



IMPACT OF FINANCIAL INCLUSION ON ECONOMIC GROWTH IN NIGERIA FROM 1992 TO 2022

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Abstract: This study examines the impact of financial inclusion on economic growth in Nigeria from 1992 to 2022. The study adopted analytical research design while finance-led growth theory was adopted as the theoretical framework. The data used were obtained from CBN statistical bulletins for data on bank credits or loans and bank branches and World Bank and World Development Indicators, 2022 for data on economic growth rate. The study conducted correlation test, unit root test, ARDL bound test for co-integration to analyze the data. The ARDL results revealed that a unit increase in financial inclusion reduced economic growth by 5.14 units. It therefore means that financial inclusion increase access to financial credits that promotes economic growth. However, if the borrowed funds are channeled into consumption or unproductive sectors rather than investment in growth-enhancing activities, it can negatively affect economic growth. The study therefore concluded that financial inclusion has a positive impact in promoting economic growth in Nigeria for the period under review. The study therefore recommended that government and policymakers should reassess the current financial inclusion strategies to prioritize productivity enhancing sectors such as agriculture, manufacturing and technology. It further recommended the encouragement of financial literacy programs that enlighten people on the importance of increased access to financial products and services.

Keywords: Financial Inclusion, Economic Growth, ARDL Model, Nigeria, Financial Literacy

1.0 Introduction

Recently, global attention has been drawn to the need by governments and relevant authorities to make formal financial services and products cheaply available to all segments of the society (Nma, & Callistus, 2022). This view points to a transformative and positive link between financial inclusion and economic growth. This is because financial inclusion, that is, access to all financial services influences economic growth, reduce inequality and poverty rate in the country (Odumisor et al., 2024). The Enhancing Financial Innovation (EFInA) and Access to Finance (A2F) survey reports showed that Nigeria formal financial sector has improved and significantly increased from 56% in 2020 to 64% in 2023. This can be attributable to implementation of financial inclusion strategies such as increase in number of ATMs, bank branches and mobile money and agent banking in different parts of the country (Odumisor, Acquah & Abiji, 2024, and FSS, 2020). However, significant financial gaps still remain wide especially as it concerns rural dwellers in Nigeria. Financial exclusion has a negative effective on

the economy such as loss of deposits, savings and investible funds that are supposed to be channeled into credit creation for productive reasons and economic development of the nation (Samuel & Samuel, 2020)

Chude and Chude (2022) posited that provision of affordable financial services to all segments of the society will promote growth of small and medium scale enterprises and improve households' welfare. 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. 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). 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 (Obi, 2022)

A lot of factors can be responsible for long term economic backwardness. Such factors include lack of modern infrastructures, inadequate funding and resources exploitations, too much of government interference in the markets and social factors. However, these problems can be redeemed through conscious government efforts to increase production capacity and optimization of the available capital resources (Ifediora et al., 2022). This would make financial services available to all, which according to Oti et al. (2022) is capable of promoting long-term economic growth and wealth creation (investment). Afolabi (2020) argued that when financial inclusion is enhanced, the disadvantage communities would reap the benefits of such improved access to cost-effective savings, loans and modern payment services or system provided by formal financial providers (Emara & ElSaid, 2021). Financial inclusion will also help the financially excluded adult population to manage their financial risks by reducing debts, moderating their consumption habits and protection of their savings (Afolabi, 2020).

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, insurance and pension (Musa, Salisu & Magaji, 2022). This can be attributable to illiteracy, lack of information and other factors 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 remains 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. Hence, the need for this study to re-examine the impact of financial inclusion on economic growth in Nigeria.

2.0 REVIEW OF RELATED LITERATURE AND THEORETICAL FRAMEWORK

Financial inclusion

Van and Linh (2019) defined financial inclusion as a situation where financial goods and services are made easily available to everyone irrespective of their financial status, net worth, gender, race, religion or location. This implies the removal of all hindrances to free participation of adult population in the financial sector for the benefit of all. The CBN (2021) defined financial inclusion as a situation where all adult citizens have easy access to broad range of affordable formal financial and banking services. The financial services and products improve their livelihoods and allows them to contribute meaningfully to economic growth and development of the country.

Vo and Nguyen (2021) described financial inclusion as the access to and use of formal financial and banking services by most adult population of the society to improve their living standards and contribute actively and meaningfully to the economic growth and development of a country. Ozil (2020a) is of the view that financial

inclusion is a situation where formal financial services and products (facilities) are provided to and accessed by all adult population especially the remote rural poor and financially excluded members of the society. Sahay et al. (2019) also defined financial inclusion as the use of, and easy access to formal financial and banking services. Nma and Callistus (2022) also described as when financial and banking services are delivered to all sections of the financially disadvantageous society and low-income earners for them to benefit too.

Adeniyi, Adeniyi, Akabi and Olayinka (2023) offered a somewhat divergent view that financial inclusion is the effort to know the customers' needs, financial literacy, counseling, screening and proper monitoring. World Bank (2022) defined financial inclusion as the process in which all adults and business firms have easy access to formal financial services. The Bank also viewed it as the efforts by government and relevant authorities to make financial services and products easily, cheaply and affordably available to all adult population without any form of discrimination.

Economic growth

Felicia and Charles (2020) described economic growth as an increase in aggregate production in an economy that leads to increase in income, improve consumers' purchasing power, and rise in quality of life of a country's citizens. This means economic growth results in improved quality of life and ensures that everyone has access to basic requirements or necessities of life and have opportunity to make choices. Lawrence (2019) defined economic growth as a continuous increase in a country's total output that is measured by real GDP. GDP of a country is the total value of all final goods and services produced within a country over a period of time. Therefore, an increase in GDP is the increase in a country's production. Most developed economies experience slower economic growth as compared to developing countries.

Finance-led growth theory

This theory was advanced by GoldSmith (1969), McKinnon and 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).

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)

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 financialisation 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 Literature Review

Odumusor et al. (2024) used data obtained from CBN statistical bulletins from 2000 to 2024 to ascertain the effect of financial inclusion on economic growth in Nigeria through the amount of loans extended by commercial banks and establishment of bank branches. The data were analysed with the use of OLS regression while E-views 10.0 version was used to facilitate the process. The total results revealed that commercial banks loans to small scale enterprises significantly and positively affected the economic growth in Nigeria. This means that loans from commercial banks and deposits from rural areas all have greater positive effect on the economic growth in Nigeria. The study therefore recommended that considering the fact that rural dwellers have pressing needs for financial services, commercial banks should lend or send money to rural branches too in form of credit expansion programs and ensure proper fund mobilization.

Iwedi (2024) empirically investigated the effect of financial inclusion on economic growth in Nigeria. The study used financial time series data extracted from CBN statistical bulletins (2022) from 1986 to 2022 while OLS was used and Granger causality test was conducted. The overall results revealed that there is an existence of a robust and positive link between financial inclusion and economic growth in Nigeria. The Granger causality test results revealed a unidirectional causality from number of commercial banks branches to real GDP which by implication means that as number of bank branches increases, the same percentage increase is reflected on the economic growth. This shows a cause-and-effect relationship between the two variables (financial inclusion and economic growth). The study therefore recommended that government should encourage the establishment of low-cost financial centres across the country to provide them with formal banking financial services that would help them contribute positively and meaningfully to the achievement of inclusive and sustainable economic growth and development.

Ahmad, Ahmed, Yang, Hussain and Sinha (2023) examined the link between telecommunication, both mobile and fixed mobile money, and economic growth of 146 countries in 22-year panel. The findings finally revealed that there is both direct and indirect link between mobile money and economic growth and this enhances financial inclusion with its attendant spillover effects on economic growth on the sampled countries. Wibowo et al. (2023) used data from 1985 to 2020 to investigate the impact of monetary inclusion on economic growth in Nigeria. Dynamic panel estimation (DPE) and panel VAR were used on some sampled African countries considered to have low income financial inclusion. The overall results showed that easy access to financial banking products and services to adult population has a strong and positive impact on economic growth in those sampled nations and therefore suggested that for more inclusive economic growth, efforts should be geared towards ensuring the implementation of financial inclusion programs and policies.

Similarly, Sun and Scola (2023) used panel data from 2009 to 2020 to examine the impact of financial inclusion on unemployment rate in Africa. The overall results showed that a positive and significant relationship exists between financial inclusion and unemployment in Africa. This means financial inclusion reduces unemployment rate in Africa through job creation (investment). It was also found that the effect of financial inclusion is felt more in countries with higher level of education than those with low. This means education (human capital development) plays a key role in reducing unemployment rate as well as poverty in Africa. The study therefore suggested that foreign direct investment should be encouraged by government. It also creates more employment opportunities through creating more access and use of financial products and services by all adults.

Nma and Callistus (2022) used data from 1981 to 2021 to assess the effect of financial inclusion on economic growth in Nigeria. The data were obtained from CBN statistical bulletins of 2021 and the independent variable considered were ATM volume of transactions, POS, web banking technology (WBT) and mobile banking technology (MBT), the ratio of total deposits to GDP represented financial inclusion. Pairwise Granger causality test was conducted. The empirical findings showed that a significant and positive relationship exists between financial inclusion and economic growth in Nigeria. The study therefore suggested that although banking sector in Nigeria is facing some challenges, but incorporating more mobile and internet-based banking services in Nigeria is capable of promoting financial inclusion that equally promotes economic growth in the country.

Biswan (2023) recently conducted a research on 4 South Asian countries to examine the effect of financial inclusion on economic growth. Various panel data methods were used and the final results showed that financial inclusion has a positive and allows varying effects on economic growth of these sampled countries and therefore recommended for policymakers of those countries to take necessary steps towards fast tracking financial inclusion activities for enhanced and inclusive economic growth.

Musa et al. (2022) empirically examined the impact of financial inclusion on poverty reduction and economic growth. The data is obtained from CBN and NBS statistical bulletins spanning the period of 1981 to 2020. The structural vector autoregressive (SVAR) model was used for data analysis while the variables used were real GDP as dependent variable and branches of commercial banks (CBBA), ATM, mobile-based transactions and broad-money supply (MS) as independent variables and poverty rate (PR) was stationary at first difference. The empirical results showed that financial availability, accessibility and utilization (financial inclusion) and CBBA have positive shock effect on real GDP growth while PR negatively affect economic growth. The study therefore recommended that government should double efforts at promoting financial inclusion by directing the CBN to persuade commercial banks to increase not only number of bank branches but number of ATMs across the country for easy access to financial services by all

Obi (2022) used data from 2004 to 2021 to analyse the impact of financial inclusion on economic growth in Nigeria. OLS technique was used for comprehensive analysis of the data sourced from Central Bank of Nigeria (CBN) statistical bulletin and NBS annual reports. The results revealed that financial inclusion promotes economic growth in Nigeria. The study therefore recommended that CBN should liaise with commercial and micro-finance banks to promote greater participation of rural areas' dwellers most of whom are youths, women and farmers as well as small business owners that hitherto are financially excluded. A State Monitoring Unit needs to be set up to properly and fully implement financial inclusion programmes at local levels

Oti et al. (2022) used data obtained from CBN statistical bulletin and NBS reports from 2000 to 2021 to examine the impact of financial inclusion on economic growth in Nigeria. The variables of interest used were bank deposits, bank branches, bank loans, ATMs and POS terminals. ADF unit root test was conducted and ARDL model adopted for comprehensive data analysis. The results revealed that the ATMs-to adult's ratio in Nigeria is impressive. This means that Nigerian economy is prospering with the adoption of ATMs use. On the other hand, POS showed a negligible impact on the economic growth. This means that GDP growth rate is yet to record any significant impact of using POS in the country. The study therefore recommended that because the effect of POS use is likely to be more long-lasting than ATMs, there is need for increase in the number of POS to the adult population especially those in rural areas

Chude and Chude (2022) used secondary data from 1986 to 2021 to evaluate the impact of financial inclusion on economic growth in Nigeria. The variables used were number of bank branches, total loans, commercial banks deposits and ATMs services. Best Linear Unbiased estimators (BLUE) and Ordinary least squares (OLS) techniques were used for data analysis. The data analysed were obtained from CBN statistical bulletin of 2021. The results revealed that there is an inverse relationship between total bank loans and economic growth. This implies that total bank loans do not contribute anything positively and significantly to the economic growth in Nigeria but Nigeria bank branches have a significant and positive relationship with economic growth. The study further revealed that there exists a positive and significant relationship between deposits made by people into

commercial banks and the economic growth. This means that deposit mobilisation leads to greater economic prosperity. The study therefore recommended that commercial banks should firstly know or specify what the borrowed funds are to be used for and ensure the provision of reliable collateral security before giving credits to their customers.

Ifediora et al. (2022) used data between 2012 and 2018 in about 22 Sub-Saharan African nations to investigate the link between financial inclusion and economic growth. The data were collected from world development indicator (WDI) and world Bank report while Generalized method of moment (GMM) technique was adopted for comprehensive data analysis. The overall results revealed that financial inclusion significantly affects economic growth for the period under review. Inversely, the use of other elements of financial inclusion produces a marginal but favourable impact on economic growth of the sampled nations. ATMs and bank branches were equally found to be significantly correlated to GDP growth while deposit accounts, outstanding loans, outstanding deposits negatively affect the economic growth. The study therefore recommended that financial inclusion should be promoted by government and relevant authorities through the provision of ATMs and opening up of more bank branches in critical locations.

Sing and Ghosh (2021) investigated the role of financial inclusion on economic growth in India by using data from 2014 to 2019 obtained from Financial Access Survey (FAS) of International Monetary Fund and World development index (WDI) of World Bank. The results revealed an equilibrium relationship between financial inclusion and economic activity and also showed the existence of structural breaks in their relationship. It also revealed that increasing economic activity leads to increase in banking usage before demonetization which was later reversed leading to change in the causal relationship direction and therefore concluded that all variables contribute to economic growth except savings accounts.

Emera and Elsaid (2021) in their similar research empirically investigated the link between financial inclusion, governance and economic growth in the Middle East. The data set used spanned the period of 1990 to 2018 from 44 countries while GMM dynamic panel model was used. The overall results revealed a positive relationship between financial inclusion, governance and economic growth and therefore recommended for fighting of corruption to ensure free flow of financial products and services to the needed members of the society.

Van et al. (2021) similarly used panel data regression method to examine the effect of financial inclusion on unemployment rate. The results revealed same positive relationship between financial inclusion and unemployment rate like the earlier studies conducted but also revealed that it impacts more on low-income countries with low level of financial inclusion and recommended for more financial inclusion programs implementation to cover the remaining excluded adult population in the society. El- bourainy and Salah (2021) used a sample period of 2009 to 2018 to create financial inclusion index for 43 developing economies. A multidimensional approach and principal component analysis (PCA) access to, use of quality of survey were adopted. Generalised methods of moment (GMM) was used for the analysis of the collected data and the findings revealed that financial inclusion has a positive link with unemployment rate in the sampled countries and therefore recommended for increase in financial inclusion to reduce the level of unemployment.

Ali, Hashmi, Nazir, Bilal and Nazir (2020) used dynamic panel estimation method to investigate the contribution of financial inclusion on economic growth in countries that are members of Islamic development bank. The overall results showed that financial inclusion measured by financial inclusion index (FII) is significantly correlated to economic growth and the study equally found bi-directional causality between FII indicator and GDP.

Adegboyegun et al. (2020) used secondary data from 1985 to 2018 to examine the impact of financial inclusion on economic growth in Nigeria. The data were obtained from CBN and NBS statistical bulletins while the variables of interest used were real GDP, loans to rural areas, deposits from rural areas, number of bank branches and interest rate. ADF unit root, causality and cointegration tests were conducted while ARDL model was adopted for comprehensive data analysis. The results revealed that financial inclusion has a significant impact on economic growth in Nigeria but interest rate does not. A unidirectional causality was found from economic growth to financial inclusion through loans to rural areas by the commercial banks. This implies that loans to rural areas is

one good channel by which financial inclusion positively affects economic growth. The study therefore recommended that loans to rural areas should be at lower and affordable interest rate and with less bureaucracy considering the roles it plays in promoting economic growth rate in Nigeria.

Afolabi (2020) used time series data obtained from CBN statistical bulletin and work development indicator from 1981 to 2017 to examine the impact of financial inclusion on inclusive economic growth in Nigeria. The variables of interest used were rural loans, number of bank branches, money supply GDP ratio, private sector credits to GDP ratio and GDP per capita. ARDL model was adopted for analysis after conducting unit root and co-integration tests. The results revealed that number of bank branches and levels of liquidity have both positive and significant effect on the GDP growth in both short and long run while inclusive economic growth was hampered by interest rate. The study therefore recommended for the provision of more improved financial services to many rural dwellers and all the adult population in the country at large to easily help them participate and contribute to national productivity. Inequality must be removed in the country for it to be on the path of inclusive growth

Samuel and Samuel (2020) employed data from 1990 to 2018 to examine the effect of financial inclusion on economic performance in Nigeria. The data were sourced from CBN and NBS statistical bulletins while OLS and Error Correction Model (ECM) were used for data analysis and the results showed that the availability of monetary services and products to Nigerians directly impacts positively on the economic growth especially through credits to private sector, broad money Supply, loan deposits and commercial banks liquidity ratio. It was therefore recommended that relevant rules and regulations guiding the implementation of good monetary policies should be enforced by government for enhanced economic growth in Nigeria for the period under review.

Uruakpa et al. (2019) used data from 2003 to 2018 and employed OLS regression method in examining the impact of financial inclusion on economic growth in Nigeria. The results showed that deposits of rural branches of commercial banks and ATMs transactions have positive and significant effect on economic growth and while loans advances to rural dwellers affects the economy negatively and concluded that government should enlighten the rural dwellers on how to use any loan given to them by the commercial banks.

Takeshi and Shigeyuki (2019) used data obtained from World development indicator to investigate the link between financial inclusion and economic growth with focus on developing economies from 2004 to 2017. The GMM dynamic panel data estimator was employed and financial inclusion was measured by number of commercial banks branches per 100, 000 adults in the sampled 168 African nations. The results revealed that there is an existence of a positive and significant relationship between financial inclusion and economic growth in those sampled nations during period under review. The study therefore recommended for government to promote financial inclusion strategies for enhanced economic growth.

Sakanko et al. (2019) sourced data from WDI, CBN and NBS to investigate the relationship between financial inclusion and national development from 1980 to 2018. ARDL bound testing model was adopted. It was discovered that financial inclusion through its indicators such as access to banks, credits and ATM, significantly and positively affects national development in both short and long run. A bi- directional causality was also found to exist between financial inclusion and national development. It was therefore concluded that for national development to be guaranteed, then financial inclusion must be promoted.

Wakdok (2018) employed secondary data from 1990 to 2014 to examine the impact of financial inclusion on economic growth in Nigeria using econometric analysis. The data were obtained from CBN statistical bulletin, NBS annual reports and National deposit insurance corporation (NDIC) statement of accounts and reports while error correction model (ECM) was used for testing of hypothesis. The findings revealed that financial inclusion has positive and significant effect on the economic growth in Nigeria through broad money, credits to private sector, loan deposits of rural areas, and liquidity ratio of commercial institutions. It was therefore recommended that adequate efforts have to be made by policymakers and regulators to ensure that bank adhere to rules and regulations governing their financial activities and regulators should also ensure that variables mentioned above are geared towards inclusive economic growth in Nigeria.

Otiwu et al. (2018) on their part examined the nexus between financial inclusion and economic growth with emphasis on microfinance banks from 1993 to 2013. Ordinary Least Square (OLS) method was used for the analysis of the sourced data while co-integration test was conducted to test for short and long run relationships. The overall findings showed that number of bank branches, deposits mobilisation and investment all, have insignificant impact on economic growth but total loans and advances do and therefore recommended for more loans and advances especially to rural communities to enhance inclusive economic growth

3.0 METHODOLOGY

3.1 Research Design

The study adopts causal research design to determine the nature of functional cause-effects relationship between two or more-time series variables of interest and also infers causality. That is, which variables are the dependent (cause) and which ones are the effects or consequences, that is, independent variables (Freud & Wilson, 2003)

3.2 Nature and Sources of Data Collection

The study used secondary data to examine the impact of financial inclusion on economic growth in Nigeria. The data were obtained from CBN statistical bulletins for data on bank credits and bank branches, and World Bank and World Development Indicators, 2022, for data on economic growth rate

3.3 Model Specification

This study adopted the model of Atta and Ibrahim (2024) as the model captured the relevant variables that examined the impact of financial inclusion on economic growth in Nigeria. The model is expressed as:

$$RGDP = \alpha_0 + \alpha_1 FIC_t + \alpha_2 FDI_t + \alpha_3 INR_t + \alpha_4 EXR_t + \epsilon_t \dots\dots\dots 1.0$$

RGDP = economic growth

FIC = financial inclusion proxied by commercial bank credits to customers

FDI = investment proxy (foreign direct investment)

INR = interest rate EXR = exchange rate α_0 = Intercept

ϵ_t = Error term

The ARDL equation for economic growth model is as follows:

$$RGDP_t = \alpha_0 + \sum_{i=1}^p \alpha_i \Delta RGDP_{t-i} + \sum_{i=0}^q \alpha_{2i} \Delta FIC_{t-i} + \sum_{i=0}^q \alpha_{3i} \Delta FDI_{t-i} + \sum_{i=0}^q \alpha_{4i} \Delta INR_{t-i} + \sum_{i=0}^q \alpha_{5i} \Delta EXR_{t-i} + \beta_1 RGDP_{t-1} + \beta_2 FIC_{t-1} + \beta_3 FDI_{t-1} + \beta_4 INR_{t-1} + \beta_5 EXR_{t-1} + \mu_t \dots\dots\dots 1.1$$

$$RGDP_t = \alpha_0 + \sum_{i=1}^p \alpha_i \Delta RGDP_{t-i} + \sum_{i=0}^q \alpha_{2i} \Delta FIC_{t-i} + \sum_{i=0}^q \alpha_{3i} \Delta FDI_{t-i} + \sum_{i=0}^q \alpha_{4i} \Delta INR_{t-i} + \sum_{i=0}^q \alpha_{5i} \Delta EXR_{t-i} + \beta_1 RGDP_{t-1} + \beta_2 FIC_{t-1} + \beta_3 FDI_{t-1} + \beta_4 INR_{t-1} + \beta_5 EXR_{t-1} + \mu_t \dots\dots\dots 1.1$$

Thus, the error correction version of ARDL model pertaining to the variables in equation (3.1) is as follows:

$$\Delta RGDP_t = \alpha_0 + \sum_{i=1}^p \alpha_i \Delta RGDP_{t-i} + \sum_{i=0}^q \alpha_{2i} \Delta FIC_{t-i} + \sum_{i=0}^q \alpha_{3i} \Delta FDI_{t-i} + \sum_{i=0}^q \alpha_{4i} \Delta INR_{t-i} + \sum_{i=0}^q \alpha_{5i} \Delta EXR_{t-i} + \lambda EC_{t-1} + \mu_t \dots\dots\dots 1.2$$

$$\Delta RGDP_t = \alpha_0 + \sum_{i=1}^p \alpha_i \Delta RGDP_{t-i} + \sum_{i=0}^q \alpha_{2i} \Delta FIC_{t-i} + \sum_{i=0}^q \alpha_{3i} \Delta FDI_{t-i} + \sum_{i=0}^q \alpha_{4i} \Delta INR_{t-i} + \sum_{i=0}^q \alpha_{5i} \Delta EXR_{t-i} + \lambda EC_{t-1} + \mu_t \dots\dots\dots 1.2$$

$$\Delta RGDP_t = \alpha_0 + \sum_{i=1}^p \alpha_i \Delta RGDP_{t-i} + \sum_{i=0}^q \alpha_{2i} \Delta FIC_{t-i} + \sum_{i=0}^q \alpha_{3i} \Delta FDI_{t-i} + \sum_{i=0}^q \alpha_{4i} \Delta INR_{t-i} + \sum_{i=0}^q \alpha_{5i} \Delta EXR_{t-i} + \lambda EC_{t-1} + \mu_t \dots\dots\dots 1.2$$

EC is the residuals that are obtained from the estimated co-integration model of equation (1.2) Where λ is the speed of adjustment parameter

4.0 RESULTS PRESENTATION AND ANALYSIS 4.1 Correlation Analysis

Table 4.1 Correlation test results

	EXR	FDI	FIC	INR	RGDP	SMEs
EXR	1.000000					
FDI	-0.658432	1.000000				
FIC	0.017623	-0.430553	1.000000			
INR	-0.327183	0.394570	-0.713171	1.000000		
RGDP	-0.209866	0.367102	-0.224990	0.048583	1.000000	

SMEs	-0.176185	0.153207	0.630921	-0.508880	0.131732	1.000000
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Source: Author's computation using E-views 10

The correlation test results in Table 4.1 indicated that investment (FDI), interest rate (INR), economic growth (RGDP) and credit to small and medium enterprises (SMEs) have a negative correlation with exchange rate (EXR), while financial inclusion (FIC) has a positive correlation with exchange rate (EXR). But financial inclusion (FIC) has a negative correlation with investment (FDI) while interest rate (INR), economic growth (RGDP) and credits to small and medium enterprise (SMEs) have a positive correlation with investment (FDI). Interest (INR) and economic growth (RGDP) has a negative correlation with financial inclusion (FIC) while credits to small and medium enterprises (SMEs) has a positive correlation with financial inclusion (FIC). Also, economic growth (RGDP) has a positive correlation with interest rate (INR) while credits to small and medium enterprises (SMEs) has a negative correlation with interest rate (INR). There is a positive correlation between credits to small and medium enterprises (SMEs) and economic growth (RGDP). Finally, exchange rate (EXR) and interest rate (INR) has a negative correlation with credits to small and medium enterprises (SMEs), while investment (FDI), Financial inclusion (FIC) and economic growth (RGDP) has a positive correlation with credits to small and medium enterprises (SMEs).

4.2 Unit root test

Table 4.2 Unit root test Results

VARIABLES	Augmented Dicky-Fuller test statistic		Critical Value at 5% at level		Order of integration
	At Level	At 1 st Difference	At level	At 1 st Difference	
EXR	-2.727091	-5.148716	-2.963972	-2.967767	I(1)
FDI	-1.826250	-6.677210	-3.574244	-3.574244	I(1)
FIC	-1.893271	-4.517695	-3.568379	-3.574244	I(1)
INR	-3.587995		-3.568379		I(0)
RGDP	-2.659575	-7.508402	-3.568379	-3.574244	I(1)
SMES	-3.604733		-3.574244		I(0)

Source: Author's computation using E-views 10

The unit root test results in Table 4.2 shows the Augmented Dickey-Fuller unit root. Under the ADF test, the variables interest rate (INR) and credit to small and medium enterprises (SMES) were stationary at level. This is because their ADF is less than their critical values at 5%. Thus, integrated of order zero I (0). The variables exchange rate (EXR), investment (FDI), financial inclusion (FIC) and economic growth (RGDP) were not stationary at level. This is because their ADF is greater than their critical values at 5%, but becomes stationary after first differencing. Hence integrated if order one I (1).

4.3 Lag Selection Criteria

Table 4.3 Lag Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-2754.733	NA	3.16e+54	145.3544	145.6560	145.4617

1	-2433.818	506.7067	2.01e+48	131.0431	133.4564	131.9017
2	-2372.700	73.98600	1.40e+48	130.4052	134.9301	132.0152
3	-2251.167	102.3429*	7.03e+46*	126.5878*	133.2243*	128.9490*

Source: Author's computation using E-views 10

Based on the lag selection criteria presented in Table 4.3, lag 3 was selected from 4 lags. Therefore, lag 3 was selected by FPE, AIC, SC and HQ.

4.4 ARDL Bound Test for Co-integration for economic growth model (RGDP) Table 4.4 Bound Test

Lag =1		F-statistics 6.633388*							
Critical Value Bound of the F-statistics									
K	10%		5%		2.5%		1%		
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	
4	2.22	3.09	2.56	3.49	2.88	3.87	3.29	4.27	

Note: * implies that computed f-statistics is above upper bound values

Based on the result presented in Table 4.4, the co-integration approach and bound test result shows that the first method compares the computed f-statistic result to the crucial values provided in the Pesaran, Shin, and Smith (2001) paper. Thus, at 10%, 5%, 2.5%, and 1%, the fstatistic of 6.633388, which is computed at k=4 (number of independent variable), surpasses the upper critical threshold. Without taking into account whether or not they are integrated of the same order, the null hypothesis that there is no co-integration was thus rejected. As a result, it was determined that the variables have a long-term relationship.

4.5 ARDL long run form for Economic growth model (RGDP)

Table 4.5 ARDL Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FIC	-5.14E-07	2.76E-07	-1.862586	0.0553
FDI	1.400464	1.643144	0.852308	0.4095
INR	-0.785180	0.582856	-1.347124	0.2010
EXR	0.027756	0.036293	0.764789	0.4581
C	17.25003	12.98373	1.328588	0.2068

Source: Author's computation using E-views 10

The ARDL log-run analysis in Table 4.5 revealed that the coefficient of financial inclusion (FIC) with the value - 5.14 is negative and statistically significant at 5% level. This implies that a unit increase in financial inclusion reduced economic growth by 5.14 unit. Financial inclusion may increase access to financial credits, but if the borrowed funds are channeled into consumption or unproductive sectors rather than investment in growth-enhancing activities, it can negatively affect economic growth. This result is in consonance with finance-led growth theory that finance plays a key role in promoting economic growth in any economy. The empirical result is also in conformity with the empirical results of Nma and Callistus (2022), Chiadika and Obi (2022), Samuel and Samuel (2020) and many other empirical literatures earlier reviewed.

The coefficient of investment (FDI) 1.40 is positive but not statistically significant at 5% level. This implies that an increase in FDI is related to increase in economic growth rate in Nigeria. The 5% level of significance means that there is about 95% possibility that the above relationship is positive in nature. But the coefficient of interest rate (INR) -0.78 is negative and not statistically significant at 5% level. This means that increase in interest rate caused a decrease in economic growth. In simple words, as INR rises, people may prefer keeping their money in banks instead of investing it, which in turn negatively affects economic growth. For the coefficient not to be statistically significant at 5% level showed that such negative relationship might be due to chance or is not reliable.

This in other words, means there is no conclusive evidence on the effect of interest rates on economic growth in Nigeria. The coefficient of exchange rate (EXR) 0.027 is positive but not statistically significant at 5% level. This means the relationship between exchange rate and economic growth is positive but not reliable. This implies that all changes in exchange rates in Nigeria do not have any clear significant impact on economic growth.

5.0 CONCLUSION AND RECOMMENDATIONS

This study evaluated the impact of financial inclusion on economic growth in Nigeria. The ARDL long run form for economic growth model revealed that financial inclusion (FIC) -5.14 has a negative and statistically significant relationship with economic growth. This implies that a unit increase in financial inclusion reduced economic growth by 5.14 unit. It therefore means that financial inclusion may increase access to financial credits. However, if the borrowed funds are channeled into consumption or unproductive sectors rather than investment in growth-enhancing activities, it can negatively impact economic growth. It therefore concluded based on the above findings that, financial inclusion has a positive role in promoting economic growth in Nigeria for the period under review. This is in line with the argument of finance-led growth theory adopted as anchor of this paper and the empirical result of Oti, Chiadika and Obi (2022) and Nma and Callistus (2022). The study therefore recommended that the negative and statistically significant relationship between financial inclusion and economic growth underscores the need for government and policymakers to reassess the current financial inclusion strategies. Efforts should focus on ensuring that financial inclusion initiatives in Nigeria prioritize productivity-enhancing sectors such as agriculture, manufacturing, and technology. It further recommended the encouragement of financial literacy programs that ensure increased access to financial products and services that translate into productive activities that enhance economic growth.

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