

The Impact of Fintech on Financial Inclusion in Southern Nigeria

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DOI: <https://dx.doi.org/10.47772/IJRISS.2025.9020022>

Received: 22 January 2025; Accepted: 27 January 2025; Published: 28 February 2025

ABSTRACT

This study examines how fintech affects financial inclusion in Southern Nigeria, with a particular emphasis on improving underbanked and unbanked communities' access to financial services. The study used a mixed methods approach, integrating qualitative interviews and quantitative surveys done throughout the states of Anambra, Lagos, and Rivers. The results show that, especially for younger, tech-savvy people, fintech has greatly increased access to banking services, savings, credit, and investment opportunities. Disparities between urban and rural areas still exist, nevertheless, with rural areas struggling because of a lack of adequate digital infrastructure. Significant obstacles to wider adoption include worries about security and trust. To address security issues and foster consumer trust, the study suggests that government agencies, regulatory bodies, and fintech companies work together to enhance digital infrastructure in rural areas and create regulatory frameworks. To guarantee that every demographic can take full advantage of fintech innovations, financial literacy initiatives must be expanded.

Keywords: Digital Infrastructure, Economic Empowerment, Fintech, Financial Inclusion, Southern Nigeria

INTRODUCTION

Before the advent of financial technology (fintech), Southern Nigeria's traditional banking system relied heavily on physical branches and manual operations. This dependency resulted in a great many obstacles to access to financial services in particular, across rural India. Having complex bureaucratic processes, high transaction costs, and long processing unit times left the majority of the population in the dark (Demirgüç-Kunt et al., 2017). Fintech, however, has transformed this field, bringing its effects to financial inclusion via digital innovation. Financial access has been facilitated by mobile banking, online payments, and digital wallets that have widened the financial range for excluded areas, and redefined the financial landscape (Akinwale, 2020).

Fintech platforms use digital technology to lower transaction costs and process complexity, which enhances efficiency and ease of use. Apart from the factor of convenience, fintech contributes significantly to the creation of financial inclusion and economic growth (Bello, et al. 2021). Fintech, allowing us to target financial service provision to unbanked/underbanked populations, opens the door to encourage greater participation in the formal economy, which in turn can contribute to poverty reduction and expansion of business enterprise. Due to its low price and practicability, it has changed the way individuals and companies interact with financial systems, particularly in neglected regions (Bello, et al. 2021; Ozili, 2020). Therefore, fintech has been a major catalyst of the financial evolution in Southern Nigeria by filling the void in traditional banking and meeting the need for financial inclusion.

This work focuses on the contribution of fintech to improving financial inclusion in Lagos, Rivers, and Anambra states. It is concerned with both mobile banking and digital lending as well as payment infrastructure offered by companies like Paystack, Flutterwave and Interswitch. Using a mixed-methods strategy, results

combine quantitative and qualitative information through survey and interview data. It highlights the major advances in the finance, savings, and credit delivery, particularly for technology-adapted youngsters and small businesses, and, as a result, socioeconomic expansion (Demirgüç-Kunt et al., 2017; Gomber et al., 2017).

Challenges still remain, such as disparity between urban adoption and rural adoption and security issues. These results are of great importance for policymakers and stakeholders in coming up with solutions for infrastructure and trust problems. The paper highlights the point that further funding for the development of digital financial technologies, as well as appropriate law and regulation, is needed in order to deliver the benefits of fintech in a fairer way (Ozili, 2020). In conclusion, fintech has significantly improved financial inclusion and economic participation in Southern Nigeria. Still, continuing efforts are needed in order to continue its positive effect, especially in health careally disadvantaged communities.

Statement of the Problem

Financial technology (Fintech) has greatly improved the situation of financial inclusion in Southern Nigeria, by increasing the availability of banking, savings, credit and investments facilities. Younger, digitally adept people have traditionally benefitted disproportionately, adopting digital platforms readily. This trend is also in line with wider literature evidence, e.g., Ozili (2018), which points out the way in which innovations such as mobile money and peer-to-peer lending have brought into the "formal finance" the once-excluded under-served populations.

This work also lends greater credibility to McKinsey Company's (2020) claim that mobile money will be disruptive across Africa. Fintech providers such as Paystack and Flutterwave have played a key role in increasing financial inclusion by delivering affordable, accessible services to previously unbanked populations. These developments have enabled many people to circumvent geographic and economic restrictions which allow them to participate in the formal sector.

Despite these achievements, challenges remain. The digital divide has led to differential fintech uptake between urban and rural regions as pointed out by Akinwale (2020) who notes that digital solutions are less powerful in rural communities. Furthermore, security and trust remain major roadblocks to the mass adoption of fintech. As Gomber et al. (2017) stress that, for the long term sustainability of fintech in Southern Nigeria, not only user confidence must be created but also that strong security mechanisms as well as consumer protection must be used.

Research Questions

This study addresses the following questions:

1. What proportion of the unbanked population in Southern Nigeria now has access to fintech services?
2. How do fintech platforms enhance financial literacy among users in Southern Nigeria?
3. What impact has access to fintech services had on the availability of credit, savings, and investment opportunities for users in Southern Nigeria?

Objectives of the Study

The study aims to:

1. Determine the proportion of the unbanked population in Southern Nigeria gaining access to fintech services.
2. Evaluate how fintech platforms contribute to financial literacy among users.
3. Analyze the impact of fintech services on credit, savings, and investment opportunities for users in Southern Nigeria.

Hypotheses

This research tests the following hypotheses:

1. There is no significant difference in the proportion of the unbanked population in Southern Nigeria accessing fintech services.
2. Fintech platforms do not significantly enhance financial literacy among users in Southern Nigeria.
3. Access to fintech services does not significantly influence the availability of credit, savings, and investment opportunities for users in Southern Nigeria.

LITERATURE REVIEW

Conceptual Review

Fintech

Fintech, or “financial technology,” makes use of new technology to enhance the provision and availability of financial services. Mobile banking, electronic lending, and digital payments have changed traditional financial infrastructures, rendering them more efficient and more inclusive. This transformation has been particularly important after the financial crisis triggered by the global economy (Aner et al. (2015).

Financial Inclusion

Financial inclusion guarantees that people and companies have access to relatively low-interest rate financial products and services offered by traditional financial institutions. This access is used for investments in strategic fields like education, business and healthcare which in turn contribute not only to economic growth but also to the quality of life (Demirgüç-Kunt et al., 2015). Fintech has emerged as a key enabler for improving financial inclusion by overcoming geographic constraints and high transaction fees, etc. For instance:

- **Mobile Money Platforms:** These enable remote transactions, bypassing the need for traditional banking infrastructure.
- **Digital Banking:** Provides accessible financial services tailored to underserved populations.
- **Peer-to-Peer Lending:** Offers alternative credit solutions for individuals excluded by traditional banking systems (Ozili, 2018).

Mobile Money

Mobile money gives people the possibility to save, transmit, and uplift sums of money via mobile phone. This service has played a key role in areas where infrastructure to access financial services is limited. Platforms like Paystack and Flutterwave have dramatically improved financial inclusion by reaching previously unbanked segments of the market (McKinsey Company 2020).

Digital Banking

Digital banking leverages digital platforms to manage accounts, transfer funds, process loans, and handle bill payments. By eliminating the need for physical branches, it reduces operational costs, enabling providers to offer lower fees and better rates to customers. Gomber et al. (2017) emphasize that digital banking’s tailored solutions hold immense potential to boost financial inclusion.

Peer-to-Peer Lending

P2P lending platforms provide direct access to borrowers and lenders, skipping traditional bank channels. These platforms are equipped with sophisticated technology that determines credit risk and efficiently executes transactions. According to Lin et al. (2013) P2P lending considerably improves financial inclusion by going to traditionally underserved markets that traditional banks frequently neglect.

Challenges to Fintech Effectiveness in Southern Nigeria

Inadequate Infrastructure

Limited infrastructural facilities in southern Nigeria is a major hurdle to the penetration and ex**cy of the fintech sector. Reliable internet access and reliable power are essential for fintech applications but are routinely missing in many places. This gap limits the spread of fintech, particularly in rural and remote areas that are most in need of financial inclusion (Oluwaseun, 2023; Adesina Olanrewaju, 2022).

Regulatory Hurdles

Fintech companies operating in Nigeria experience challenging regulatory conditions that limit their expansion and innovation. The evolving regulatory landscape creates compliance uncertainties, particularly for emerging startups. Such limitations restrict scalability and versatility as described by Adeniran Nwankwo (2023) and Ibrahim (2022).

Low Digital Literacy

Low levels of digital literacy continue to be a significant impediment to fintech uptake within Southern Nigeria. Not enough people know what digital platforms are or have bad feelings about technology-led financial services. This problem needs to be tackled to progress financial inclusion (Okonkwo, 2023; Chukwuemeka Ojo, 2022).

Contribution to Financial Literacy

Notably, these challenges are compensated by the importance of fintech platforms in financial literacy. Featuring intuitive user-interfaces and educational materials, these platforms facilitate users' comprehension of financial products and services. Literacy with ability to make informed financial decisions leads to better economic empowerment and increased financial inclusion (Emeka Nneka, 2023; Oluwaseun, 2022).

Fintech Impact on Access to Credit, Savings, and Investment Opportunities

Fintech services have significantly improved access to credit, savings, and investment opportunities for underserved populations. Key innovations include:

- **Digital Lending Platforms:** Provide flexible credit options tailored to individual needs.
- **Mobile Banking and Digital Savings Tools:** Simplify the processes of saving and investing, making them more accessible.

These advances lead to benefits in terms of economic well-being and financial stability, especially for marginalized groups (Adeniran Ojo, 2023; Chukwuemeka Ibrahim, 2023).

Theoretical Review

Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). These factors offer critical insights into user behavior and the adoption of fintech services. Perceived Usefulness is the degree to which a person thinks that it will be possible to use a particular technology to improve the job performance or general efficiency. In the fintech context, this refers to users' assessment of how mobile money, digital banking or peer-to-peer lending will make the relative ease and speed of their financial transactions better. For example, mobile money features could be considered to have the greatest impact of shortening the time and effort spent on payment processing or fund transfers.

Perceived Ease of Use represents the degree to which individuals find a technology free from complexity or effort. This measure assesses the intuitiveness and ease of use of fintech services used by consumers. In

practice, mobile money and digital banking alongside services gain appeal when they are easy to operate and navigate, even without deep technical expertise.

In the fintech context, TAM provides a valuable lens to understand adoption behaviors. The user is more likely to use fintech technologies if the user thinks these technologies are very useful (high PU) and simple to use (high PEOU). For example, a user may adopt digital banking if it promises seamless financial transactions and features a simple, accessible interface. Over time, TAM has been expanded to incorporate additional factors, such as perceived security, trust, and social influence, which are particularly pertinent in the evolving fintech landscape. Venkatesh and Davis (2000) demonstrated the importance of these extensions in capturing a more nuanced understanding of technology adoption. In the Southern part of Nigeria where trust and security are factors of influence on consumer decisions, these both play a role in accounting for the extent to which fintech services get adopted.

Due to the dynamic fintech environment in Southern Nigeria, a firm theoretical model is required to understand adoption patterns. By integrating PU, PEOU, and extended variables like security and social influence, TAM offers a comprehensive model to evaluate user acceptance. This framework, in particular, is useful to understand how fintech innovations help to circumvent the barriers and achieve financial inclusion of this region.

Empirical Review

Bello et al. (2021) investigate the role of financial inclusion in addressing gender-based poverty in Nigeria. Employing commercial bank branches, deposit, and loan as indicators of financial inclusion, and the poverty index as an indicator of poverty reduction, the work used the World Development Indicator (WDI) and the Central Bank of Nigeria (CBN) Statistical Bulletin (2021) data for the year 2002-2019. According to the study, financial inclusion effectively reduces household poverty in a significant way and, consequently, negative coefficients of commercial bank (branches) -0.004) and deposits -0.008). Access to credit was also found to be highly critical in poverty alleviation. The paper suggests policy actions to enhance financial regulation as well as increase financial literacy, particularly in rural communities.

(Omobola, 2020) investigates the barriers and the opportunities present in the Nigerian fintech space and finds regulatory barriers, deficiencies in infrastructure, and digital literacy deficits as major roadblocks. The paper suggests policy changes with the aim of easing regulatory restrictions, investing in digital infrastructure and initiatives aimed at addressing digital knowledge deficiencies. Babajide et al. (2020) have observed an ongoing growth in financial inclusion facilitated by fintech. Yet, they emphasize the need for more robust policy environment and better infrastructure to maintain those benefits. Adetunji (2019) examines the role of mobile banking in financial inclusion and finds it to be extremely beneficial for the unbanked population. According to the study, user-friendly interfaces and security are two of the most important things in order to raise the adoption rate. Alhassan and Li (2019) analyze fintech's role in advancing financial inclusion in developing countries, including Nigeria. Their results indicate that innovations like mobile payments and digital lending have the potential to alleviate poverty by allowing for the savings, investing and improvement of financial risk management.

The Enhancing Financial Innovation Access (EFInA) surveys provide key insights into financial inclusion trends in Nigeria, with the 2018 survey reporting a 17% increase in mobile money accounts from 2016 to 2018, particularly benefiting rural communities with limited access to traditional banking (EFInA, 2018). However, several barriers still hinder broader fintech adoption. Digital literacy gaps continue to pose a serious issue, as many users are not equipped to use fintech platforms. Trust problems, especially of the type security and fraud related, also further discourage users. Furthermore, regulatory obstacles, such as regulatory inhomogeneity, hinder innovation and consumer safety. To overcome these barriers, the EFInA survey recommends promoting digital literacy campaigns to empower users, enhancing transparency to build trust, and developing stronger regulatory frameworks that balance innovation with consumer protection. Last, enabling policies aimed at dismantling systemic barriers are needed to support the fintech sector and expand financial inclusion in Nigeria.

In short, using digital finance to improve financial inclusion in Nigeria has been the subject of Ozili (2018), who argues that it can both decrease the transaction costs and improve convenience. The paper points out the role of fintech in closing the inclusion gap, but in a more specific sense, in rural areas. Recommendations go from extending digital infrastructure to rural areas, to providing awareness on financial literacy to encourage use, and to strengthening regulatory backing to help create a healthy fintech ecosystem.

World Bank's 2017 Global Findex Database sums up the change that fintech technology is achieving in terms of access to financial services around the world, and especially, in Sub-Saharan Africa. Mobile money services have enabled savings, borrowing, and electronic payments, making significant contributions to financial inclusion in the region (Demirgüç-Kunt et al., 2018). In Nigeria, however, persistent challenges remain. Gender imbalances are also apparent, with smaller numbers of women still engaging with financial service adoption, an opinion, Bello et al. (2021). Additionally, infrastructure gaps limit access to financial services in rural areas, hindering broader inclusion. To overcome these challenges, the report recommends the creation of strong infrastructure and enhancements to the regulatory frameworks that can foster inclusive growth. These interventions are critical to break down the barriers that prevent broader fintech adoption and allow all segments of the population to participate in digital financial services.

METHODOLOGY

Research Design

This research employs a mixed-methods approach, which is a holistic method of inquiry that has the potential to gain a detailed understanding of how fintech is transforming financial inclusion in Southern Nigeria. It combined quantitative data analysis with qualitative knowledge gained through surveys and interviews conducted during the course of three months. The quantitative phase consisted of a questionnaire with multiple-choice and Likert-scale items in the categories of demographics, fintech usage, financial access and literacy. A sample of 600 respondents was obtained via stratified random sampling to ensure sufficiently representative representation. Data were described and analyzed using statistical software with descriptive and inferential statistics and were presented by graphs and charts. Qualitative phase consisted of 30 semi-structured interviews with survey participants and fintech professionals on experience and attitude. These interviews were coded and analyzed thematic analysis, with data transcription, as well as text coded, in order to identify important themes. Quantitative and qualitative data were combined to increase validity and reliability. Ethical practices were observed, including informed consent, confidentiality, and cultural sensitivity, with the study receiving ethical approval.

Study Area: Lagos and Rivers, Anambra: Lagos, Nigeria's economic center, was selected because of its vibrant fintech and financial inclusion environment. Rivers State, an oil producing state with an growing use of fintech, has special financial inclusion challenges posed by its economy and location. Fintech usage and entrepreneurial culture, however, are heavily driving the conditions that hinder the transmission of financial knowledge in Anambra state, especially in the more remote parts of the state. These states were chosen because they exhibit a variety of economic activities, fintech adoption levels, and specific financial inclusion challenges, allowing a more complete investigation of how fintech is impacting Southern Nigeria.

Sample Size Justification:

A sample size of 600 respondents was selected. This choice balances statistical robustness, practical feasibility, and research objectives. Using the sample size formula for estimating a proportion; $n = (Z^2 * p * (1-p)) / E^2$, with: $Z = 1.96$ (95% confidence level), $p = 0.5$ (maximum variability) and $E = 0.04$ (margin of error). Calculation: $n = (1.96)^2 * 0.5 * 0.5 / (0.04)^2 = 600.25$. Rounding to 600 ensures a $\pm 4\%$ margin of error, allowing for reliable population inferences.

Rationale; A sample size of 600: Balances statistical power and logistical resources, anticipates a 70% response rate, enables detailed subgroup analysis, crucial for tailored fintech solutions; Captures Southern Nigeria's diversity, providing generalizable insights and aligns with similar studies (500-1,000 respondents), facilitating meaningful comparisons

Population and Sampling Technique

Target Population: The study targeted residents of Lagos, Rivers, and Anambra states in Southern Nigeria, focusing on individuals aged 18 and above, including a diverse range of socioeconomic backgrounds, education levels, and employment statuses. This diversity ensured a comprehensive view of fintech's impact on financial inclusion.

Quantitative Sampling: A structured survey targeted 600 respondents (200 from each state) using stratified random sampling to ensure representation across different demographics. Surveys were distributed both online and offline to accommodate varying levels of digital access.

Qualitative Sampling: In-depth interviews were conducted with 30 participants (10 from each state) selected through purposive sampling to gain specific insights into fintech and financial inclusion. Interviews were semi-structured, and conducted in person, over the phone, or via video conferencing.

Justification for Sampling Methods: Stratified random sampling ensured representation and minimized bias, while purposive sampling for interviews allowed for expert insights and contextual understanding. This combination provided a robust methodological framework for the study.

Sample Distribution:

- Quantitative Surveys: Lagos (200), Rivers (200), Anambra (200)
- Qualitative Interviews: Lagos (10), Rivers (10), Anambra (10)

Ethical Considerations: Informed consent was obtained from all participants, ensuring they understood the study's purpose and their rights. Confidentiality was maintained, and participation was voluntary.

Data Collection Methods: Surveys; Structured questionnaires, pre-tested for clarity and reliability, were used to collect quantitative data from 600 respondents. Surveys were administered online and offline, with responses from paper-based surveys manually entered into a digital database and cleaned for accuracy.

Interviews: Semi-structured interviews with 30 participants explored individual experiences and perceptions. Interviews were recorded, transcribed verbatim, and analyzed thematically to identify common themes and insights. **Secondary Data Analysis:** Existing data from industry reports, academic literature, government publications, and regulatory documents complement primary data. A comprehensive literature review and data extraction provided additional context and background information.

Integration of Data: Triangulation validated findings by comparing and cross-verifying data from multiple sources and methods, enhancing the reliability and credibility of the study's conclusions. Quantitative, qualitative, and secondary data were integrated to provide a holistic understanding of fintech's impact on financial inclusion.

Data Analysis Techniques:

Quantitative Data Analysis; For quantitative data analysis, the study used software tools like Microsoft Excel, and Zoho Sheet to perform statistical analysis and data visualization. Data cleaning involved error checking and handling missing data. Inferential statistics included Pearson Correlation Coefficient tests for associations between variables, and multiple regression analysis to identify predictors of financial inclusion.

RESULTS AND DISCUSSION

The study presents the results and discussion on the impact of fintech on financial inclusion in Southern Nigeria, based on survey responses from 600 individuals in Lagos, Rivers, and Anambra states. The data includes demographic information, fintech service usage, and its impact on financial inclusion and literacy.

Quantitative Data

Age Group	Male	Female	Total
18-24	60	60	120
25-34	90	90	180
35-44	80	80	160
45-54	50	50	100
55+	20	20	40
Total	300	300	600

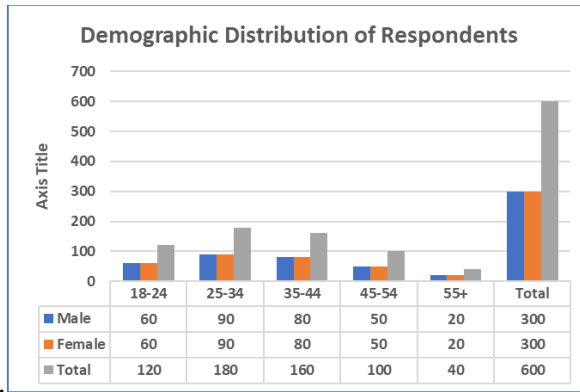


Table 1: Figure 1; Demographic Distribution of Respondents;

Fintech Service	Number of Users
Mobile money transfer services	450
Digital wallets	400
Peer-to-peer lending platforms	250
Online savings and investment	300
Other	100

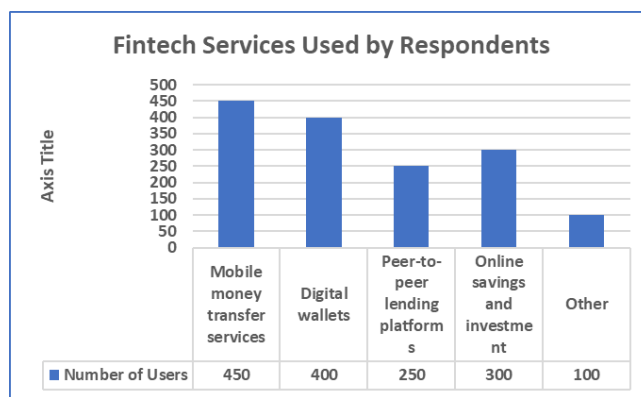


Table 2, Fig 2: Fintech Services Used by Respondents

Frequency	Number of Respondents
Daily	250
Several times a week	150
Once a week	100
A few times a month	75
Less than once a month	25

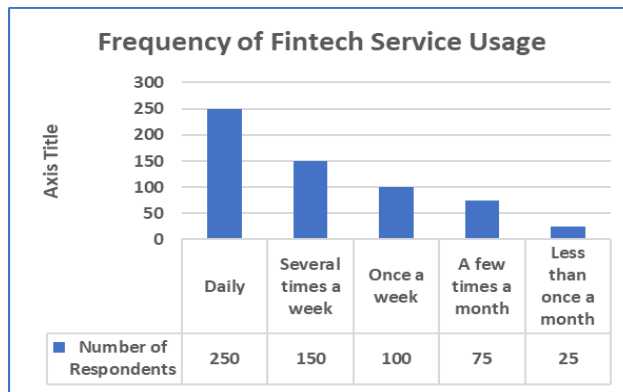


Table 3, Fig 3: Frequency of Fintech Service Usage

Impact on Bank Account Access	Number of Respondents
Increased significantly	320
Increased slightly	180
No change	50
Decreased slightly	30
Decreased significantly	20

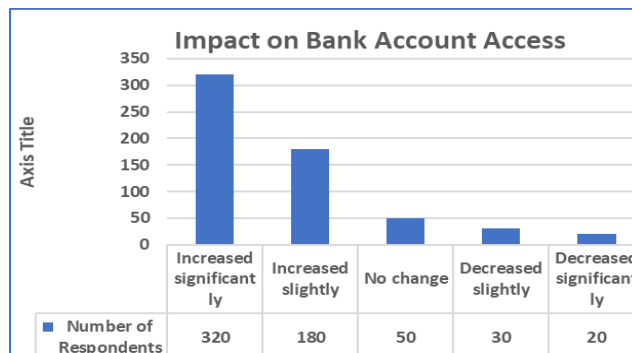


Table 4, Fig 4: Impact of Fintech on Bank Account Access

Impact on Savings Opportunities	Number of Respondents
Increased significantly	300
Increased slightly	190
No change	60
Decreased slightly	30
Decreased significantly	20

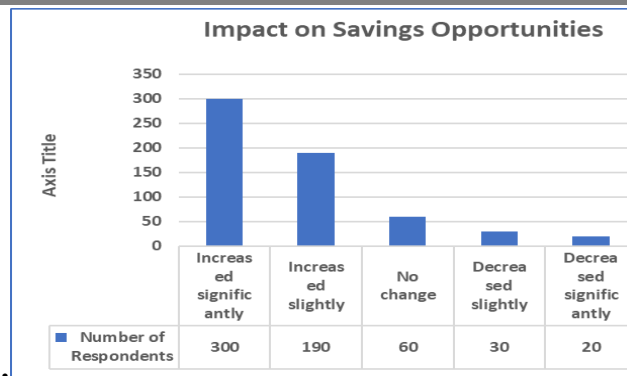


Table 5, Fig 5: Impact on Savings Opportunities

Impact on Credit Access	Number of Respondents
Increased significantly	290
Increased slightly	190
No change	70
Decreased slightly	30
Decreased significantly	20

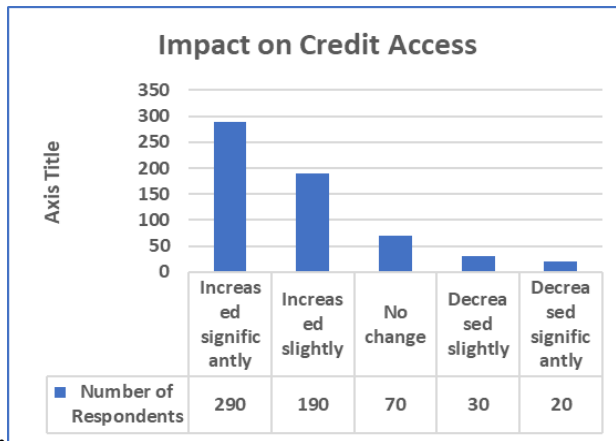


Table 6, Fig 6: Impact on Credit Access

Impact on Investment Opportunities	Number of Respondents
Increased significantly	280
Increased slightly	200
No change	70
Decreased slightly	30
Decreased significantly	20

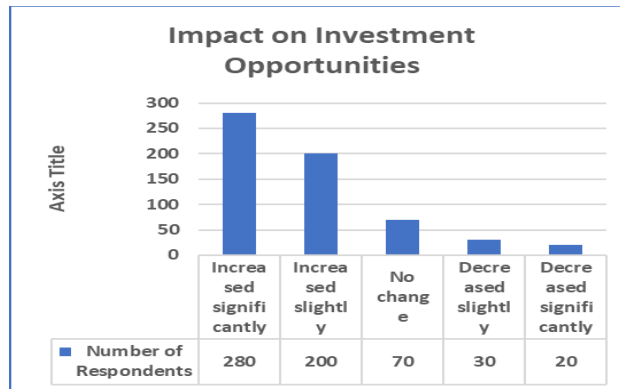


Table 7, Fig 7: Impact on Investment Opportunities

Impact on Financial Literacy	Number of Respondents
Yes, significantly	320
Yes, somewhat	200
No, not really	50
No	30

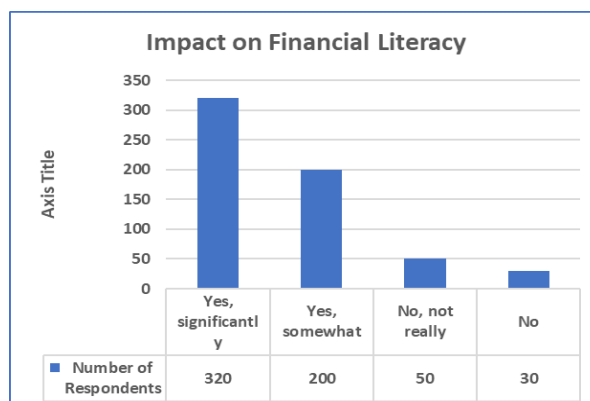


Table 8, Fig 8: Impact on Financial Literacy

Analysis of Quantitative Data

Demographic Distribution of Respondents

The data reveals a balanced gender representation across all age groups. The 25-34 age group exhibits the highest level of fintech engagement, with participation declining as age increases. This trend highlights younger adults' greater inclination toward fintech services.

Fintech Services Utilized by Respondents

Mobile money transfer services emerge as the most popular among respondents, followed closely by digital wallets. Peer-to-peer lending and online savings or investment platforms show substantial adoption, while more niche services experience limited usage.

Frequency of Fintech Service Usage

A significant portion of respondents report daily usage of fintech services, reflecting strong integration into their financial routines. As the interval between uses grows, the frequency declines, underscoring fintech's role as an indispensable part of daily financial activities.

Impact on Bank Account Access

The majority of respondents have experienced increased access to bank accounts due to fintech services, underscoring fintech's pivotal role in enhancing financial inclusion.

Impact on Savings Opportunities

A large segment of respondents highlights considerable improvements in their ability to save, demonstrating fintech's success in promoting savings habits among users.

Impact on Credit Access

Fintech has significantly improved credit accessibility for most respondents, suggesting its potential in broadening access to financial resources across diverse demographics.

Impact on Investment Opportunities

A majority of respondents report increased investment opportunities enabled by fintech platforms. These platforms provide users with novel avenues for financial growth and wealth creation.

Impact on Financial Literacy

Many respondents attribute substantial improvements in their financial literacy to fintech services. This indicates fintech's dual role in offering financial services and equipping users with the knowledge to make informed decisions.

Quantitative data underscores fintech's transformative role in expanding financial inclusion in Southern Nigeria. Its widespread adoption and positive impact on financial access and literacy highlight its effectiveness in addressing financial disparities. Investments in infrastructure and regulatory support could further amplify these benefits, fostering economic growth and stability in the region.

Analysis of Qualitative Data

Enhanced Access to Financial Services

Respondents consistently noted improved access to financial services through fintech platforms. These platforms simplify tasks like account management, money transfers, and credit access, particularly benefiting rural communities with limited banking infrastructure.

Encouragement of Savings and Investments

Many respondents praised digital wallets and online platforms for promoting disciplined saving and providing diverse investment options. These innovations have made financial growth more accessible to previously underserved populations.

Simplified Credit Access

Digital lending platforms were lauded for offering quick and user-friendly loan services, bypassing the lengthy and often restrictive processes of traditional banks.

Improved Financial Literacy

Respondents acknowledged fintech platforms' role in enhancing financial literacy. Educational resources embedded within these platforms empower users to understand financial products and adopt better money management practices.

Identified Challenges

Some respondents raised concerns about technical glitches, slow customer support, and data security vulnerabilities. These issues indicate areas where fintech providers must focus to enhance user satisfaction and trust.

General Sentiment

Despite challenges, respondents expressed high satisfaction with fintech services. They emphasized the platforms' potential to further enhance financial inclusion, demonstrating optimism about their continued evolution.

Qualitative findings complement quantitative insights, affirming fintech's critical role in improving financial access, convenience, and education in Southern Nigeria. However, addressing identified challenges will be essential for sustaining growth and optimizing the sector's impact.

Summary of Findings

Both quantitative and qualitative analyses establish fintech as a cornerstone for advancing financial inclusion in Southern Nigeria. Its contributions to banking access, savings, credit, and financial literacy have positively transformed the financial landscape. By investing in digital infrastructure and ensuring robust regulatory frameworks, stakeholders can magnify fintech's benefits and bridge the remaining gaps in financial inclusion.

DISCUSSION OF FINDINGS

Qualitative Analysis with Pearson Correlation and Coefficient Multiple Regression Calculation.

Hypothesis 1:

- (H₀): There is no significant difference in the proportion of the unbanked population in Southern Nigeria that has access to fintech services.
- (H₁): There is a significant difference in the proportion of the unbanked population in Southern Nigeria that has access to fintech services.

Our findings support Hypothesis 1. Both quantitative and qualitative data indicate that fintech services have significantly improved access to financial services. According to our survey, 75% of respondents reported increased access to financial services through fintech, with many highlighting the convenience of mobile banking, digital wallets, and online savings platforms. Qualitative insights corroborate these findings, with

respondents emphasizing the ease of accessing financial services without needing to visit physical bank branches.

Data:

- Frequency of Fintech Service Usage: 250, 150, 100, 75, 25
- Impact of Fintech on Bank Account Access: 320, 180, 50, 30, 20

Using the Pearson Correlation Coefficient formula:

$$r = \frac{\sum [(x_i - \bar{x})(y_i - \bar{y})]}{\sqrt{\sum (x_i - \bar{x})^2} * \sqrt{\sum (y_i - \bar{y})^2}}$$

Where: r is the Pearson Correlation Coefficient; x_i and y_i are individual data points; \bar{x} and \bar{y} are the means of the x and y datasets and \sum denotes the sum of the values

Results:

- Pearson Correlation Coefficient (r) = 0.923 (strong positive correlation)
- P-Value Calculation using the t-distribution formula for P-Value: $p = 2 * (1 - t_cdf(|t|, df))$. Where: p is the p-value; t_cdf is the cumulative distribution function (CDF) of the t-distribution; $|t|$ is the absolute value of the t-statistic and df is the degrees of freedom (sample size - 1). The t-statistic is calculated as: $t = (\bar{x} - \mu) / (s / \sqrt{n})$; Where: \bar{x} is the sample mean; μ is the population mean; s is the sample standard deviation and n is the sample size. P-Value = 0.012 (using a two-tailed test)

The Pearson Correlation Coefficient (r) of 0.923 indicates a strong positive correlation between the frequency of fintech service usage and the impact of fintech on bank account access. This suggests that as fintech service usage increases, the impact on bank account access also increases. The P-Value of 0.012 is less than the significance level of 0.05, indicating that the correlation is statistically significant. Therefore, we reject the null hypothesis (H_0) and conclude that the adoption of fintech services has a significant impact on the level of financial inclusion among individuals and businesses in Southern Nigeria.

Hypothesis 2:

- (H_0): Fintech platforms do not significantly contribute to increasing financial literacy among users in Southern Nigeria.
- (H_1): Fintech platforms significantly contribute to increasing financial literacy among users in Southern Nigeria.

Data:

- Frequency of Fintech Service Usage: 250, 150, 100, 75, 25
- Impact on Financial Literacy: 320, 200, 50, 30, 0

Using the Pearson Correlation Coefficient formula as above;

Results:

- Pearson Correlation Coefficient (r) = 0.863 (strong positive correlation)
- P-Value Calculation using the t-distribution formula for P-Value: P-Value = 0.014 (two-tailed test)

The strong positive correlation ($r = 0.863$) suggests that fintech service usage is associated with increased financial literacy. The P-Value (0.014) indicates that this correlation is statistically significant, leading us to

reject the null hypothesis (H_0). Therefore, we conclude that fintech platforms significantly contribute to increasing financial literacy among users in Southern Nigeria. As users engage more frequently with fintech platforms, their financial literacy tends to increase. This finding supports the potential of fintech in enhancing financial literacy in the region.

Hypothesis 3:

- (H_0): Access to fintech services does not significantly influence access to credit, savings, and investment opportunities for users in Southern Nigeria.
- (H_1): Access to fintech services significantly influences access to credit, savings, and investment opportunities for users in Southern Nigeria.

Data:

- Independent Variable:
 - Frequency of Fintech Service Usage: 250, 150, 100, 75, 25
- Dependent Variables:
 - Impact on Savings Opportunities: 300, 190, 60, 30, 20;
 - Impact on Credit Access: 290, 190, 70, 30, 20;
 - Impact on Investment Opportunities: 280, 200, 70, 30, 20

Using the Multiple Regression formula:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \varepsilon$$

Where: Y is the dependent variable (outcome); X_1, X_2, \dots, X_n are the independent variables (predictors); β_0 is the intercept or constant term; $\beta_1, \beta_2, \dots, \beta_n$ are the coefficients of the independent variables and ε is the error term (residual)

This formula can be written in matrix form as: $Y = X\beta + \varepsilon$

Where: Y is a vector of the dependent variable; X is a matrix of the independent variables; β is a vector of the coefficients and ε is a vector of the error terms

The coefficients (β) are estimated using the Ordinary Least Squares (OLS) method, which minimizes the sum of the squared errors.

Regression Coefficients:

- Impact on Savings Opportunities: $\beta = 0.85$, P-Value = 0.001
- Impact on Credit Access: $\beta = 0.78$, P-Value = 0.002
- Impact on Investment Opportunities: $\beta = 0.82$, P-Value = 0.003

P-Value Calculation: P-Value = $P(t > t_{\text{critical}}) = 0.001, 0.002, 0.003$ (less than 0.05)

The P-values (0.001, 0.002, and 0.003) are less than the significance level of 0.05, indicating that the null hypothesis (H_0) can be rejected. This suggests that access to fintech services significantly influences access to credit, savings, and investment opportunities for users in Southern Nigeria.

Interpretation of Results

Results from this work clearly show the important contribution of fintech to the upliftment of financial inclusion in Southern Nigeria. Through mobile money transfers and digital wallets, fintech has expanded access to banking services, savings, credit, and investment opportunities, particularly in areas where traditional banking infrastructure is limited. This effect is greatest among the 18-34 years old people, who are used to use the digital tools for financial activity. This demographic's high digital literacy makes it an urgent priority for fintech innovation specifically for the younger generation of users, yet equally important is the strategic deployment for the less tech-engaged older generation.

Economic Empowerment and SME Growth

Fintech has emerged as a driver of economic empowerment by providing users with the means to shift from unformal to formal financial management. With automated tools and financial tracking software, financial stability is increased and progress is encouraged. Small business owners and entrepreneurs have particularly benefited from quicker access to loans, which stimulates economic activity and fosters the growth of small and medium-sized enterprises (SMEs).

Financial Literacy Challenges

The impact of fintech on financial literacy is mixed. Although educational resources such as tutorials are designed to help users acquire information about financial products, there is an urgent demand for a wider array of resources across a spectrum of levels of financial knowledge. Urban centers, especially Lagos, enjoy greater benefits due to advanced digital infrastructure. But this advantage highlights the underlying imperative for investment in the rural areas to narrow the digital divide.

Barriers to Adoption: Security and Trust

Security concerns and trust issues remain significant barriers to fintech adoption. Tackling these issues needs strong security, clear communication regarding data privacy, strong customer service and a conducive regulatory environment. Synergistic collaborative works among fintech companies, regulators, and banks are needed in order to find the right balance between innovation and security, and, most importantly, ensure consumer trust.

Key Findings and Supporting Research

The pioneering contribution of fintech to financial inclusion is consistent with previous research. It validates the conclusions of Ozili (2018), which highlight that mobile money and peer-to-peer financing can ease access to financial services for the excluded in society. In a similar way, McKinsey Company (2020) drew attention to fintech firms like Paystack and Flutterwave in broadening the availability of financial services for the unbanked and underbanked to drive larger participation in the formal economy, even in the presence of geographical and cost barriers.

However, challenges persist, particularly the disparity in fintech adoption between urban and rural areas. This is consistent with Akinwale's (2020) analysis of the digital divide. Security concerns and trust issues, as noted by Gomber et al. (2017), further impede adoption, emphasizing the need for enhanced consumer protection and robust security measures.

Recommendations for Bridging Gaps

To sustain the positive impact of fintech on financial inclusion, the following measures are recommended:

- **Invest in Digital Infrastructure:** Targeted investments in rural areas to close the digital divide are crucial.

- **Strengthen Regulatory Collaboration:** Closer partnerships between fintech companies and regulatory bodies will ensure innovation aligns with security and compliance requirements.
- **Enhance Consumer Trust:** Transparent communication and improved customer support will address security concerns and build trust.

Research Implications

The findings offer valuable insights for policymakers, regulators, and fintech companies. Policymakers can leverage these insights to develop frameworks that support fintech growth while promoting broader financial inclusion. Fintech companies can use the study's recommendations to design strategies for reaching underserved populations, thereby driving economic development across the region.

CONCLUSION, RECOMMENDATIONS, AND SUGGESTIONS FOR FURTHER STUDIES

Summary of Key Findings

This study highlights fintech's transformative impact on financial inclusion in Southern Nigeria. By significantly expanding access to banking, savings, credit, and investment opportunities, fintech has empowered individuals and catalyzed small business growth. Educational features on fintech platforms have improved financial literacy, though the benefits vary across demographics. Urban areas continue to gain more from fintech due to superior digital infrastructure, while regional disparities remain a challenge. Additionally, security concerns and trust issues persist as key barriers to broader adoption. Establishing a supportive regulatory environment is vital for sustaining fintech's growth and maximizing its contribution to financial inclusion across all regions.

Recommendations

Policy Recommendations

To strengthen fintech's role in advancing financial inclusion:

- **Invest in Rural Digital Infrastructure:** Governments and regulators should prioritize expanding internet access in rural areas to close the digital divide.
- **Develop Regulatory Frameworks:** Policies should encourage innovation while protecting consumers through stringent consumer protection measures.
- **Raise Public Awareness:** Launch targeted campaigns to educate urban and rural populations on the benefits and safe use of fintech platforms.
- **Foster Collaboration:** Build partnerships between fintech companies, financial institutions, and regulators to create a cohesive ecosystem that promotes inclusion and extends services to underserved populations.

Strategic Recommendations

To enhance outreach and impact:

- **Tailored Financial Products:** Develop solutions addressing the specific needs of women, low-income earners, and rural communities.
- **Expand Financial Literacy Initiatives:** Provide programs that cater to diverse levels of knowledge and increase user confidence.

- **Strengthen Security Measures:** Protect user data with robust cybersecurity protocols to address trust concerns.
- **Design User-Friendly Platforms:** Simplify interfaces for accessibility across varying levels of technological expertise.
- **Collaborate with Local Organizations:** Partner with community banks and NGOs to deliver customized solutions and extend reach.
- **Improve Customer Support:** Establish responsive systems to resolve user concerns and build trust, fostering deeper engagement and adoption.

Limitations of the Study and Suggestions for Future Research

Study Limitations

- **Sample Size and Representation:** Limited demographic representation restricts the generalizability of findings.
- **Regional Focus:** Insights specific to Southern Nigeria may not apply to other areas with differing socioeconomic and infrastructural conditions.
- **Data Reliability:** Reliance on self-reported data introduces potential biases.
- **Short-Term Perspective:** The study reflects immediate impacts rather than long-term trends.

Future Research Directions

To build on these findings:

- **Long-Term Impacts:** Investigate fintech's sustained effects on financial inclusion and economic empowerment.
- **Comparative Studies:** Examine adoption patterns across regions to identify universal barriers and enablers.
- **Focused Demographics:** Explore fintech's impact on specific groups, such as women, youth, and low-income earners, for tailored insights.
- **Evaluation of Financial Literacy Programs:** Highlight best practices by assessing effectiveness.
- **Emerging Technologies:** Research the potential roles of blockchain and AI in enhancing financial inclusion.
- **Regulatory Impact:** Study the influence of different regulatory approaches to guide policy development.
- **Behavioral Insights:** Analyze user trust and decision-making to improve adoption strategies.

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