	5.761208	0.0001
D(INF)	0.000516	0.000281	1.836614	0.0892
D(INF(-1))	0.003140	0.000479	6.557359	0.0000
D(INF(-2))	0.002287	0.000370	6.188373	0.0000
D(INF(-3))	0.001053	0.000264	3.994813	0.0015
CointEq(-1)*	-0.092511	0.011670	-7.927231	0.0000
R-squared	0.918378	Mean dependent var		0.040907
Adjusted R-squared	0.841558	S.D. dependent var		0.037648
S.E. of regression	0.014986	Akaike info criterion		-5.256561
Sum squared resid	0.003818	Schwarz criterion		-4.493380
Log likelihood	106.3615	Hannan-Quinn criter.		-4.996294
F-statistic	11.95484	Durbin-Watson stat		2.425302
Prob(F-statistic)	0.000003			

The overall model fit is remarkably high, with an R-squared of 0.9184 and an adjusted R-squared of 0.8416, suggesting that over 92% of the variations in real GDP are explained by the included variables. The Durbin-Watson statistic of 2.43 is within acceptable bounds, indicating no significant autocorrelation, while the F-statistic confirms the joint significance of the model.

5.0 Conclusion and Recommendations

5.1 Conclusions

The findings of this study demonstrate that financial inclusion exerts a strong and statistically significant positive effect on economic growth in Nigeria, both in the short run and in the long run. This underscores the necessity of expanding the reach of formal financial services as a strategy for broad-based economic development. Conversely, the evidence that credit to the private sector, interest rates, and inflation do not exert long-run significant effects suggests that the full potential of financial inclusion is yet to be harnessed through effective credit delivery and macroeconomic policy alignment.

5.2 Policy Recommendations

Given these findings, several policy recommendations are warranted.

1. There is a need to regulate exchange rate via managed float system where government intermittently intervene to avoid round tripping, especially in import dependent economy like Nigeria as this will trigger hyperinflation that is distortionary to GD.
2. Regulatory bodies must ensure that credit flows to productive sectors through enhanced credit evaluation systems and reduced information asymmetries. Financial literacy campaigns should also be prioritized to equip citizens with the knowledge required to make informed borrowing and saving decisions.
3. Macroeconomic policies, particularly those governing inflation and interest rates, must be crafted with precision and transparency. While moderate inflation may coexist with growth, persistent inflation poses risks to economic stability. Hence, a balanced monetary policy stance is critical.
4. Fostering innovation through financial technology (fintech) can complement traditional banking by offering low-cost, scalable financial solutions that extend the reach of financial services and reduce the burden of physical infrastructure expansion.

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