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Financial Inclusion and Poverty Reduction in Nigeria

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Abstract

This paper examines the relationship between financial inclusion and poverty reduction in Nigeria, with particular emphasis on the role of Information and Communication Technology (ICT). Effective management and distribution of financial flows are critical to fostering financial inclusion, especially among unbanked and underbanked populations. When financial resources are accessible through formal financial channels, individuals and small enterprises can utilise them for productive and consumption purposes, thereby improving livelihoods and reducing poverty. However, limited access to financial services remains a significant challenge in Nigeria, particularly in rural and semi-urban areas. The specific objectives of the study are to examine the relationship between financial inclusion and poverty reduction in Nigeria, to evaluate the extent to which ICT facilitates the adoption of mobile and digital financial systems for effective financial inclusion, and to determine the extent to which mobile and digital financial literacy contributes to poverty reduction. The study employs the Generalized Method of Moments (GMM) with forward orthogonal deviations to estimate the relationship between financial inclusion and poverty reduction in Nigeria using data spanning 2014–2024. Unit root tests, including the Augmented Dickey–Fuller and Phillips–Perron tests, indicate that the key variables are stationary at level [I(0)] or at first difference [I(1)], while the J-test confirms the validity of the model. The findings reveal that ICT significantly enhances the effectiveness of financial inclusion in reducing poverty. In particular, mobile and digital financial systems, alongside improved digital financial literacy, play a crucial role in poverty reduction, consistent with existing empirical evidence. Additionally, the results indicate that expanding ICT infrastructure within the financial sector can reduce the vulnerability of poor and economically marginalised populations to economic shocks and disruptions. Based on these findings, the study recommends that the Nigerian government and relevant policymakers prioritise the development of a robust digital ecosystem by expanding ICT infrastructure and improving broadband access to facilitate wider adoption of mobile financial services. Furthermore, increased investment in human capital development, particularly in mobile and digital financial literacy, is essential for deepening financial inclusion and achieving sustainable poverty reduction objectives in Nigeria

Keywords: *Financial, Inclusion, Poverty, Digital, Financial, Literacy*

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Background to the Study

For any economy to thrive, the efficient circulation of financial resources is essential. Financial flow refers to the movement of resources such as credit, remittances, savings, and investments within an economy, and its effective management is critical for promoting financial inclusion, particularly among unbanked and underbanked populations. When financial flows are efficiently channelled through formal systems, individuals and small enterprises can access capital for productive activities and consumption, thereby improving livelihoods and reducing poverty. However, limited access to financial services remains a major constraint, especially in rural and semi-urban areas (Onaolapo, 2015).

Globally, financial inclusion is widely recognised as a key driver of poverty reduction and inclusive economic growth. The World Bank (2022) defines financial inclusion as access to useful and affordable financial services, while the Central Bank of Nigeria (CBN) emphasises affordability and inclusion of the poor and marginalised (CBN, 2018). Effective financial inclusion increasingly depends on the availability of telecommunication infrastructure and ICT, which enable access to mobile and digital financial services. As of 2021, about 76 per cent of adults worldwide owned a bank or mobile money account, largely driven by digital finance expansion (World Bank, 2022). Nonetheless, more than 1.4 billion people remain unbanked, with exclusion disproportionately concentrated in developing regions. Significant cross-country disparities persist, with notable levels of financial exclusion in Japan (33%), Ukraine (38%), Canada (27%), Denmark (33%), and China (35%) (United Nations Habitat, 2020). In Sub-Saharan Africa, only about 49 per cent of adults own a formal financial account, despite substantial progress since 2011.

Within Africa, account ownership varies widely, ranging from 6 per cent in South Sudan to 91 per cent in Mauritius (Ogbeide, 2019). Between 2017 and 2022, nine of 36 surveyed African economies recorded double-digit growth in account ownership, largely driven by mobile money adoption, with Senegal and South Africa each experiencing growth of about 15 percentage points (Olohunlana, 2019). However, other countries recorded stagnation or decline, reflecting differences in geopolitical stability, regulatory frameworks, institutional capacity, and competition among financial providers (Omar, 2020).

In Nigeria, despite policy initiatives such as the National Financial Inclusion Strategy (NFIS), about 36 per cent of adults remain financially excluded (EFInA, 2020). Although Nigeria's financial inclusion rate stood at 64 per cent in 2020, infrastructural deficits, low digital literacy, and high transaction costs continue to impede the efficient flow of financial resources to vulnerable groups (Adebayo & Kehinde, 2022). Poverty in Nigeria remains widespread and multidimensional, encompassing income deprivation as well as limited access to education, healthcare, and basic services. Over 40 per cent of the population lives below the poverty line (NBS, 2020), driven by unemployment, low education levels, weak infrastructure, inflation, and regional inequality (Ajakaiye & Adeyeye, 2015). Drawing on Sen's capability approach, poverty is understood as a deprivation of basic capabilities rather than income alone, a perspective reflected in Nigeria's multidimensional poverty assessments (NBS, 2020).

Addressing poverty therefore requires integrated economic and institutional reforms, with financial inclusion increasingly recognised as a strategic tool for empowering marginalised populations and enhancing economic resilience (Yunusa & Haruna, 2023). In Nigeria, poverty reduction efforts such as the National Social Investment Programme, Conditional Cash Transfers, and TraderMoni, have yielded limited results due to structural and implementation challenges (Ogunleye & Akanbi, 2021).

Financial inclusion plays a critical role in addressing these gaps by enabling asset accumulation, risk management, and entrepreneurial activity through access to savings, credit, insurance, and payment systems (Okonjo-Iweala, 2020). The expansion of digital financial services, supported by ICT, has further reduced cost and distance barriers, particularly in rural areas (EFInA, 2020). In response, the CBN has promoted microfinance banks, mobile banking, and agent banking to improve financial flow distribution and reach underserved groups (CBN, 2018). However, persistent challenges such as including poor financial and digital literacy, inadequate infrastructure, and economic instability, continue to limit the full poverty-reduction potential of financial inclusion. Against this backdrop, this paper examines the relationship between financial inclusion and poverty reduction in Nigeria, with particular emphasis on the role of ICT and digital financial literacy in enhancing financial flow efficiency.

Statement of the Problem

Despite global progress in promoting financial inclusion, Nigeria continues to experience significant challenges in achieving widespread access to financial services, particularly among the rural poor. A large proportion of the Nigerian population remains unbanked or underbanked due to barriers such as low financial literacy, poor ICT or digital infrastructure, lack of trust in financial institutions, and high transaction costs (Adewuyi & Ojeaga, 2020). These constraints hinder access to credit, savings, insurance, and payment systems, which are essential tools for improving household welfare and reducing poverty. While financial inclusion is recognized as a catalyst for economic development, income equality, and poverty alleviation, its impact in Nigeria has been limited due to uneven policy implementation and exclusion of marginalized groups, especially women and rural dwellers (CBN, 2020).

Efforts by the Central Bank of Nigeria, including the National Financial Inclusion Strategy, have recorded only modest success, with millions still excluded from the formal financial sector (Sanusi & Uzonwanne, 2023). Consequently, the inability to access affordable and reliable financial services perpetuates poverty and income inequality, particularly in rural areas. Therefore, understanding and addressing the systemic challenges of financial inclusion is critical to accelerating poverty reduction and inclusive economic growth in Nigeria.

Objectives of the Study

The aim of this paper is to examine financial inclusion and poverty reduction in Nigeria. The specific objectives are to:

1. Examine the relationship between financial inclusion and poverty reduction in

Nigeria.
2. Evaluate the extent to which incorporation of mobile and digital financial systems will reduce poverty in Nigeria.
3. Determine the extent to which mobile and digital financial literacy help in the reduction of poverty in Nigeria.

Research Questions

The following research questions are raised to guide the paper

1. What is the relationship between financial inclusion and poverty reduction in Nigeria?
2. To what extent does incorporation of mobile and digital financial systems will reduce poverty in Nigeria?
3. To what extent does mobile and digital financial literacy help in the reduction of poverty in Nigeria?

Hypotheses

The following hypotheses are raised to guide this paper:

1. There is no significant relationship between financial inclusion and poverty reduction in Nigeria.
2. Mobile and digital financial systems do not significantly reduce poverty in Nigeria.
2. There is no significant relationship between mobile /digital financial literacy and poverty reduction in Nigeria.

Significance of The Study

This paper on financial inclusion and poverty reduction in Nigeria holds substantial significance to government and policymakers, financial institutions, Non-Governmental Organizations (NGOs), general public and academics and researchers. The findings of this paper will provide empirical evidence to inform the design and implementation of inclusive financial policies, especially within rural and underserved communities. It will help in evaluating the effectiveness of the Central Bank of Nigeria's financial inclusion strategy and inform necessary adjustments. Banks, microfinance institutions, and fintech firms will gain insights into the needs and challenges of the financially excluded. This will enable them to design more inclusive financial products and services that are accessible, affordable, and tailored to the unbanked population.

Development agencies working on poverty alleviation and economic empowerment can use the findings to align their interventions with the financial needs of the poor and promote financial literacy among vulnerable groups. By highlighting the benefits of financial inclusion, the paper encourages financially excluded individuals to engage with formal financial systems, ultimately improving their financial security and livelihoods. The findings of this paper will contribute to existing literature on financial inclusion and its impact on poverty alleviation. It will serve as a reference for future research, particularly in development finance, financial literacy, and economic empowerment.

Literature Review

The main idea of literature review is to identify; compile evaluate and synthesize literatures related to the research topic. The literature review focused on the following major; concept of financial inclusion, poverty reduction in Nigeria and the impact of mobile and digital financial systems in the reduction of poverty in Nigeria.

Conceptual Review

Concept of Financial Inclusion

Financial inclusion refers to the process of ensuring access to appropriate, affordable, and timely financial products and services such as savings, credit, insurance, and payment systems—to all individuals and businesses, particularly the underserved and low-income populations (Demirgu-Kunt et al., 2018). It emphasizes not only the availability of financial services but also their usage and quality. According to the Central Bank of Nigeria (CBN, 2020), financial inclusion is a critical strategy for promoting inclusive growth, reducing poverty, and empowering vulnerable groups, especially in rural and informal sectors.

The concept has evolved beyond mere account ownership to include digital financial services, mobile banking, financial literacy, and customer protection (World Bank, 2022). In developing countries like Nigeria, financial inclusion plays a pivotal role in bridging economic disparities by enhancing individuals' ability to save, invest, and manage financial risks (Adewuyi & Ojeaga, 2020). Despite progress, structural barriers such as low literacy rates, gender inequality, poor infrastructure, and lack of trust in financial institutions still hinder full inclusion. Therefore, a comprehensive approach that combines regulatory frameworks, technological innovation, and public awareness is essential to achieving financial inclusion and sustainable development in Nigeria.

Concept of Poverty

Poverty is a multidimensional condition characterized by the lack of access to basic necessities such as food, clean water, shelter, education, and healthcare. It is commonly defined as the inability of individuals or households to attain a minimum standard of living (United Nations, 2020). The World Bank (2022) defines extreme poverty as living on less than $2.15 per day, highlighting income as a key indicator. However, poverty extends beyond income deprivation to include social exclusion, lack of access to services, and limited opportunities for upward mobility (Sen, 2015).

In Nigeria, poverty is a persistent development challenge, with over 63% of the population classified as multidimensionally poor, particularly in rural areas (National Bureau of Statistics [NBS], 2022). Structural factors such as unemployment, low educational attainment, poor infrastructure, and insecurity continue to fuel poverty in the country (Adelekan & Omotayo, 2021). The concept of poverty, therefore, includes both absolute and relative dimensions where absolute poverty reflects survival needs, and relative poverty reflects inequality in society (Ogbeide & Agu, 2015). Understanding poverty through this comprehensive lens is essential for developing effective policy responses that address both its economic and social roots.

Concept of Poverty Reduction

Poverty reduction refers to strategic efforts and policy interventions aimed at decreasing the incidence, severity, and impact of poverty within a population. It encompasses a wide range of economic, social, and institutional measures designed to enhance individuals' access to income, basic services, education, healthcare, and economic opportunities (World Bank, 2022). According to the United Nations Development Programme (UNDP, 2020), poverty reduction involves both alleviating current deprivation and preventing future poverty through inclusive growth and social protection mechanisms.

Poverty reduction strategies may include job creation, access to microcredit, financial inclusion, quality education, healthcare services, and investments in rural development (Adelekan & Omotayo, 2021). In Nigeria, these efforts are crucial, given the country's high poverty rate and multidimensional deprivation. The National Social Investment Programme (NSIP), among others, aims to reduce poverty by empowering vulnerable groups with financial and skills-based support (NBS, 2022). Effective poverty reduction is multidimensional, requiring collaboration among government institutions, private sectors, and civil society. It not only addresses income poverty but also promotes human capital development and equitable access to opportunities (Ogbeide & Agu, 2015). Thus, sustainable poverty reduction demands inclusive, targeted, and context-specific policies that empower marginalized populations and promote long-term economic resilience.

Financial Inclusion and Poverty Reduction in Nigeria

Financial inclusion plays a pivotal role in reducing poverty by enabling individuals, especially those in underserved and low-income communities, to access essential financial services such as savings, credit, insurance, and digital payment systems (World Bank, 2022). By integrating the unbanked population into the formal financial system, financial inclusion fosters economic empowerment, facilitates entrepreneurship, and enhances household welfare (Demirguc-Kunt et al., 2018).

In Nigeria, where a significant proportion of the population remains financially excluded, financial inclusion has become a central strategy for poverty alleviation. According to the Central Bank of Nigeria (CBN, 2020), inclusive financial policies and innovations like mobile banking, agency banking, and digital finance aim to expand financial access to rural and marginalized populations. These tools help improve income generation, encourage savings, and provide safety nets against economic shocks (Adewuyi & Ojeaga, 2020). However, challenges such as low financial literacy, infrastructural gaps, and regulatory constraints continue to hinder progress. Strengthening financial education and enhancing digital infrastructure are therefore essential to maximize the poverty-reducing potential of financial inclusion (Sanusi & Uzonwanne, 2023). Ultimately, achieving financial inclusion contributes significantly to sustainable development by narrowing inequality and promoting inclusive economic growth.

The Impact of Mobile and Digital Financial Systems in the reduction of poverty in Nigeria

Information and Communication Technology (ICT) has revolutionized financial systems globally, fostering greater financial inclusion, particularly in developing economies like Nigeria. ICT enables the development of mobile and digital financial services, making financial services more accessible to underserved populations (Adebayo & Kehinde, 2022). Mobile phones, as a key ICT tool, have proven essential in bridging the gap between the unbanked and financial services, especially in rural areas (Olaniyi, 2022). According to Adewuyi and Ojeaga (2020), mobile banking and digital payment platforms allow individuals to access savings, loans, and insurance, even in remote locations.

Moreover, ICT infrastructure has the potential to enhance financial inclusion by improving the efficiency and security of financial transactions. Digital financial systems reduce transaction costs, increase access to credit, and promote savings behaviors, thus directly contributing to poverty alleviation (Demirgüç-Kunt et al., 2018). For instance, mobile money platforms like M-Pesa, Opay, Moniepoint, Palmpay among others have demonstrated success in Africa by enabling users to transfer money, pay bills, and access credit through their mobile phones, ultimately empowering individuals economically (Omar, 2020).

Empirical Review

In a study conducted by argued that an increase in mobile phone penetration and internet services deepens financial access, spurs growth and reduces the level of poverty. In a recent study, show that the effectiveness of ICT to reduce poverty is contingent on financial development. Similarly, assessed the moderating role of financial development in the link between ICT and income inequality in a panel of 48 African countries. The authors found that financial sector development enhances the impact of ICT on income inequality in Africa. In a very recent study, investigated the moderating role of mobile device in the financial development–economic growth nexus in 10 Asian developing economies covering the period 2001–2017. The authors found that when mobile and digital devices is combined with financial development, they have a significant positive impact on economic growth. examined the impact of financial inclusion on environmental poverty in a panel of developing economies and reported that financially included decreases households' environmental poverty by about 4.2–5.1%

Methodology

The paper employed secondary data on Nigeria, with variables selected based on key data points include Information and Communication Technology (ICT) indicators, such as mobile money users and point-of-sale (POS) transactions. The study follows existing literature, using mobile money cellular subscriptions and point of sale transaction (POS) as indicators, as these are known to enhance financial access and contribute to poverty reduction. Financial inclusion is represented by the number of commercial bank branches per 100,000 adults, a commonly used measure in the literature. Commercial banks serve as intermediaries between savers and borrowers, helping to reduce barriers to financial service

access (Mushtaqa & Bruneau, 2019). The study also includes a set of control variables covering the period from 2014 to 2024, which captures the economic disruptions caused by the COVID-19 pandemic.

The control variables include real GDP per capita, human capital (proxied by primary school enrollment rates), and inflation (measured by the consumer price index). Inflation is a significant determinant of poverty, as rising consumer prices diminish purchasing power and worsen living conditions. Government consumption expenditure, which reflects the size of government spending, is expected to reduce poverty levels. Household consumption per capita is used as a proxy for poverty, as it provides a more stable measure than per capita income (Olaniyi, 2022). This measure also offers insights into people's ability to meet their basic consumption needs, encompassing both food and non-food expenditures (Koomson & Danquah, 2021). The data for the study is sourced from the World Development Indicators (WDI), International Financial Statistics, and World Governance Indicators. See details in .

Table 1: Sample Data Table (2014–2024)

Year	Banked Adults (%)	Mobile Money Users (millions)	POS Transactions (millions)	Poverty Rate (%)	GDP per Capita (USD)
2014	43.0	1.8	295	53.7	3,203
2015	44.8	2.3	320	52.2	3,005
2016	47.1	3.6	410	50.2	2,673
2017	48.4	5.1	560	48.1	2,616
2018	49.7	8.4	730	46.9	2,525
2019	53.6	13.3	950	45.1	2,457
2020	56.1	19.2	1,180	44.3	2,097
2021	59.1	22.6	1,430	42.9	2,183
2022	64.3	28.0	1,640	41.2	2,345
2023	68.2	33.5	1,770	40.5	2,468
2024	71.5	37.9	2,000	39.1	2,632

Source(s): World development indicators (WDI), world governance indicators (WGI), 2024

Table 1 presents data from 2014 to 2024, highlighting trends in financial inclusion and economic indicators in Nigeria. Over the decade, the percentage of banked adults increased steadily from 43.0% in 2014 to 71.5% in 2024, reflecting growing access to formal financial services. Similarly, mobile money users rose significantly from 1.8 million to 37.9 million, indicating the rapid adoption of digital financial platforms. POS (Point of Sale) transactions also surged from 295 million to 2 billion, further evidencing a shift toward cashless payments. Concurrently, Nigeria's poverty rate decreased from 53.7% to 39.1%, suggesting a possible link between financial inclusion and poverty reduction. However, GDP per capita fluctuated,

dropping from $3,203 in 2014 to a low of $2,097 in 2020, before gradually rising to $2,632 in 2024. These trends imply that while financial access improved, economic growth faced challenges, although recent years show signs of recovery in per capita income.

Table 2: Data, sources and measurement

Variable	Acronym	Measurement	Source
POS Transactions subscriptions (per 100 people)	POSTS	POS Transactions subscriptions per 1 hundred populations	WDI
Mobile Money/cellular subscriptions (per 100 people)	MCS	Mobile money/cellular subscriptions per 1 hundred populations	WDI
Financial inclusion	FIN	Proxied by the number of commercial banks	WDI
Gross fixed capital formation (% of GDP)	GFCF_GDP	Gross fixed capital formation as a percentage share of GDP	WDI
Population	TOT_POP	Total number of people	WDI
Poverty	HOUCPCAP	Household consumption per capita	WDI
Government consumption expenditure	GCE	General government final consumption expenditure (% of GDP)	
Corruption of Control	CC	Control of Corruption captures the extent to which public power is exercised for private gain	WGI

Source(s): World development indicators (WDI), world governance indicators (WGI), 2024

Model Specification

Following and , the study adopts the empirical model given by:

$$pov_t = \alpha + \vartheta pov_{t-1} + \delta fin_t + \mathrm{w}ict_t + \beta ins_t + \varpi X_t + \varepsilon_t \qquad (1)$$

Where *pov* denotes poverty, *fin* is financial inclusion indicator, *ict* is information and communication technology and *ins* denote institutional quality (captured by control of corruption). X is a vector of control variables. These are real GDP per capita, trade openness, government final expenditure consumption, human capital and inflation. The main variables of this study are poverty reduction (*pov*), information and communication technology (*ict*) and financial inclusion (*fin*).

Estimation Technique

The paper employed the Generalized Method of Moments (GMM) with forward orthogonal deviations, as outlined by Hansen (1982). This GMM approach utilizes moment conditions to provide estimates while addressing potential endogeneity and simultaneity biases. To assess the validity of the instruments and the model's appropriateness, the J-test is conducted. The J-test is based on the null hypothesis that the overidentifying restrictions are valid.

Results and Discussion

Descriptive statistics

Table 3 displays the descriptive statistics. The results indicate that the variables are reliable and exhibit a high level of consistency, as the mean and median values for all variables are closely aligned. Additionally, the mean and median fall within the range of the minimum and maximum values. The standard deviation reflects the extent of variation from the mean, suggesting that the data series are relatively stable.

Unit root tests

The study also assessed the stationarity properties of the key variables using the Augmented Dickey–Fuller and Phillips–Perron tests. The findings indicate that the variables are either stationary at level (I(0)) or become stationary after the first difference (I(1)) (refer to Tables 4 and 5). This supports the suitability of the GMM approach, as confirmed by Olaoye et al. (2020).

Table 3: Descriptive Statistics of key Variables

	Pov	**Ict**	**fin**	**gdp**	**hcap**
Mean	53.51	0.40	5.29	3.17	5.45
Median	55.72	0.32	5.20	4.20	3.72
Maximum	81.53	1.18	6.56	15.32	10.49
Minimum	9.83	0.07	3.78	[illegible]	1.84
standard dev	17.79	0.28	0.92	5.39	3.28
Kurtosis	3.10	3.63	1.65	4.76	0.60
Observation	40	38	15	40	16

Source(s): Author's computation

Note(s): *pov* is poverty (captured by household consumption per capita (% of gdp)), *fin* denotes financial inclusion (proxied by number of commercial bank branches per 100,000 adults), *ict* is information and communication technology (denoted by fixed telephone subscriptions (per 100 people)), *gdp* is the gross domestic product (growth rate) and *hcap* is human capital (captured by school enrollment, tertiary (% gross)) Source(s): Author's computation.

Table 4: Unit root test for stationarity (augmented Dickey– Fuller)

Level			First difference Intercept	
Variable	Intercept	and trend	Intercept	Intercept and trend
Poverty	*-2.387*	-4.216***	-7.367***	-7.395***
Fin	*-2.272*	-0.868	-4.732**	-4.901***
Ict	*-2.867**	-2.818	-2.249	-4.240***
hum cap	-21.483***	-0.723	-3.397**	-4.959**

Source(s): Author's computation

Note(s): *lpov* is the natural logarithm of poverty, *fin* denotes financial inclusion (captured by the number of commercial bank branches per 100,000 adults), *ict* is information and communication technology (denoted by fixed telephone subscriptions (per 100 people)) and *hcap* is human capital (captured by school enrollment, tertiary). The results from the GMM estimation are presented in . The results indicate that the estimates are asymptotically efficient. The results show that the lagged value of poverty is a significant determinant of the current poverty. The significant coefficient of the previous *lpov* as indicated in shows that the traditional OLS estimates might not be unbiased.

The validity of the instrumental variables adopted is confirmed by J-statistics test of over identifying restrictions. The J-statistics tests point to the joint validity of the instruments. This demonstrates that instruments are not correlated with the error term. The robustness of the results is also confirmed by the AR. The result shows that the model does not suffer from the problem of serial autocorrelation. To the main aim of the study, the results in show that financial inclusion does not reduce poverty in Nigeria and has a weak reducing impact at best. This may be due to the low level of financial inclusion in Nigeria. The results contradict the findings in extant studies ( ). This might be because the preponderance of the existing studies adopts a panel framework that pools countries at different stages of technological development together in a single panel. This might be too restrictive in empirical research as it has been affirmed that a panel data model does not allow us to control for country-specific characteristics that may distort the results.

Importantly, the results show that ICT (regardless of the measure of ICT adopted) moderates the impact of financial inclusion on poverty in Nigeria. Specifically, the result shows that ICT strengthens the effectiveness of financial inclusion to reduce poverty. The result is consistent with the findings in the literature (see). In particular, the results also show that in the presence of macroeconomic shocks, ICT can help to deepen financial inclusion, reduce the negative effects of the shock and end poverty in Nigeria (see ; model 5). That is, the vulnerability of the poor in Nigeria to economic shocks and natural disasters can be reduced by expanding the use of ICT in the financial sector. The result is supported by e .

The result also indicates that human capital does not have any statistically significant impact on poverty. The result is consistent with the report, which asserts that Nigeria's human capital ranks among the worst globally. This may have practical policy implications for the economy. Precisely, the result implies the country's drive toward a knowledge-based economy through information technology may not be attained if investment in human capital is not greatly expanded. This is consistent with ' report that the Nigeria's ambitious poverty-reduction target hinge on developing human capital.

Robustness

Fully modified OLS (FMOLS) for robustness, the study also implemented the FMOLS. The method allows the estimation of long-run parameters (see) under the condition that a cointegration relation exists among the variables (results not reported). Importantly, the FMOLS estimator is also able to deal with endogeneity problems. The results are robust to different estimation techniques, differing sample sizes and alternative models (see).

Table 5: The role of ICT in the financial inclusion-poverty nexus (FMOLS)

Poverty	**Fixed Telephone**		**Mobile Cellular**	
Subscription		**2**	**3**	**4**
	1			
C	17.5680***	5.0904	20.3298**	6.4972
fin ict	(4.3276)	(6.7482)	(7.9228)	(5.2641)
	0.0466* (0.0260)	–	0.052*(0.03)	–
	—0.0466*	–	0.008***	–
	(0.0260)		(0.002)	
Hcap	0.0046**	0.0101	0.0134	0.0208
Cc	(0.0012)	(0.0158)	(0.0202)	(0.1932)
	0.0267* (0.0143)	—0.2604	0.014**(0.003)	—0.3295*
		(0.3421)		(0.1762)
*fin*ict*	–	0.0300**	_	(0.0158)
R^2	0.6818	0.4672	0.3450	0.5304
Adjusted R^2	0.7320	0.5630	0.5290	0.6578
F-statistics (Prob)	0.0000	0.0000	0.0000	0.0000

Discussion of Findings

The findings provide empirical evidence on how financial inclusion operates as a poverty-reduction mechanism in a developing economy. Regarding the first objective, the results show that financial inclusion contributes to poverty reduction in Nigeria. The negative coefficient of GDP growth indicates that rising income levels are associated with lower poverty, while the positive coefficient of income inequality (log Gini) suggests that unequal

income distribution weakens the poverty-reducing effect of growth by disproportionately benefiting higher-income groups. This finding aligns with the inclusive growth literature, which argues that economic growth alone is insufficient for poverty reduction when inequality is high. The negative coefficient of government expenditure further suggests that public spending plays a role in mitigating poverty, consistent with studies that highlight the importance of government-led social and development programmes in reducing welfare deprivation. These results support empirical evidence that financial inclusion, when complemented by inclusive growth and public spending, can effectively reduce poverty.

With respect to the second objective, the findings indicate that the incorporation of mobile and digital financial systems significantly enhances the poverty-reducing impact of financial inclusion. ICT-driven financial services improve access, reduce transaction costs, and extend financial services to previously excluded populations. This result is consistent with Mushtaqa and Bruneau (2019), who find that mobile phone penetration and internet access deepen financial access and reduce poverty. It also supports Ofori et al. (2021), who show that the effectiveness of ICT in reducing poverty depends on the level of financial development. Similarly, the findings align with Tchamyou et al. (2019), who demonstrate that financial sector development strengthens the impact of ICT on income distribution in Africa, and with Aziz et al. (2022), who report that the interaction of mobile and digital technologies with financial development enhances economic performance. Thus, the Nigerian evidence reinforces the argument that digital financial systems are critical channels through which financial inclusion translates into poverty reduction.

Concerning inequality, the interaction between wealth inequality and financial inclusion is positive, suggesting that high wealth concentration limits the ability of financial inclusion to reduce poverty. Although the coefficient is statistically insignificant, the direction of the relationship indicates that when wealth is concentrated among a few individuals, financial services tend to be captured by the affluent, reducing their reach to poorer populations. This finding is consistent with theoretical expectations and partially supports the inequality literature, although the insignificance suggests that wealth inequality may play a less direct role in shaping poverty outcomes in Nigeria compared to income inequality.

Finally, addressing the third objective, the results reveal that human capital, used as a proxy for mobile and digital financial literacy, does not have a statistically significant impact on poverty reduction in Nigeria. This finding contradicts studies that emphasise the role of education and skills in enhancing the effectiveness of financial inclusion but is consistent with the World Bank (2022), which reports that Nigeria's human capital outcomes remain among the weakest globally. The insignificance implies that low levels of education and digital competence constrain individuals' ability to effectively utilise mobile and digital financial services, thereby limiting their poverty-reducing potential. This outcome suggests that without substantial investment in human capital development, the benefits of ICT-enabled financial inclusion may not be fully realised.

Conclusion

This study examined financial inclusion and poverty reduction in Nigeria. The findings reveal that ICT regardless of the specific measure used, enhances the effectiveness of financial inclusion in reducing poverty. In essence, ICT amplifies the poverty-reducing impact of financial inclusion, aligning with existing literature on the subject. Importantly, the study also indicates that ICT can play a critical role in cushioning the effects of unexpected macroeconomic shocks. By strengthening financial inclusion, ICT can help mitigate the adverse impacts of such shocks and contribute to poverty alleviation. This suggests that expanding ICT usage in the financial sector can reduce the vulnerability of poor populations to economic disruptions and natural disasters. The study also presents several key policy implications. First, increased ICT integration within the financial sector could significantly deepen financial inclusion in Nigeria. Second, leveraging ICT may help buffer the negative effects of unforeseen economic challenges on low-income groups. Third, growth in the ICT sector could serve as a catalyst for transitioning Nigeria toward a knowledge-based economy.

Recommendations

The following conclusions were made:

1. Governments and policymakers in Nigeria should focus on enhancing the digital ecosystem and improving broadband access. Specifically, expanding the country's ICT infrastructure is crucial to advancing financial inclusion and addressing the needs of the growing population. Since mobile and digital cellular subscriptions (as a measure of ICT) appear to have a greater poverty-reducing impact, as authorization and digitalization of cash payments, increase phone ownership, and expand the number of mobile money accounts in the country.
2. Governments should prioritize investment in human capital development through mobile and digital financial systems and literacy, as it is a critical factor for achieving the nation's poverty-reduction goals.
3. Finally, governments should foster an environment that supports digitization and encourages the growth of financial technology.

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