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Kothuri Sri Laxmi
School of Business, Woxsen University, Hyderabad, Telangana, India

Nagisetty Sri Padma
School of Business, Woxsen University, Hyderabad, Telangana, India

Gummakonda Sharath Reddy
School of Business, Woxsen University, Hyderabad, Telangana, India

Correspondence Author:
Kothuri Sri Laxmi
School of Business, Woxsen University, Hyderabad, Telangana, India

The role of fintech in enhancing financial inclusion

Kothuri Sri Laxmi, Nagisetty Sri Padma and Gummakonda Sharath Reddy

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Abstract
Financial inclusion provides access to underserved users with access to reliable and affordable financial services for reducing poverty and encouraging economic growth. Financial technology (FinTech) has a great potential in emerging economies for enhancing financial inclusion with technology and innovative solutions to deal with financial challenges. This study is aimed to examine the impact of Fintech services on financial accessibility and relationship between using Fintech services and improved financial accessibility.

To fulfil these objectives, this study adopts a quantitative research approach which includes descriptive and analytical findings to find out the extent of improvement of financial accessibility by Fintech services. Primary data will be collected through online survey to target Fintech users from different socio-economic backgrounds. Fintech services have improved financial literacy among rural and urban Indians. There are also various challenges affecting the complete potential of Fintech services, such as legal and regulatory constraints, cultural factors, and technology barriers. This study provides important insights to the role of Fintech services to improve financial inclusion. It will help policymakers to identify opportunities related to adoption of Fintech. The findings of the study underscore the importance of using potential of Fintech to foster financial growth and sustainable financial inclusion.

Keyword: Fintech, financial services, financial literacy, financial inclusion, financial accessibility

Introduction

India is among the most populous and fastest-growing economies across the world. However, a huge part of tribal and rural population is cut off from banking services, resulting in increasing poverty and slow economic growth of the country (Oskarsson 2018). Poor people find it hard to manage their money as their income growth is usually uncertain (Chouhan et al, 2021a) [8]. They need access to microcredits, savings, transfer and payment services, and insurance to fulfill a lot of financial needs "(Okoye et al, 2017; Chang et al, 2020;) [2]. Some of these requirements are need for a huge range of acceptable financial services and economic services. They use informal networks because of limited access to financial services defined by lower security and reliability as well as higher costs as compared to traditional solutions (Metzger et al, 2019; Haque et al, 2022) [3, 4]. Also known as Financial Technology, FinTech was introduced in 2007-08 financial crisis and redefined the financial services industry by adopting latest technologies (Anagnostopoulos, 2018; Chouhan et al, 2021b) [5, 9]. Technology and banking are the two pillars of modern banking (Li et al, 2021) [6]. Over the past decade, rapid growth of mobile networks in unserved communities and areas have been a major driver for this cause (Omojolaibi et al., 2019; Chouhan et al, 2021c) [7, 10]. Payment banks have been the alternatives to mobile and online banking, resulting in the improvement of operational efficiency and reducing costs related to serving customers in semi-urban and rural areas (Chouhan et al, 2020; Schuetz and Venkatesh 2020) [11, 12].

There are two contributions of financial inclusion – (1) To connect people excluded from the market to economic growth and (2) To draw people to the financial system and economy with economic growth (Cecchetti and Schoenholtz 2020; Schuetz and Venkatesh 2020) [13, 12]. It is possible to alleviate poverty with financial inclusion with growth elements like rising access to possibilities for people for entrepreneurship, reducing vulnerability of people to improve living standards (Kim et al, 2018) [14].

New kinds of banks have been developed with increasing access to financial services like mobile banking, small banks, and payment banks to cater to people without bank accounts (Banna et al, 2021) [15].

Financial inclusion has covered new non-banking businesses to add to the major segment of banking (Maina et al, 2020) [16]. The pro-startup policies of the government and flexible regulations by the RBI has enabled the growth of digital financial startups without replacing legacy banking institutions. Indian consumers have always been cautious about their financial decisions. They should feel more confident towards Fintech services. Hence, this study is conducted to determine their confidence level towards Fintech services and improvement of financial accessibility.

Literature Review

Relationship between use of Fintech services and Improved Financial Accessibility

Hasan et al (2023) [17] conducted a study on the impact of financial knowledge on access to fintech services among rural households. Financial knowledge enables customers to reject or select various options. Knowledge related to Fintech services is a factor affecting access to Fintech services. They conducted a survey with structured questionnaire. They used three popular econometric models – "*complementary log–log regression, logistic regression* and *probit regression*". It is observed that knowledge about several factors affected access to fintech services. This study has practical importance for using fintech and rural finance services with impact on the whole economy.

Financial access is very important to establish economic welfare and financial inclusion. Darnida et al (2024) [20] determined the impact of infrastructure, regulatory, adaptation, and financial literacy on financial access. They adopted a quantitative technique to determine the relation between financial access and those independent variables, i.e., a linear regression model. There is a significant impact of financial access. Regulatory, Infrastructure, and Adaptation had no major impact on financial access. There is a significant regression model with 53.2% variation in access to finance. Financial literacy is known to be a major determinant to improve financial access, while infrastructure, regulatory, and adaptation had no significant role in this model.

"Corporate Sustainability Performance (CSP)" has gained a lot of attention across the world. Critical organizational resources and Fintech are very important for firm performance and sustainability. Siddik et al (2023) [21] determined the effects of "Financial Literacy (FL) and Fintech Adoption (FA)" as per "resource-based view (RBV) and ecological modernization theory (EMT)". They investigated the mediating role of "Access to Finance (AF)" in relation between these variables. They collected empirical evidence from 262 Bangladeshi apparel firms and employed CB-SEM method for hypothesis testing. It is observed that FL and FA are major drivers of sustainability performance of firms. In addition, AF has significant mediating effect on both relation between FL and sustainability performance and relation between Fintech adoption and sustainability performance".

Impact of using Fintech services on Financial Accessibility

Over the past few years, financial inclusion of India has improved significantly. Banked population has been rising over the years. Fintech businesses are also growing as government is constantly expanding financial services to unbanked population. To provide stable environment for fintech services, India has to improve financial inclusion. Asif et al (2023) [19] have employed regression and correlation analyses with RBI data to determine the impact of digital and fintech services on Indian financial inclusion. Fintech services have been helpful for financial inclusion in India, especially for middle class population.

Fintech has literally saved unbanked and underbanked population to cover them in the formal banking system. Adoption of smartphones and internet is the only limitation to financial inclusion, which enabled access to mobile banking. High adoption of technology expedites households which are socio-economically disadvantaged into mobile banking. Socio-economic factors are standard criteria to determine underbanked or unbanked population (like low-income households, women, and African American households). Young and Young (2022) [18] applied logistic regression to determine the possible adoption of technology of low-income households. There is no significant difference among African American households across socio-economic factors than socio-economic characteristics of low-income households. Socio-economic factors are important to determine adoption of technology in White American households.

Research Gap

Inability of majority of underserved population to engage in formal financial system has become a challenge to eradicate poverty of the country. There are several procedural and cultural restrictions affecting the stakeholders in fintech environment. Whether mobile banking system can achieve their complete growth potential in rural India is still a research gap (Oskarsson 2018; Okoye et al. 2017) [1, 2]. Emphasis should be given on developing tech solutions for people who are not tech-savvy. Only a few empirical studies have focused on financial inclusion with fintech services.

Research Objectives

- To find out the relationship between use of Fintech services and improved financial accessibility for users
- To find out impact of using Fintech services on financial accessibility of users

Hypotheses

As per the literature survey, we have proposed the following hypotheses -

H_1: There is a significant improvement of financial accessibility with Fintech usage

H_2: Different Fintech services have a varying effect on financial accessibility.

Methodology

Research Design

This study measures the effect of Fintech by adopting a quantitative research approach, which includes analytical and descriptive research design. Descriptive research design determines how Fintech services enhance financial accessibility, while analytical approach performs hypothesis

testing using statistical tools like ANOVA and Chi-Square.

Data Collection

Primary data will be collected using a self-structured questionnaire which includes questions related to demographics and access to financial services. Online survey will be conducted using Google Forms and email among the groups of social media and Fintech users like GPay, PayTM, and PhonePe. In addition, secondary data will be collected from academic papers on financial inclusion and Fintech published in peer-reviewed journals.

Sampling Methods

Target population for this study includes users and non-users of Fintech services in India, such as, banked and unbanked population, rural and urban residents, and people who use digital wallets, mobile banking, and online banking.

We have adopted a stratified random sampling technique for sample size calculation. It is used for targeting diverse group of participants as per geographic location (rural and urban users) and adoption of fintech (users and non-users). We took minimum sample size of 300 participants due to resource constraints.

Data Analysis

For data analysis, descriptive analysis would be conducted for percentage distributions and inferential analysis would be conducted for hypothesis testing. For determining the impact of FinTech on financial inclusion, hypothesis testing would be conducted using ANOVA test and Chi-Square tests.

Data Analysis

In this study, total 333 responses have been collected. There are 288 (87%) participants who are 18 to 25 years old and 45 (13%) participants are 26 to 35 years old. There are 144 (43%) participants who are male and 189 (57%) participants are female. Majority (70%) participants are students, 90 (27%) participants are employed, and only 9 (3%) participants are unemployed. When it comes to academic qualification, 144 (43%) participants are graduate, 171 (51%) participants are post graduate, and only 18 (5%) participants have completed secondary education.

Table 1: Demographic characteristics of participants

Age	Frequency	Percentage
18 to 25 years	288	87%
26 to 35 years	45	13%
Gender		
Male	144	43%
Female	189	57%
Occupation		
Employed	90	27%
Student	234	70%
Unemployed	9	3%
Academic Qualification		
Graduate	144	43%
Post Graduate	171	51%
Secondary	18	5%

Fintech Usage

When it comes to fintech usage, majority (n = 306, 92%) participants use fintech services and only 8% don't use fintech services (Figure 1).

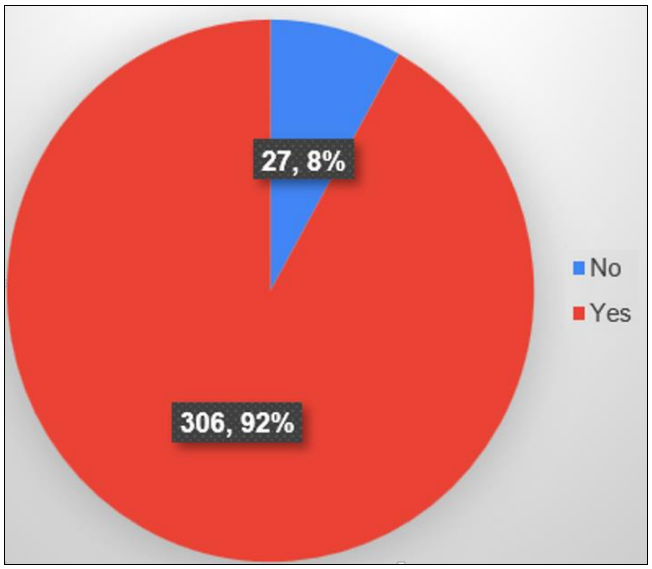

Fig 1: Participants using fintech services

There are 324 (97%) participants who use mobile banking services like Google Pay, PhonePe, etc., while only 9 (3%) use digital wallets (Figure 2).

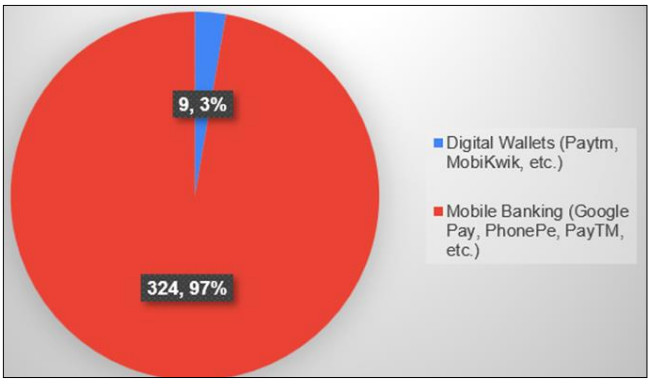

Fig 2: Participants using Fintech services

When it comes to frequency of fintech use, 279 (84%) participants use fintech services daily, 36 (11%) participants use those services weekly, and 18 (5%) participants use fintech services rarely (Figure 3).

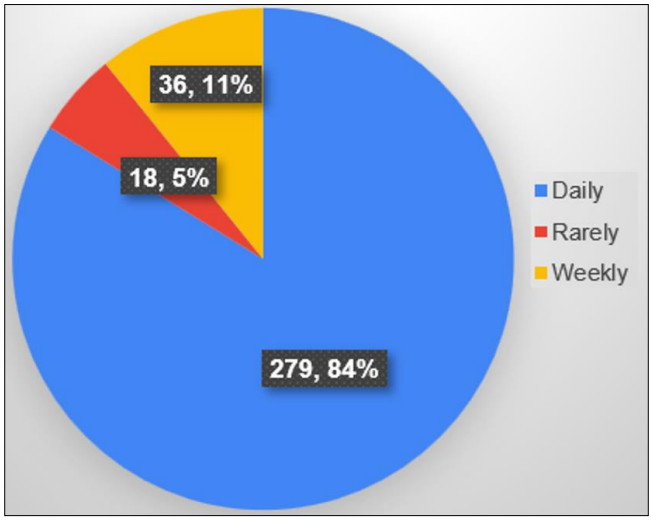

Fig 3: Frequency of Fintech use

According to 95% participants, financial accessibility has been improved with Fintech services (Figure 4).

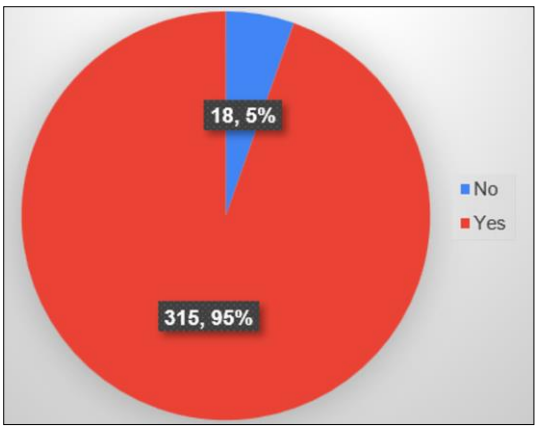

Fig 4: Improvement of Financial Accessibility

Financial Accessibility

There are 144 (43%) participants who strongly agree and 81 (24%) participants who agree that they could easily open their account using UPI, digital wallets, or mobile banking, 207 (62%) participants strongly agree and 63 (19%) agree that making payments or sending/receiving money using Fintech apps has been very simple, 98 (29%) participants strongly agree and 105 (32%) participants agree that accessing loans/credit was easier through Fintech, 135 (41%) participants strongly agree and 90 (27%) participants agree that fintech apps have affordable transaction fees, 99 (30%) participants strongly agree and 126 (38%) participants agree that they feel safe and secure for fintech services, and 90 (27%) participants strongly agree and 81 (24%) participants agree that customer service is helpful in fintech platforms (Table 2).

Table 2: Financial accessibility for participants

Responses	SD	D	N	A	SA
You could easily open your account using UPI, digital wallets, or mobile banking	18 (5%)	9 (3%)	81 (24%)	81 (24%)	144 (43%)
Making payments or sending/receiving money using Fintech apps has been very simple	9 (3%)	9 (3%)	45 (14%)	63 (19%)	207 (62%)
Accessing loans/credit was easier through Fintech	16 (5%)	33 (10%)	81 (24%)	105 (32%)	98 (29%)
Fintech apps have affordable transaction fees	9 (3%)	36 (11%)	63 (19%)	90 (27%)	135 (41%)
For Fintech services, I feel safe and secure for financial transactions	18 (5%)	18 (5%)	72 (22%)	126 (38%)	99 (30%)
Customer support is helpful in Fintech platforms	18 (5%)	27 (8%)	117 (35%)	81 (24%)	90 (27%)

Hypotheses testing

Before hypothesis testing, we conducted Cronbach's Alpha test to ensure reliability and internal consistency of financial accessibility scale. High level of reliability was confirmed with value of $\alpha = 0.866$. It means all the items are internally consistent to test financial accessibility for further analysis (Table 3).

Table 3: Reliability Statistics

Cronbach's Alpha	N of Items
.866	6

By conducting a "Chi-Square test of independence", we observed statistically significant association between financial accessibility and Fintech usage with $p < 0.001$. Hence, H1 is approved, i.e., there is a significant improvement of financial accessibility with Fintech usage. It means Fintech users are more likely to have better financial accessibility in comparison to non-Fintech users (Table 4).

Table 4: Chi-Square Tests on Financial Accessibility and Fintech usage

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	44.820[a]	1	.000		
Continuity Correction[b]	39.073	1	.000		
Likelihood Ratio	24.470	1	.000		
Fisher's Exact Test				.000	.000
Linear-by-Linear Association	44.685	1	.000		
N of Valid Cases	333				
a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 1.46.					
b. Computed only for a 2x2 table					

To find out the association between financial accessibility and Fintech services, we conducted a one-way ANOVA test. It is observed that there is a statistically significant difference in accessibility to finance among Fintech users, with $p < 0.001$ and F value (18, 314) of 52.57. Hence, H2 is approved, i.e., different Fintech services have a varying effect on financial accessibility. It means Fintech service type affects the level of financial accessibility significantly among users (Table 5).

Table 5: ANOVA Test on Fintech usage and financial accessibility

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.575	18	.365	52.569	.000
Within Groups	2.182	314	.007		
Total	8.757	332			

Results

This study has explored the role of Fintech to improve financial inclusion, with special emphasis on the dimension of financial accessibility. We collected data from 333 participants, especially from 87% of participants who are 18 to 25 years old with balanced gender distribution, having 57% of females. Majority (70%) of participants were students and they had achieved postgraduate or graduate qualification (94%). The demographic profile of the participants includes digital nerds and young and educated population, aligning with Fintech users.

Among the participants, there was significantly high adoption of Fintech services, with 92% participants who confirmed the use of Fintech services on regular basis. Out of these, 97% participants reportedly used mobile banking apps like PhonePe and Google Pay, while digital wallets are used only by 3%. Hence, users clearly prefer services which are integrated directly to banks. When it comes to frequency of fintech use, 84% participants used those services every day, which defines the level of embedding these platforms in their financial routines. In addition, there is an improvement in access to financial resources by 95% participants. Hence, there is a positive impact of fintech in daily life.

In this survey, we have determined six important dimensions related to financial accessibility like ease of opening accounts, transactions, access to credit, security, affordability, and customer support. As per the responses, there is a strong positive perception in all aspects. For instance, opening account was easier with UPI for 67% participants. In addition, it was easy to send or receive money with Fintech apps for 81% users and getting credit or

loans was easier for 61% participants with Fintech platforms.

Security, affordability and customer services have got positive feedback. For instance, 68% users found transaction fees affordable, 51% observed customer support to be helpful, and 68% felt Fintech apps safer for financial transactions. For reliability of financial accessibility questions, we conducted a Cronbach Alpha test with value of 0.866, showing strong internal consistency. For H_1, we conducted a Chi-Square test and found results to be statistically significant. So, we rejected the null hypothesis. It is concluded that there is an association between Fintech usage and improved accessibility. With this finding, it is confirmed that people using Fintech services may have better access to financial resources and tools.

For testing H_2, i.e., whether various Fintech services have different effects on financial accessibility, we conducted "Analysis of Variance (ANOVA)". It is observed that there is a "significant difference in financial accessibility as per the Fintech services". Hence, there is a significant influence of nature of Fintech platform (like digital wallets, mobile banking, etc.) on the perceived ease of accessing Fintech services. The most used service is mobile banking which plays a vital role to improve accessibility.

Conclusion

Findings of the study have clearly defined critical role of Fintech in improving financial inclusion, especially when it comes to financial accessibility among tech-savvy users. Higher frequency of use, adoption rate, and positive perceptions reinforce the transformative potential of digital finance when it comes to democratize access to financial and banking services.

In addition, both ANOVA and Chi-Square tests have showed significant results and empirical evidence that the use of Fintech improves financial accessibility. Insights provided by this study are especially important for financial institutions, policymakers, and Fintech organizations to fill the financial gaps and come up with more inclusive ecosystems. Future studies could discover the long-term effect on financial behavior, challenges for adoption of Fintech services in underbanked and unbanked societies, and regulatory and security issues that users face. This study has strong evidence that Fintech is a key enabler to boost financial inclusion in India.

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