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FINANCIAL INCLUSION AND FOREIGN DIRECT INVESTMENT IN NIGERIA

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Abstract

This analysis has analyzed the effect of Financial Inclusion on Foreign Direct Investment for the 34 years period (34years) from 1990 to 2023. The variables employed were numbers of automated teller machine per 100, 000 adults, number of commercial bank branches and individual access to internet and foreign direct investment. The analysis used time series and secondary source of data were employed. The data were obtained from Central Bank of Nigeria (CBN) statistical bulletin 2023, and World Bank Development indicator. The data collected was analyzed by descriptive statistics, unit root test, correlation and regression. The analysis found that, numbers of automated teller machine per 100, 000 adults has a significant relationship with foreign direct investment in Nigeria. Furthermore, the number of the commercial bank branches has a great influence on foreign direct investment in Nigeria. It was observed from the analysis however, that there is significant effect of individual access to internet on foreign direct investment in Nigeria. Thus, the analysis found that financial inclusion has a positive and significant impact on foreign direct investment (FDI) in Nigeria. Based on this, it is recommended that policy should focus on making financial services more widely available and accessible by providing more ATMs and commercial bank branches, in areas where they are not yet ubiquitous.

Keyword: Automated Teller Machine, Commercial Bank Branches, Internet, Foreign Direct Investment.

INTRODUCTION

Financial inclusion is basically an expansion of banking and financial services (like reserve funds, stores, installments, withdrawals, credits and advances) to an individual, gathering or local area that were until recently barred. In this 21st century, financial inclusion is a very much perceived worldwide issue. It is estimated that there are approximately 1.7 billion people who are unbanked and approximately 2.3 billion adults who are financially excluded, and small and medium enterprises struggle to engage with the financial system. Monetary clients will not be able to reach monetary administrations; if they can, they could not be excellent, appropriate or reasonable (Rhyne, 2020; World Economic Forum, 2021). The cases could be particularly disturbing because

the underlying cosmetics and social and monetary attitude of these economies made it possible that the same kind of friendly and financial imbalance and accelerated the level of destitution to an extent beyond precise depiction. For instance, Nigeria is one of the districts in Sub Saharan Africa with a much unbanked population. More than 60% of her population of over 206.1 million are evaded from the financial system (Worldwide Money, 2021).

Foreign direct investment (FDI) implies to an investment undertaken by a foreign entity in a business, organization, or economic activity located in and distinct country, often involving a degree of ownership or managerial control (Coulibaly & Camara, 2022). Advances in technology have significantly improved communication and transportation systems, making it easier for capital to move across national borders and encouraging international investment activities (Temouri et al., 2022). For developing economies, FDI serves as an important source of external financing, providing access to capital from more advanced nations and supporting economic development (Yang & Shafiq, 2020). Beyond capital inflows, FDI contributes to long-term growth through technology transfer, employment creation, and increased productive capacity in the host economy (Farhad & Sun, 2023).

In Nigeria, financial inclusion has emerged as an important factor in attracting foreign direct investment by expanding access to financial services and strengthening the financial system. Greater availability of banking services, credit facilities, and digital payment platforms enhances financial efficiency and reduces transaction-related challenges for financiers. Innovations such as mobile banking and fintech solutions improve transparency and lower investment risks, thereby making the business environment more attractive to foreign firms. Empirical evidence suggests that improved financial inclusion increases the economy's capacity to utilize foreign capital effectively, which in turn supports economic growth and investment inflows (Aderemi & Afolabi, 2025; Onifade et al., 2024). Likewise, the IMF (2023) highlights the expansion of digital financial services as a key factor in sustaining FDI inflows into Nigeria.

In Nigeria, limited attention has been given to how financial inclusion, particularly through the expansion of deposit money bank (DMB) branches, influences foreign direct investment (FDI) inflows. As major financial intermediaries, DMBs provide essential banking services that support both local enterprises and foreign financiers. The number of bank branches is commonly used as a measure of financial inclusion because it reflects the ease with which individuals and businesses can access financial services across different locations (Akinmoladun & Adebayo, 2021). Despite progress in the financial sector, challenges such as inadequate banking infrastructure and low financial literacy remain prevalent, especially in rural communities. The number of DMB branches rose to 5,462 in 2018 before declining slightly to 5,383 in 2020, indicating an overall expansion driven by policies aimed at improving financial access. However, the extent to which this growth has contributed to attracting foreign direct investment remains uncertain, despite the importance of FDI for economic growth and diversification (World Bank, 2020). Against this backdrop, this analysis investigates the effect of financial inclusion on FDI in Nigeria. Specifically, it examines the relationship between the number of automated teller machines (ATMs) per 100,000 adults and

FDI, assesses the impact of commercial bank branch expansion on FDI, and evaluates the influence of individual internet access on foreign investment inflows.

LITERATURE REVIEW

Concept of Financial Inclusion

According to Onaolapo (2017), financial inclusion implies to a system in which all individuals within an economy can conveniently access and utilize formal financial services. Similarly, Sanusi (2023) describes financial inclusion as the availability and use of regulated financial products such as savings accounts, credit facilities, and insurance services. Sanusi further argues that financial exclusion is shaped by several interconnected factors, including economic conditions, public policies, geographical location, cultural practices, historical experiences, religious beliefs, and social inequalities. He emphasizes that financial inclusion is a key driver of economic growth, as it promotes capital formation, productivity, and overall development. Consequently, discussions on financial inclusion often focus on two core dimensions: accessibility and usage of financial services. In a related perspective, Ayo (2022) defines financial inclusion as the ability of individuals or households to obtain financial products and services that meet their needs. Those who are unable to access such services are considered financially excluded. Therefore, financial inclusion seeks to integrate low-income and underserved populations into the formal financial system by providing affordable and appropriate financial products and services.

Concept of Foreign Direct Investment

According to the World Bank (2022), foreign direct investment (FDI) implies to an investment through which an individual or organization acquires a lasting interest and a significant degree of influence in an enterprise located outside its home country. A direct investment relationship is generally established when the financier owns at least 10% of the voting shares of the foreign enterprise, while ownership below this threshold is typically classified as portfolio investment. FDI can take the form of greenfield investments, which involve establishing new business operations and facilities, or mergers and acquisitions, where financiers obtain ownership stakes in existing firms. It reflects foreign ownership of productive assets such as factories, land, machinery, and mining operations. The expansion of FDI has been closely associated with increasing globalization and economic integration across countries (Gnansonuou, 2021). Historically, foreign investment has largely involved physical capital such as equipment, buildings, and industrial facilities. Multinational corporations remain the primary contributors to FDI flows worldwide (Uremadu et al., 2023).

Theoretical Review

The Inter-Mediation Theory

This analysis is anchored on the Theory of Financial Intermediation due to its relevance in explaining the relationship between financial inclusion and economic outcomes. The theory highlights the vital role served by financial institutions and markets in facilitating the efficient

allocation of resources within an economy. According to Gurley and Shaw (1960), financial intermediaries primarily engage in mobilizing deposits and extending loans, thereby linking savers with borrowers. Subsequent contributions by Bisignano (1998) and Leland and Pyle (1977) identified several characteristics that distinguish financial intermediaries. These include issuing deposit liabilities with fixed values, maintaining liabilities that are generally shorter in maturity than their assets, providing highly liquid deposit instruments, and holding assets and liabilities that are often non-transferable. Through these functions, financial intermediaries facilitate the movement of funds from surplus units to deficit units, ensuring that available resources are directed toward productive investments.

Scholtens and Wensveen (2003) further argue that financial intermediaries create specialized financial products that meet the needs of different economic agents. By connecting those with excess funds to those requiring capital, financial institutions enhance financial accessibility and promote broader participation in the formal financial system. The theory is particularly suitable for this analysis because it explains how financial institutions, especially deposit money banks, contribute to financial inclusion by mobilizing savings, extending credit, and providing essential financial services. Effective financial intermediation strengthens financial deepening, improves access to finance, and supports economic development. Consequently, the Theory of Financial Intermediation provides a strong foundation for examining the impact of financial inclusion on foreign direct investment in Nigeria.

Empirical Review

Paulin, Albert, and Daniel (2025) analysed the relationship between financial inclusion and foreign direct investment (FDI) across 32 Sub-Saharan African countries covering the period 2005–2020. Using the Generalised Method of Moments (GMM) alongside the Panel-Corrected Standard Error (PCSE) approach for robustness, their findings indicate that financial inclusion exerts a positive and statistically significant effect on FDI. This suggests that broader access to financial services helps attract foreign financiers by improving participation in the financial system.

In a related analysis, Godwin et al. (2024) observed the impact of financial inclusion on economic growth and macroeconomic stability in Nigeria between 1980 and 2022. Using data from the Central Bank of Nigeria and the World Development Indicators, they applied the Autoregressive Distributed Lag (ARDL) model. Their results show that financial inclusion does not significantly enhance growth or stability in the short run, but it contributes positively to economic growth and macroeconomic stability over the long run, albeit at a gradual pace.

Similarly, Tawfik et al. (2024) explored the effect of foreign investment on bank performance and digital financial inclusion disclosure through mobile banking in Oman from 2015 to 2023. Employing the Partial Least Squares Structural Equation Model (PLS-SEM), the analysis found that foreign investment positively influences both bank performance and the disclosure of digital

financial inclusion indicators. However, while such disclosures negatively affected bank performance, no mediating effect was observed between foreign investment and performance through mobile banking disclosures.

Methodology

This analysis adopted an ex post facto research design, relying on existing time-series data related to the subject matter. This design was considered appropriate because it does not allow for manipulation of variables by the researcher, thereby ensuring objectivity in the analysis. The analysis made use of secondary data sourced from the Central Bank of Nigeria (CBN) and the World Development Indicators (2023). To achieve the research objectives, the analysis employed a multiple regression technique within the Ordinary Least Squares (OLS) framework for estimation. The dependent variable is foreign direct investment (FDI), used as a proxy for FDI inflows into Nigeria, while the explanatory variables include the number of automated teller machines per 100,000 adults (NATM), the number of commercial bank branches (NBB), and individual internet access (IAI).

The econometric model is specified as follows:

$$FDI = f(NATM, NBB, IAI) \dots \dots \dots (1)$$

The equation is specifically converted into mathematical form as follows in order to maintain the influence of the random variable:

Hence, the econometric form of the model is:

$$FDI = \beta_0 + \beta_1 NATM + \beta_2 NBB + \beta_3 IAI + \mu \dots \dots \dots (2)$$

Where:

FDI = Foreign Direct Investment

NATM= Numbers of ATM Per 100, 000 Adults

NBB = Number of Commercial Bank Branches

IAI= Individual Access to Internet

β_0 = Constant term;

β_1 - β_3 = Coefficient of independent variables

μ = Error term representing factors distinct than those specified in the model

A priori expectation

This analysis posits that the number of automated teller machines (ATMs) per 100,000 adults, the number of commercial bank branches, and individual internet access are expected to positively influence foreign direct investment (FDI) in Nigeria. Based on this assumption, the a priori expectation of the model is that these explanatory variables will exhibit a positive relationship with FDI.

$$\beta_1 > 0,$$

$$\beta_2 > 0,$$

$$\beta_3 > 0.$$

Data Analysis and Interpretations

4.1.1 Descriptive Statistics

	FDI	NBB	NATM	IAI
Mean	368260.1	3948.941	6.899412	14.78353
Median	135594.6	3846.000	3.130000	6.157518
Maximum	3924052.	5809.000	17.19000	55.40000
Minimum	-5106773.	1939.000	0.000000	0.000000
Std. Dev.	2127522.	1495.474	7.277718	18.96881
Skewness	-0.577163	-0.063294	0.248076	1.090636
Kurtosis	3.169704	1.220073	1.254236	2.776286
Jarque-Bera	1.928465	4.510902	4.666300	6.811321
Probability	0.381276	0.104826	0.096990	0.033185
Sum	12520842	134264.0	234.5800	502.6402
Sum Sq. Dev.	1.49E+14	73802586	1747.851	11873.92
Observations	34	34	34	34

Source: Author's Computation from E-View Output, 2026

Foreign Direct Investment (FDI) averaged 368,260.1, with values ranging from -5,106,773 to 3,924,052. The high standard deviation indicates substantial volatility. The distribution is moderately left-skewed and slightly leptokurtic, while the Jarque-Bera test suggests normality. The Number of Bank Branches (NBB) recorded a mean of 3,948.94 and showed moderate variation around the average. Its distribution is nearly symmetrical, platykurtic, and approximately normal based on the Jarque-Bera statistic. The Number of Automated Teller Machines per 100,000 adults (NATM) had an average of 6.90, with considerable variability across observations. The data exhibit slight positive skewness and a platykurtic distribution, while remaining broadly consistent with normality. Individual Access to Internet (IAI) averaged 14.78% and diserved high dispersion. The distribution is positively skewed, indicating a concentration of lower values with a few high observations. Unlike the distinct variables, the Jarque-Bera test indicates a significant departure from normality.

4.1.2 Regression Analysis

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1699549.	898311.3	-1.891938	0.0682

NBB	769.0260	334.4972	2.299051	0.0286
NATM	243920.5	89626.38	2.721526	0.0107
IAI	-179384.5	17483.73	-10.26009	0.0000
R-squared	0.831831	Mean dependent var	368260.1	
Adjusted R-squared	0.815014	S.D. dependent var	2127522.	
S.E. of regression	915047.2	Akaike info criterion	30.40147	
Sum squared resid	2.51E+13	Schwarz criterion	30.58104	
Log likelihood	-512.8250	Hannan-Quinn criter.	30.46271	
F-statistic	49.46396	Durbin-Watson stat	1.962415	
Prob(F-statistic)	0.000000			

Source: Author's Computation from E-View Output, 2026

The regression coefficients describe how each explanatory variable influences foreign direct investment (FDI). The constant term of -1,699,549 indicates that FDI would be negative when all independent variables are held constant. Results show that the number of commercial bank branches (NBB) has a positive and significant effect on FDI, suggesting that improved banking access supports foreign investment inflows. Likewise, the number of automated teller machines (NATM) positively influences FDI, indicating that stronger financial infrastructure enhances financier confidence and transaction efficiency. Conversely, individual access to the internet (IAI) exhibits a significant negative relationship with FDI, implying that higher internet penetration could be associated with factors that reduce dependence on foreign investment or reflect unique economic conditions.

Discussion of Findings

This analysis assessed the impact of financial inclusion on foreign direct investment in Nigeria within a time frame of 1990-2023 using Ordinary Least Square regression method. From the statistical analysis of this analysis, it was revealed that all the three hypotheses tested are statistically significant under the analysis period.

There is a statistically significant positive relationship between the number of automated teller machines (ATMs) per 100,000 adults and foreign direct investment (FDI) in Nigeria, aligning with a priori expectations that enhanced financial infrastructure facilitates foreign capital inflows. The analysis support the Technology Acceptance Model (TAM) which suggests that when financial services become more accessible and user-friendly, adoption rises, enhancing the broader institutional environment. Empirically, Egbetunde and Abayomi (2024) demonstrate that financial development exerts a significant positive long-run effect on FDI inflows to Nigeria, reinforcing the notion that improvements in banking infrastructure including ATM availability are conducive to attracting foreign investment.

The finding that the number of commercial bank branches significantly impacts foreign direct investment (FDI) in Nigeria aligns well with established theories of financial development and

economic growth. According to financial intermediation theory, a broad network of bank branches improves the availability and accessibility of financial services, especially in underserved or rural areas. Empirical evidence supports this theoretical expectation Isaac, Shitnaan and Arinzechukwu (2023) demonstrate that expansion in commercial bank branch networks positively correlates with FDI inflows in several developing economies, including Nigeria. Their analysis suggests that wider banking networks enable better credit allocation and risk management, boosting financier confidence.

Individual access to the internet serves a crucial role in shaping foreign direct investment (FDI) inflows in Nigeria, reflecting a significant positive influence that aligns with a priori expectations. From a theoretical perspective, the new growth theory and digital economy frameworks emphasize the importance of information and communication technology (ICT) in reducing transaction costs, enhancing knowledge spillovers, and increasing market transparency all factors that foster a more conducive environment for foreign investment. Empirical evidence substantiates this theoretical foundation. Studies such as Ojo-Agbodu, Yusuf and Adeyemi (2024) demonstrate that increased internet penetration significantly boosts FDI inflows in sub-Saharan African countries, including Nigeria, by improving business connectivity and enabling easier market entry for multinational firms.

Conclusion

The analysis reveals that all the selected financial inclusion indicators namely, the number of automated teller machines (ATMs) per 100,000 adults, the number of commercial bank branches, and individual access to the internet have a statistically significant impact on foreign direct investment (FDI) in Nigeria. With probability values of 0.0107, 0.0286, and 0.0000 respectively, each variable is significant at the 5% level, underscoring their critical roles in shaping the country's investment climate. These findings suggest that improvements in financial infrastructure and digital accessibility are key drivers of FDI inflows, thereby highlighting the importance of expanding financial inclusion to foster economic growth and development. Based on the t-statistic the analysis shows that financial inclusion has a significant impact on foreign direct investment (FDI) in Nigeria.

Recommendations

From the analysis, the researcher makes the following recommendations:

- i. Policymakers should prioritize increasing the availability and accessibility of financial services by expanding the network of ATMs and commercial bank branches, particularly in underserved regions.
- ii. Efforts to improve individual access to the internet must be intensified through investments in broadband infrastructure, digital literacy programs, and affordable internet services.
- iii. A coordinated policy framework that integrates financial inclusion strategies with digital transformation initiatives can amplify the positive effects on FDI.

