



FINTECH STARTUPS AND FINANCIAL INCLUSION IN INDIA: EVIDENCE FROM THE GLOBAL FINDEX DATABASE

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Article DOI: <https://doi.org/10.36713/epra26479>

DOI No: 10.36713/epra26479

ABSTRACT

The growth and development of any economy are influenced by several factors and the status of financial inclusion is one of them. It has been always a point of discussion among regulators because financial inclusion plays an important role in improving the accessibility and usage of financial services. The government of different countries has started to formulate their policies integrating the issue of financial inclusion in their main stream of policy formulation. After several initiatives by governments, a large population is still unbanked. However, the emergence and growth of Fintech startups in recent years have impacted the traditional financial services landscape. It has shown the hope for improving the level of financial inclusion in many countries, especially like India where a large population is still below the poverty line and uneducated. This study has analyzed the growth of Fintech startups and its impact on improving the level of financial inclusion in India. The data has been collected from the Global Findex Database 2021 collected by the World Bank. The data has been analyzed using multiple regression. The study has found that there is a positive impact of Fintech startups on financial inclusion in India.

KEYWORDS: Fintech, Financial Inclusion, Fintech Startups

1. INTRODUCTION

Financial inclusion plays an important role in the growth of any economy. In a country like India, the importance of financial inclusion increases more due to the special demographic and economic characteristics. The issue of financial inclusion is directly related to financial services and products available to each individual and community irrespective of their economic status, geographical location, or social background. In the modern era in which the well-being of an individual largely depends on economic participation and financial security, financial inclusion becomes a key factor in ensuring growth and development as it removes the barriers to availing all financial services required for livelihood. Thus, financial access plays a pivotal role in supporting the daily lives of individuals and also the growth of businesses. It enables them to effectively plan for both long-term aspirations and unforeseen challenges. By having access to financial services, like bank accounts, they are more likely to use other helpful services like loans and insurance. This can make it easier for them to start businesses, invest in education and healthcare, and be prepared for unexpected financial problems. Having good financial access can improve people's lives and make their communities stronger (The World Bank, 2022).

In most economies, financial institutions and markets play an important role in promising financial inclusion. To ensure financial inclusion, financial institutions allocate financial resources among households and firms to reduce income inequality which ultimately becomes a driving force for economic growth. Many studies have shown that there is a relationship between financial development, financial inclusion, and economic development (Ellahi et al., 2021). The World Bank Group also recognized that financial inclusion plays a vital role in reducing extreme poverty and promoting shared prosperity (The World Bank, 2022).

The government of India has also given due importance to financial inclusion and focused on financial inclusion. The new initiatives, policies, and reforms are strengthening financial services and promoting them to the underserved population. It is fortunate that with the favorable policies of the Government, another industry is also helping in financial inclusion i.e., Fintech. In the last decade, fintech has emerged as a transformative force with the potential to revolutionize existing financial services by introducing modern technology and innovations in the Fintech industry. It has helped to offer several opportunities to overcome barriers to financial inclusion and close the remaining gaps by taking advantage of the increasing penetration of mobile technology. These Fintech companies not only cater financial services to individuals but also create new and innovative financial business



models and financial products in different financial segments. By leveraging the new technology in the field of finance, it has improved the accessibility of financial services to the underserved and unbanked population. In the payment segment, it has introduced digital payment solutions such as digital wallets and mobile payment apps, facilitated microloans and peer-to-peer lending, harnessed blockchain and cryptocurrencies for cross-border transactions, offered several banking and neo-banking services with simplified account opening processes, and has enhanced financial education through educational resources and tools. Additionally, insurance companies have extended their insurance products to those previously excluded from the market and helped mitigate financial risks. The fintech model is also generating alternative data sources and advanced algorithms for credit scoring have allowed accessing credit facilities to people without traditional credit histories. The widespread use of smartphones has made fintech services accessible to people in remote areas.

Apart from the multiple dimensions of the Fintech sector to promote financial inclusion, the outcome is still a drop in the ocean. According to the Global Findex database, despite the crucial role of financial inclusion and recent gains made in financial inclusion, 1.7 billion adults worldwide still do not have access to formal financial services, and 7,60,000 of those with access still do not use them. Reasons often given for not having or using a financial institution account include high cost, distance, and documentation requirements. Many households and firms have been excluded from the formal financial market (Demir et al., 2022) due to several reasons like limited infrastructure, particularly in rural and remote areas, which poses a significant barrier to accessing formal financial services. Additionally, individuals with low incomes or living in poverty often struggle to meet the requirements for opening and maintaining bank accounts. Fintech startups are the new hope to address these challenges of financial inclusion.

This paper is an attempt to contribute substantial analysis to existing knowledge by investigating the relationship and impact of Fintech on financial inclusion. To analyze the impact of fintech on financial inclusion in India, the study has used the database from the Global Findex prepared by the World Bank in the year 2021.

2. LITERATURE OF REVIEW

Financial inclusion refers to the provision of financial products and services to people and businesses who are historically excluded from the formal financial system. It refers to the access and use of financial services with the aid of people and establishments in a reasonable and enough time and price. It aims to expand the use of these services through innovative approaches, including financial education and awareness, to promote financial well-being and social and economic integration. Financial inclusion can be carried out through projects that include increasing financial literacy and leveraging economic technology. Studies have proven that financial literacy and economic technology have a positive and big effect on economic inclusion. It is a vital factor of financial improvement that could contribute to better financial inclusion, decreased inequality, and poverty discount (Zucchelli, 2023). However, there are still challenges to conquer, along with low earnings, gender gaps, loss of financial literacy, and cultural barriers (Chitimira & Warikanda, 2023). Efforts are being made to address these issues and promote financial inclusion via coverage tasks and the development of virtual infrastructure. The concept of financial inclusion is closely linked to poverty alleviation, enhancing quality education, and promoting economic development. By improving get right of entry to economic offerings, monetary inclusion can empower individuals, allow them to higher control their price range, and make contributions to common economic growth and decreased profits inequality.

- (Asif et al., 2023) has studied the impact of fintech and virtual financial services on economic inclusion in India, specifically for the middle magnificence, and highlights the significant function played by fintech in facilitating financial inclusion in India and emphasizes the significance of increasing monetary services to the underbanked population. Furthermore, the research evaluates the influence of behavioral aim, belief, usability, and social impact on the usage of fintech services for financial inclusion.
- (Ozili, 2018) discussed the impact of digital finance on financial inclusion and stability, addressing the benefits and risks associated with digital finance and its role in banking and financial system stability. The overwhelming benefits of digital finance for financial inclusion can lead to the underestimation of the risks associated with digital financial inclusion, which may not benefit individuals without a formal bank account or those who do not use digital devices for financial decisions or transactions.
- (Mushtaq & Bruneau, 2019) has analyzed the role of commercial banks and microfinance institutions on financial inclusion and also studied the impact of ICT and its role in the reduction of poverty and inequality. The study has revealed a positive connection between ICT advancement and financial inclusion and a negative relationship with poverty and inequality. The results suggest that financial inclusion achieved through either MFIs or traditional banking has a positive effect on reducing poverty. The study also emphasized how ICT's advancement when used as an instrument for financial inclusion, stimulates



economic growth and lessens poverty and inequality. The authors conclude that policies promoting ICT infrastructure could stimulate financial inclusion and hence contribute to reducing poverty and inequality. However, they also noted possible negatives of increased ICT penetration, such as the risk for the poor of spending a greater portion of their income on mobile technology rather than on basic needs like food, health, and education. Agreement on the use of new technologies emerges as a crucial area in financial inclusion, especially for MFIs which typically deal with less educated, poor, and unbanked individuals.

- (Kanga et al., 2022) provides an analysis of the integration and impact of financial technology on financial inclusion and per capita income in different countries, focusing on two key fintech innovations: Automated Teller Machines and mobile phones and payment systems. The authors propose that the diffusion of fintech enhances financial inclusion, which in turn could contribute to raising the standard of living in the wider economy. The paper indicates that both fintech diffusion and financial inclusion have long-run effects on GDP per capita, suggesting that technological advancements in financial services can increase productivity and subsequently, improve living standards. The authors therefore suggest that governments should consider fostering fintech diffusion to bolster financial inclusion and economic performance. (Demir et al., 2022) examined the interrelationships between FinTech, financial inclusion, and income inequality. The authors found that FinTech reduces income inequality indirectly through its effects on financial inclusion. Financial inclusion reduces inequality at all quantiles of the inequality distribution, but these effects are primarily driven by higher-income countries. The authors argue that, while financial policies alone are not enough to address income inequality, coordinated fiscal redistribution should accompany financial inclusion initiatives. They also stress the pivotal role of FinTech in expanding both account ownership among the unbanked and account use among the banked.
- (Salampasis & Mention, 2018) discusses the role financial technology can play in addressing the ongoing issue of financial exclusion which has left certain parts of the world's population without access to basic financial services. This exclusion contributes to inequality and hampers efforts to eradicate poverty, starvation, and civil unrest in developing regions around the world. The authors argue that the emergence of FinTech, a blend of financial innovation and technology, is offering a promising way to tackle this issue. FinTech pressures traditional financial institutions by introducing innovative, technology-led business models, and offering new value propositions. The paper highlights how FinTech promotes financial inclusion through the provision of digital financial services to underserved sections of the global population. This transition to "digital financial inclusion" can lead to social and economic advancement, as it enables wider access to financial services like savings, payments, and credit. The authors identify barriers to global dissemination of financial inclusion, such as ongoing technological breakthroughs, financial literacy, various regulatory limitations, and cultural considerations. They call for a holistic approach to financial inclusion, arguing for the development of appropriate financial tools, models, and regulatory policies, as well as collaboration between public and private sectors. They underscore the importance of understanding the end-user and offering directly applicable solutions, thereby suggesting that financial inclusion is a prerequisite for social and economic development.
- (Goswami et al., 2022) focuses on the influence of Fintech on financial inclusion in the rural parts of India. The authors used both qualitative and quantitative research methods for this study. The research identified multiple factors impacting the adoption of fintech, including effort expectancy, performance expectancy, social influence, facilitating conditions, motivation, habit, perceived risk, and service charge. Users appreciated the ease of using fintech services, their usefulness in daily life, and the positive influence of peers. However, they also acknowledged concerns about privacy risks in using such services. A significant portion of respondents considered service charges for fintech reasonable. Despite these concerns, the overall findings showed a positive trend toward adopting fintech in rural India, owing to its promise of assisting in the completion of financial transactions in a more efficient manner. The paper indicates the potential role of fintech in achieving financial inclusion in rural India by allowing for accessible savings, microcredits, insurance, and payment and transfer services, which would fuel economic development and poverty reduction in these areas.
- (Joia & Cordeiro, 2021) explores the impact of fintechs on financial inclusion in Brazil. The study utilized the Delphi method to gather perceptions from professionals within the fintech industry regarding this potential impact. The authors identified that fintechs can potentially improve financial inclusion by fostering greater competition, reducing costs for clients, increasing the range of options available to customers, and more. However, several barriers hinder this potential impact - these include an inadequate legal and regulatory framework, lack of financial and digital education among unbanked and underbanked individuals, limited access to modern mobile and internet infrastructure, and behavioral and cultural elements preventing the acceptance of fintech processes by the same demographic.



3. RESEARCH METHODOLOGY

The study is descriptive and analytical and based on secondary data. The objective of this study is to explore the growth and opportunity in the fintech sector and to study the impact of fintech startups on financial inclusion in India. The study period is FY 2014 to FY 2022. To analyze the growth of fintech in India, this study has used secondary data from different reliable sources as available to date and to analyze the impact of the fintech startups on financial inclusion, it has used the data from the Global Findex database available with the World Bank database of 2021. To analyse the processed data and test of hypothesis, the multiple linear regression analysis technique is used with SPSS software.

3.1 Variables of the Study

The survey database consists of 119 variables (Questions) but we have selected only those questions that were related to Fintech and Financial Inclusion. We have included only 45 questions and further these questions were categorized into three groups i.e. Financial_Inclusion (Questions related to the accessibility of financial services), Fintech_Access (Questions related to accessibility through Fintech or any digital Mode), Fintech_Usage (Questions related to use of financial services through Fintech platform or any digital Mode or Mobile Phone) to create combined variables.

3.2 Data Processing

To make the data compatible with our objective of the study, the data has been processed and for final analysis, we calculated the mean values of all the questions under each four groups these mean values were used for the final regression analysis if the dependent variable Financial_Inclusion consist 10 questions we have calculated the mean value of ten questions to derive the combined value of Financial_Inclusion.

3.3 Model

The study has one dependent variable and two independent variables. To determine the impact of Fintech on financial inclusion, we developed the following model:

$$\text{Financial_Inclusion} = \alpha_0 + \beta_1 \text{Fintech_Access} + \beta_2 \text{Fintech_Usage} + \varepsilon_1 \text{ Where,}$$

- Financial_Inclusion is the dependent variable and Fintech_Access and Fintech_Usage are independent variables.
- α_0 and β_0 are the intercept.
- β_1, β_2 are the coefficients for the independent variables.
- ε_1 and ε_2 are the error term.

The following hypothesis has been framed to fulfill the objective.

- **Null Hypothesis (H01):** There is no significant impact of Fintech_Access on Financial Inclusion.
- **Null Hypothesis (H02):** There is no significant impact of Fintech_Usage on Financial Inclusion.

4. DATA ANALYSIS & INTERPRETATIONS

4.1 Demographic profile of respondent from the database

Table No. 1: Demographic Profile

Respondent Demographics	Frequency	Percentage
Gender (N=3000)		
Female	1382	46.1
Male	1618	53.9
Education		
Primary education	1619	54
Secondary education	1063	35.4
Territory Education or more	307	10.2
Don't know	1	.0
Refused to answer	10	.3
Employment		
Employed	1669	55.6
Unemployed	1331	44.4
Location		
Rural	1750	58.3
Urban	1250	41.7

Source: Global Findex Database 2021, World bank.



Table 4.1 presents the demographic profile of the respondents obtained from the Global Findex Database 2021, with a total sample size of 3000 respondents. The table provides information regarding gender, education level, employment status, and location of the respondents. In terms of gender distribution, out of 3000 respondents, 1618 respondents (53.9%) are male, while 1382 respondents (46.1%) are female. This indicates a slightly higher representation of male respondents in the dataset. Regarding education level, the majority of respondents belong to the primary education category, accounting for 1619 respondents (54%). This is followed by respondents with secondary education, comprising 1063 individuals (35.4%). A smaller proportion of respondents, 307 individuals (10.2%), have tertiary education or higher. Only a very small number of respondents either did not know their education level (0%) or refused to answer the question (0.3%). In terms of employment status, 1669 respondents (55.6%) are employed, while 1331 respondents (44.4%) are unemployed. This shows that more than half of the respondents in the dataset are engaged in some form of employment. With respect to location, the majority of respondents are from rural areas, representing 1750 individuals (58.3%), while 1250 respondents (41.7%) belong to urban areas. This indicates that a larger proportion of the sample is drawn from rural regions, which is particularly relevant for analyzing financial inclusion, as rural populations are often more vulnerable to financial exclusion. Overall, the demographic profile suggests that the dataset includes respondents from diverse educational, employment, and geographical backgrounds, which helps provide a broader perspective for analyzing the relationship between fintech services and financial inclusion.

4.2 Descriptive statistics

The table below present the descriptive statistics of the variable used in the study including the other variables in the data set.

This table presents the summary statistics of the variables used in the estimations. ID stands for the number of observations i.e.; the number of individuals selected for the study which is 3000. Mean is the average of each variable in our sample; Min is the minimum value of each variable in the sample; Max is the maximum value of each variable in our sample.

Table No 2: Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
Id	3000	2999	1	3000	1500.50	866.170
Gender	3000	1	1	2	1.54	.499
Age	3000	75	15	90	36.08	14.438
Education	3000	4	1	5	1.57	.701
Employment	3000	1	1	2	1.44	.497
Location	3000	1	1	2	1.42	.493
Financial_Inclusion	3000	1.36	1.00	2.36	1.6318	.13156
Fintech_Usage	3000	2.33	1.00	3.33	1.5380	.14918
Fintech_Access	3000	2.50	.00	2.50	.9839	.54978
Valid N	3000					

Source: SPSS output

4.3 Regression Analysis

The model summary table reports the strength of the relationship between the model and the dependent variable.

Table No. 3 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.199 ^a	.040	.039	.12898
a. Predictors: (Constant), Fintech Access, Fintech Usage				
b. Dependent Variable: Financial Inclusion Access				

Source: SPSS Output

The table shows that the value of the coefficient of determination (R) is 0.199 which means the independent variables Fintech_Access and Fintech_Usage will account for 19.99% variations in the dependent variable Financial_Inclusion. The adjusted R Square gives a more precise assessment of the model's fit by considering the number and sample size. The adjusted R-squared value in this model is 0.039.

Table No. 4: Model Summary^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.055	2	1.028	61.779	.000 ^b
	Residual	49.855	2997	.017		
	Total	51.911	2999			
a. Dependent Variable: Financial Inclusion Access						
b. Predictors: (Constant), Fintech_Access, Fintech_Usage						

Source: SPSS output

The regression model's variance and significance are shown in the ANOVA (Analysis of Variance) table no 4. The regression's sum of squares in the aforementioned table is 2.055. The regression model's significance is gauged by the F-statistic. The regression model in this instance is statistically significant, as indicated by the F-statistic of 61.779. At 0.000, the significance level is lower than 0.05. As a result, the statistical significance of the regression model may be determined.

Table No. 5: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.465	.024		59.794	.000		
	Fintech Usage	.083	.016	.094	5.233	.000	.993	1.007
	Fintech Access	.040	.004	.168	9.345	.000	.993	1.007
a. Dependent Variable: Financial Inclusion								

Source: SPSS output

The above table reports the coefficient estimated for each independent variable. The unstandardized coefficient (B) is 1.465 for the constant term i.e., change in the value of dependent value while keeping independent variables constant. The one unit change in the independent variable Fintech_Usage will cause a 0.083 change in the dependent variable Financial_Inclusion (Unstandardized coefficient=0.083) keeping all other variables constant. Similarly, one unit increase in Fintech_Access will result increase in Financial_Inclusion by 0.040 units keeping another variable constant. The average degree of variance in the calculated coefficients is represented by the standard error. The model's standard errors are 0.024 for the constant term, 0.016 for Fintech_Usage, and 0.004 for Fintech_Access.

The standardized coefficient (Beta) for Fintech_Usage is 0.094 means one unit increase in SD of Fintech_Usage will increase the dependent variable by 0.094 in terms of standard deviations. Similarly, the standardized coefficient for Fintech_Access is 0.168. In this model, the computed coefficients are statistically significant since Fintech_Usage and Fintech_Access both have t-values larger than 2. The likelihood of witnessing the t-value or a more extreme result if the null hypothesis is true is represented by the significance level (Sig.). Both Fintech_Usage and Fintech_Access in this model have significance values of 0.000, which are below 0.05.

Multicollinearity, or the occurrence of substantial correlation among independent variables, is shown by the collinearity statistics. Multicollinearity is evaluated using the Variance Inflation Factor (VIF) values (higher than 1) and the Tolerance values (ranging from 0 to 1). Fintech_Usage and Fintech_Access in this model both have Tolerance levels near 1, suggesting that there isn't a serious problem with multicollinearity.

Fintech_Usage and Fintech_Access both have positive and statistically significant impacts on the dependent variable (Financial_Inclusion), according to the coefficients table.

Fintech_Access has a greater influence than Fintech_Usage, according to the standardized coefficients, which show the proportional relevance of each independent variable in explaining the dependent variable.

5. CONCLUSION

The study results reveal that FinTech Startups in India are substantially helping to improve financial inclusion in India. The major role of FinTech Startups is to provide financial services to the business sector especially those services that are not available in the traditional banking system. The quality of services, cost of services, and most importantly the variety of services of these FinTech start-ups are very good as compared to the traditional banking services. The growth and development of these FinTech start-ups are also promoting financial inclusion indirectly to the individuals and other sections of society that are out of financial services before the introduction of these



innovative FinTech Startups. On the flip side of the coin, there are some challenges also that are hampering the faster growth of these FinTech Startups but with time, the innovative mindset of these start-ups will certainly reduce the problems and promote faster growth in financial inclusion in India.

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