Financial Inclusion and Poverty Alleviation in Nigeria: The Role of Mobile Banking, Microfinance Institutions, and Digital Payment Systems

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Abstract. Despite the growth of digital finance, many Nigerians are still outside the formal financial system. This study examines whether mobile banking, microfinance, and digital payments help reduce poverty. In 2024, we surveyed 500 adults in Lagos and Enugu to understand how their use of financial services relates to income, assets, emergency funds, school attendance, and housing. We found that 68.4% had bank accounts, but only 52.3% used them regularly, showing a 16.1% gap between account ownership and use. Mobile banking reached 42.4% of people who previously did not have bank accounts. Microfinance users were more likely to expand their businesses (52.8% versus 21.5%). Financial inclusion helped people perform better in all areas. For instance, 68.4% of fully included people earned more than ₦50,000 a month, compared to only 23.3% of excluded people. These findings show that people use both formal and informal financial tools. Policies should focus on encouraging regular use and addressing barriers such as cost, paperwork, and digital skills.

Keywords: financial inclusion; mobile banking; microfinance institutions; digital payment systems; poverty alleviation; Nigeria.

INTRODUCTION

Nigeria continues to face high levels of financial exclusion, even after years of digital transformation. By 2020, the country reported a financial inclusion rate of 64.1%, but 38.1 million adults were still outside the formal financial system, up from 36.6 million in 2018. The Central Bank of Nigeria aimed for 80% inclusion by 2020, but did not meet this goal. Payment services reached only 45% of people, falling short of the 70% target, and credit access was just 3%, missing the 40% target. These gaps show that having advanced technology does not automatically lead to greater financial inclusion, highlighting the need for further research [1].

Experts are now exploring new ways for financial services to reduce poverty. Instead of just looking at microfinance, they also consider how easy it is to access services, how often people use them, how effective the services are, and how they impact people's lives. Author [2] found that just having a bank account is not enough. His review shows that Nigeria's financial inclusion is still behind, even though the country has good technology. Simply giving more people access does not always reduce poverty, which questions the idea that more access alone makes life better and helps explain why Nigeria's advanced fintech sector has not improved life for everyone.

Recent studies show significant differences in how people in Nigeria use financial services. Authors [3] state that fewer Nigerians use mobile money compared to other African countries, despite Nigeria having a strong telecom network and active fintech companies. They say that not knowing how to use digital finance and poor infrastructure make mobile banking less effective, especially in rural areas where poverty is highest. At the same time, authors [4] found that digital banking has helped more people in cities access financial services because these services are easy to use and affordable, which has created a gap between urban and rural areas that past research has not fully explained.

The microfinance sector also shows mixed results. Authors [5] found that microfinance institutions do help reduce poverty, but the extent of help varies significantly depending on how and where the programs are run. Their review ques-

tions the idea that microfinance alone can solve poverty, but says that well-designed programs can still make a real difference. Author [6] examined Nigeria and found that microfinance helps reduce poverty in Southwest Nigeria. However, they also noted that most programs still need government support and other assistance to work effectively.

Digital payments are modern, but do not help everyone equally. Studies show that, despite Nigeria having strong telecom networks and many fintech companies, fewer people use mobile money compared to other countries; this is especially true in rural areas where poverty is common. The main reasons are that people may not know how to use digital tools, and the network quality is insufficient. Cities see more benefits from banking apps and payment machines, but outside these areas, a poor network and lack of skills make it harder for people to benefit; this helps explain why more people using digital payments does not always mean better results for everyone.

Three main things are missing in current research.

First, most studies look at mobile banking, microfinance, and digital payments one at a time instead of seeing how they work together to help people and reduce poverty; this means they might miss ways these services can work better together.
Second, we still do not really know if using financial services actually causes less poverty, since most research only shows links, not clear reasons.

Third, not enough attention is given to how these services affect different groups, even though we know that things like gender, age, education, and location make a big difference.

This study examines how effectively mobile banking, microfinance, and digital payments help more people access financial services and reduce poverty in Nigeria, particularly for those without bank accounts. The research tests five main ideas:

1) Using mobile banking helps more people join the financial system,

2) Using microfinance is linked to better poverty outcomes,

3) Using digital payments leads to better economic results,

4) specific barriers make it harder for some groups to benefit from these services, and

5) Being included in the financial system is strongly linked to lower poverty in areas like steady income, owning assets, and having emergency money.

We used a cross-sectional survey with 500 people from Lagos and Enugu, chosen through several sampling steps to reflect different backgrounds. We gave structured questionnaires in person to collect the data.

This study adds to research and policy in three ways. First, it directly compares Nigeria's main financial inclusion tools using strong data. Second, it shows who uses these services, how people mix them, and how results differ across groups, challenging some common ideas about financial inclusion in Africa. Third, it gives practical advice for policymakers, financial service providers, and development groups working to reduce poverty in Nigeria and similar places.

METHODS

Research Design. We conducted a single survey to see how financial inclusion tools connect to poverty among Nigerian adults; this lets us compare how different groups use financial services and what results they experience, while keeping the study affordable.

Setting and Context. We gathered data in Lagos and Enugu between July and September 2024 to represent two different parts of Nigeria. Lagos is the country's financial hub, while Enugu is a key commercial city in the Southeast. In each state, we chose five local government areas with different populations and levels of financial access. We visited places like markets, business districts, neighbourhoods, and transport hubs to include people both with and without bank accounts; this helped us capture real-life financial choices.

In each state, we chose five Local Government Areas (LGAs) based on their commercial activity and population diversity. In Lagos, we included Lagos Island, Ikeja, Alimosho, Ikorodu, and Epe to cover different economic backgrounds and access to financial services. In Enugu, we selected Enugu East, Enugu North, Enugu South, Nkanu West, and Udi for similar reasons.

Participants. We studied adults aged 18 and above living in the selected areas, including both people with and without bank accounts, to cap-

ture a range of financial experiences. We used a mix of easy-to-reach and targeted sampling to achieve a diverse range of backgrounds while keeping the process practical.

We chose places like markets, business areas, neighbourhoods, and transport centres where people from different backgrounds gather. This helped us avoid selecting only people with or without bank accounts. In each location, we selected every third person who qualified and agreed to join the study.

To take part, people had to be at least 18 years old, have lived in the area for at least a year, be able to understand and answer the questions, and agree to join the study. We did not include people with severe mental health problems, who made it hard to answer, visitors who were not living there, or anyone who did not want to take part after we explained the study.

We planned to survey 500 people, with 250 from each state and about 50 from each local area. We chose this sample size to ensure reliable results and collected all 500 questionnaires without any dropouts. Everyone eligible agreed to participate.

Of the people surveyed, 52.4% were men and 47.6% were women. Ages ranged from 18 to over 60, with most between 18 and 45. For education, 28.6% finished secondary school, 23.8% went to university or college, 22.4% finished primary school, 15.2% had job training, and 10% had no formal education. Monthly incomes ranged from 18.4% earning less than ₦30,000 to 10% earning more than ₦200,000.

METHOD

We used a structured questionnaire with 20 questions divided into four sections. We based the questions on well-known financial inclusion measures from the Global Findex and adjusted them to fit the Nigerian context using the Central Bank of Nigeria guidelines.

Section A asked about age, gender, education, main job, and monthly income. We used income ranges instead of exact amounts to make people more comfortable while still getting helpful information.

Section B examined how people use financial services, asking about having a bank account, how often they use mobile banking, whether they use microfinance, whether they use digital pay-

ments, and how much they use these services. Some questions led to follow-up questions depending on earlier answers.

Section C asked about poverty and how people are doing financially. It included questions about steady income, ability to get emergency money, how people feel about their progress, what valuable things they own, and how their household is doing. We measured poverty in several ways, not just by income.

Section D examined the problems and experiences people have, including challenges with financial services, worries about digital services, preferred providers, ideas for improving these services, and how these services affect them overall. People could also give their own answers, not just pick from set options.

Most questions had fixed answer options, and some used a 5-point scale for attitudes and opinions. We used simple language so people with different levels of education could understand, and we provided translations into Yoruba, Igbo, or Pidgin English when needed.

We created our questionnaire using indicators from Global Findex and the Central Bank of Nigeria, then adjusted the wording for Nigerian users. Three experts in financial inclusion reviewed the questions. We tested the survey with 30 people from our target group to make sure the wording and flow worked well. We used simple language and offered translations into Yoruba, Igbo, or Pidgin. To cover each topic thoroughly, we asked about each idea in several ways.

Procedure. We followed the same procedures in all locations to keep data collection consistent. Research assistants received two days of training on administering the questionnaire, handling ethical issues, and maintaining data quality. The training included practice interviews and role-playing.

We conducted fieldwork in each LGA following a set schedule that considered local conditions. Interviews took place in markets, community centres, businesses, and public areas where people felt comfortable discussing money. We varied the days and times to reach people with different work schedules.

Each interview started with a clear explanation of the study's purpose, what participation involved, how we would protect privacy, and the right to leave at any time. We explained everything in the participant's chosen language and

then collected written consent. We did not offer payment, so no one felt pressured to join.

We used a standard script for the questionnaire, but allowed clarifying questions and language changes as needed. Interviews took about 18 minutes on average, with some lasting 12 to 28 minutes depending on the answers. Research assistants recorded responses on paper forms using codes learned during training.

We checked the completed questionnaires every day, had supervisors watch some interviews at random, and corrected unclear answers right away. Only the research team could access the finished questionnaires, which we stored in locked containers.

Data Analysis Plan. We used SPSS version 28.0 to look at the data and run basic tests. We did not register the study in advance because our questions were open-ended and we had limited resources.

We counted how often different answers appeared and worked out averages for all questions. We also looked at how things like age and gender related to financial inclusion. There was very little missing data (less than 1%), and we left out only the missing answers when analysing each question.

We looked at the data using SPSS 28. We summed up all the information and checked for links between financial inclusion and poverty using a chi-square test. We also measured how strong these links were. We considered results important if there was less than a 5% chance they happened by accident. There was very little missing data, and we only omitted answers for each question. Because our data was in groups, the chi-square test was a good choice. We also checked if our results stayed the same when we changed how we grouped people or looked at different groups.

The main things we looked at were whether people were fully included, partly included, or left out of financial services, as well as their income, what valuable things they owned, and if they could get emergency money. We also considered age, gender, education, and location. We did not change how we grouped these answers.

We ensured the chi-square test worked by verifying that all groups had enough people. We used a 0.05 cutoff for essential results and did not adjust for multiple comparisons because the study was open-ended, and we did not want to miss significant findings.

We double-checked our results by trying different ways of grouping financial inclusion and by examining each service type separately. We also checked if the results stayed the same for various groups of people.

Ethical Considerations. Ethical approval was obtained from the institutional review board at the researchers' affiliated university before data collection commenced. All procedures complied with the Declaration of Helsinki principles and Nigerian national research ethics guidelines.

Informed consent procedures ensured participants understood research purposes, voluntary participation, confidentiality protections, and rights to withdraw without consequences. No deception was employed, and participants received honest explanations of study objectives and intended uses of findings.

An IRB approved the protocol. We obtained informed consent in the participant's preferred language and used anonymous codes in place of names. Paper questionnaires were stored in locked cabinets; digital files were access-controlled and encrypted. We trained assistants to minimise discomfort when discussing finances and provided information on available services for anyone who asked.

Risk minimisation addressed potential psychological discomfort from discussing financial difficulties by using respectful questioning approaches and providing information about financial services and support programs for interested participants.

Data Availability. De-identified dataset and analysis code are available from the corresponding author upon reasonable request, subject to ethical approval and data sharing agreement completion. Original questionnaires are retained for five years following publication in secure storage facilities.

RESULTS AND DISCUSSION

Demographic Characteristics. The 500 people we surveyed came from a wide range of backgrounds. Most were in the working-age groups: 45.2% were 18-30 years old, 32.8% were 31-45 years old, 16.4% were 46-60 years old, and 5.6% were over 60 years old. There were 52.4% men and 47.6% women. In terms of education, 28.6%

finished secondary school, 23.8% had tertiary education, 22.4% completed primary school, 15.2% had vocational training, and 10% had no formal education.

The jobs people held matched Nigeria's economy: 26.4% were small traders, 18.8% were skilled workers, 16.2% worked in government, 12.6% were students, 11.4% were farmers, 8.2% worked in professional services, and 6.4% were unemployed. Most earned between ₦30,000 and ₦100,000 a month, with 31.2% earning ₦50,000-₦100,000, 24.8% earning ₦30,000-₦50,000, 18.4% earning less than ₦30,000, 15.6% earning ₦100,000-₦200,000, and 10% earning more than ₦200,000.

Financial Inclusion Status. Bank accounts: 68.4% (342/500; 95% CI: 64.2–72.4). Regular use: 52.3% of account holders, creating a 16.1% usage gap – people counted as "included" but not transacting. Geography: Lagos outperforms Enugu on accounts (74.8% vs 62.0%, χ^2=9.47, p=.002; V=.138) and mobile banking (51.2% vs. 40.0%, χ^2=6.26, p=.012; V=.112). Informal groups: still common (56.8% overall), including 57.9% of banked respondents, showing complementarity rather than replacement.

Geographic disparities emerged between Lagos and Enugu states. Lagos demonstrated higher inclusion across all metrics: bank accounts 187/250 (74.8%, 95% CI: 68.9-80.1%) versus Enugu 155/250 (62.0%, 95% CI: 55.7-68.0%), $\chi^2(1)$ = 9.47, p = .002, Cramér's V = .138. Mobile banking adoption showed similar patterns: Lagos 128/250 (51.2%, 95% CI: 44.9-57.5%) versus Enugu 100/250 (40.0%, 95% CI: 33.9-46.3%), $\chi^2(1)$ = 6.26, p = .012, Cramér's V = .112.

Informal savings groups were used by 284 people (56.8%), indicating that people use both informal and formal financial services simultaneously. Of those with bank accounts, 198 out of 342 (57.9%) still belonged to informal groups, meaning they mix different financial tools rather than switching from one to another.

Mobile Banking Effectiveness. Mobile banking was used by 228 people (45.6%), but use dropped as people got older. Among those aged 18-30, 58.3% used mobile banking, while only 43.3% of those aged 31-45, 28.0% of those aged 46-60, and 7.1% of those aged 61+ used it.

Education made a big difference in the adoption of mobile banking. About 67.2% of people with higher education used it, compared to only 21.4% of those who finished only primary school [7].

For people who did not have bank accounts before, 42.4% started using financial services through mobile banking. Most people chose mobile banking because it had lower fees (68.0%), did not require a minimum balance (54.4%), and needed less paperwork (49.1%).

Microfinance Impact on Poverty Alleviation. Out of all respondents, 164 people (32.8%) used microfinance. Of these, 120 (73.2%) took loans, 106 (64.6%) used savings products, and 46 (28.0%) joined business training programs. Many people used more than one microfinance service at the same time, with 78 (47.6%) using several options together.

Microfinance helped business owners grow. Of those who used microfinance, 52.8% expanded their businesses within a year, compared to only 21.5% of business owners who did not use microfinance [8].

People who used microfinance for more than 2 years were more likely to buy work-related equipment. Among these long-term users, 42 out of 92 (45.7%) got such assets, compared to 31 out of 156 (19.9%) who did not use microfinance.

Debt problems affected 39 out of 164 microfinance users (23.8%), and 21 (12.8%) reported that repaying loans made it difficult to cover basic needs at home. Women had more debt problems than men: 28 out of 89 women (31.5%) compared to 11 out of 75 men (14.7%).

Digital Payment Systems Effectiveness. Digital payments were used by 206 people (41.2%). Most people used point-of-sale machines (67.8%), while others used USSD services (31.8%), mobile money platforms (28.4%), and bank mobile apps (22.6%). People who used digital payments more than 10 times a month saved about ₦2,340 each month compared to using cash or other old payment methods. People who used digital payments less than 5 times a month did not save much money.

For business owners, using digital payments brought clear benefits. Out of 147 merchants, 87 (59.2%) gained more customers, 64 (43.5%) processed sales faster, and 75 (51.0%) managed their money better [9].

Barriers to Financial Inclusion. The biggest problem was high transaction costs, which affected

67.4% of people. Other barriers included excessive paperwork (54.8%), lack of familiarity with digital tools (52.6%), and residing too far from financial services (45.2%).

Barrier distribution varied significantly across demographic categories. Rural respondents experienced distance-related obstacles at 89/121 (73.6%) versus urban respondents 27/118 (22.9%), $\chi^2(1)$ = 51.78, p < .001, Cramér's V = .465. Female respondents reported documentation challenges more frequently than males: 171/238 (71.8%) versus 103/262 (39.3%), $\chi^2(1)$ = 52.94, p < .001, Cramér's V = .325. Digital literacy barriers demonstrated a strong age correlation: respondents aged 45+ experienced difficulties at 77/110 (70.0%) compared to 18-30 year-olds at 77/226 (34.1%), $\chi^2(3)$ = 38.46, p < .001, Cramér's V = .277.

Financial Inclusion and Poverty Reduction Relationships. Financial inclusion status showed statistically significant associations with all poverty indicators examined. Respondents were categorised as fully included (n = 342, regular use of ≥ two formal financial services), partially included (n = 98, limited formal service usage), or excluded (n = 60, no formal service usage) [10].

Monthly income above ₦50,000 varied dramatically by inclusion status: fully included 234/342 (68.4%, 95% CI: 63.1-73.4%), partially included 45/98 (45.9%, 95% CI: 35.8-56.3%), excluded 14/60 (23.3%, 95% CI: 13.4-36.0%), $\chi^2(2)$ = 42.15, p < .001, Cramér's V = .290.

Table 1 − Poverty Indicators by Financial Inclusion Status

Poverty Indicator	Fully Included (n=342)	Partially Included (n=98)	Excluded (n=60)	χ^2	p-value	Cramér's V
Income >₦50,000/month	234 (68.4%)	45 (45.9%)	14 (23.3%)	42.15	<.001	.290
Owns productive assets	199 (58.2%)	37 (37.8%)	11 (18.3%)	33.84	<.001	.260
Emergency ₦10,000 capacity	249 (72.8%)	47 (48.0%)	15 (25.0%)	48.72	<.001	.312
Housing improvements (2 years)	150 (43.9%)	28 (28.6%)	9 (15.0%)	19.67	<.001	.198
Children school regularly	305 (89.2%)	77 (78.6%)	38 (63.3%)	23.41	<.001	.216
Reports economic progress	220 (64.3%)	41 (41.8%)	13 (21.7%)	39.28	<.001	.280
Has emergency savings	231 (67.5%)	42 (42.9%)	12 (20.0%)	45.63	<.001	.302

Table 2 − Mobile Banking Adoption by Demographic Characteristics

Characteristic	Users/Total	%	95% CI	χ^2	p-value	Cramér's V
Age 18-30	132/226	58.3	51.7-64.7	47.92	<.001	.310
Age 31-45	71/164	43.3	35.6-51.2			
Age 46-60	23/82	28.0	18.8-39.0			
Age >60	2/28	7.1	0.9-23.5			
Male	127/262	48.5	42.4-54.6	2.14	.144	.065
Female	101/238	42.4	36.1-49.0			
Lagos State	128/250	51.2	44.9-57.5	6.26	.012	.112
Enugu State	100/250	40.0	33.9-46.3			
Tertiary education	80/119	67.2	57.9-75.6	58.73	<.001	.343
Primary education	24/112	21.4	14.3-30.2			

Emergency financial capacity demonstrated the strongest relationship with financial inclusion status. The ability to raise ₦10,000 within 24 hours varied from 249 out of 342 fully included respondents (72.8%) to 15 out of 60 excluded respondents (25.0%), representing a 47.8 percentage point difference, $\chi^2(2)$ = 48.72, p < .001, Cramér's V = .312.

Asset ownership patterns reinforced the benefits of financial inclusion. Productive asset ownership (motorcycles, sewing machines, shop equipment) reached 199/342 (58.2%) among fully included versus 11/60 (18.3%) among excluded respondents, $\chi^2(2)$ = 33.84, p < .001, Cramér's V = .260.

Housing improvement investments over two years occurred among 150 out of 342 (43.9%) fully included respondents, compared to 9 out of

60 (15.0%) excluded individuals, demonstrating a long-term welfare-enhancement capacity; $\chi^2(2)$ = 19.67, p < .001, Cramér's V = .198.

Educational outcomes for children showed 305/342 (89.2%) regular school attendance among fully included families versus 38/60 (63.3%) among excluded families, indicating intergenerational welfare transmission; $\chi^2(2)$ = 23.41, p < .001, Cramér's V = .216.
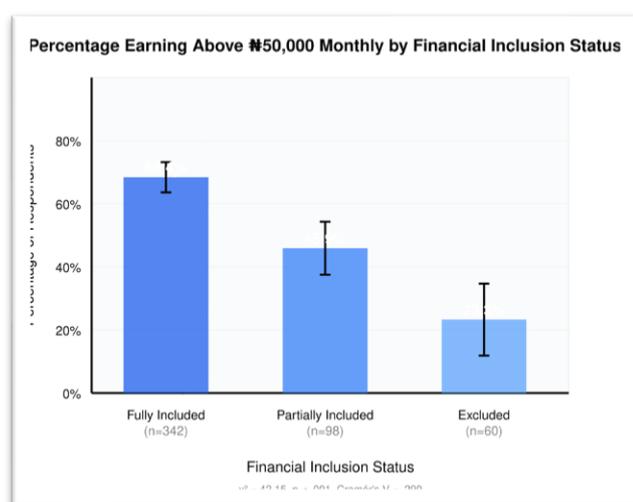

Figure 1 – Financial Inclusion Status and Monthly Income Distribution

A bar chart showing the percentage of respondents earning above ₦50,000 monthly across three financial inclusion categories: Fully Included (68.4%), Partially Included (45.9%), and Excluded (23.3%). The chart demonstrates a clear positive relationship between financial inclusion level and income achievement, with confidence intervals shown as error bars.

Figure 1 caption: Percentage of respondents earning above ₦50,000 monthly by financial inclusion status, demonstrating substantial income differentials across inclusion categories (N = 500, χ^2 = 42.15, p < .001).

CONCLUSIONS

This study shows that Nigeria's financial inclusion tools are practical, but not always in the ways theory suggests. Rather than moving directly from informal to formal systems, people often combine different financial services to get more benefits and manage risks. Mobile banking helps those without bank accounts, microfinance supports business growth, and digital payments are changing how people pay. However, there is still a 16.1% gap between having an account and using it regularly. Most importantly, financial inclusion is closely linked to better poverty outcomes. For example, 68.4% of fully included people earn more than ₦50,000 a month, while only 23.3% of excluded people do.

These results challenge some common ideas about financial inclusion.

First, they show that formal financial services do not simply replace informal ones. More than half of respondents, including many with bank accounts, still use informal savings groups, so people combine different financial tools; this supports the authors' [2] idea of multidimensional inclusion and shows that Nigerians create their own mix of financial services.

Second, the findings question the belief that better technology alone will solve financial exclusion. Even with a strong fintech infrastructure, there are still significant differences between regions and age groups. Lagos does better than Enugu, and older people use mobile banking less.

Third, the evidence suggests that financial inclusion improves poverty outcomes in several ways at once – such as income stability, asset growth, emergency funds, and support for children's education – rather than following a single path.

These results suggest that financial inclusion programs need to change. Policymakers should pay attention to how people use financial services, not just whether they have access. The 16.1% gap between owning an account and using it regularly shows that many people are counted as included but do not benefit from it. Service providers should support informal savings groups, since more than half of respondents still use them to meet needs that formal services do not. High costs and digital literacy issues are significant barriers, so solutions should include better pricing and more education through trusted local groups.

Research on financial inclusion needs to update its methods. Our results show that mobile banking, microfinance, and digital payments work differently for different groups, so one-size-fits-all programs do not work well. Future programs should offer a mix of services that match people's needs based on age, gender, education, location, and job. The strong link between financial inclusion and poverty reduction supports more investment in these tools, but programs also need

to address the specific barriers that keep some groups excluded.

This study has some limitations. Because we collected data at only one point in time, we cannot say if financial inclusion causes poverty reduction or if fewer poor people are more likely to use financial services. Our focus on Lagos and Enugu means the results may not apply to all of Nigeria, especially the North. Using convenience sampling may have led us to reach people who are mostly willing to talk about money. Also, since people reported their own poverty status, some answers may be biased. We tried to reduce this by asking about poverty in several ways.

These limitations suggest four main areas for future research.

First, studies that follow the same people over time could help show if using financial services leads to better welfare outcomes.

Second, randomised controlled trials could test which combinations of financial services work best for reducing poverty.

Third, qualitative research could explore why people choose certain financial services and how they use them, which would help explain our survey results.

Fourth, comparing results across different regions of Nigeria could indicate whether the findings from Lagos and Enugu apply elsewhere in the country.

These findings show that policy changes are needed soon. The Central Bank of Nigeria should help people use financial services, not just make them available, and should address barriers like cost, paperwork, and digital skills. Service providers should offer products that let people combine different financial tools. Development organisations should support existing informal systems instead of trying to replace them. To reduce poverty effectively, programs need to reflect how Nigerians actually manage their finances, not just depend on economic theory.

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