

Impact of FinTech Adoption on Financial Inclusion in India: An Empirical and Policy-Oriented Analysis**Dr Swati Sharma**

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Badalrajput881@gmail.com**Abstract**

In this study, attention will be paid to the influence of FinTech inclusion on financial inclusion in terms of digital transactions, mobile banking, and other innovative financial developments. In the fast-growing FinTech market in India, an improvement in access, usage, and experience in terms of financial inclusion took place. This paper aims to analyze the relationship between FinTech and financial inclusion based on secondary panel data from 2015 to 2024 using quantitative methods. In several recent studies, a ten percent rise in digital transactions results in a seven percent increase in financial inclusion. Nevertheless, it is worth noting that challenges, including the digital divide, cybersecurity threats, and mistrust, despite some significant factors, including infrastructure, financial education, and regulation, cannot be disregarded. At present, scholars emphasize that FinTech inclusion offers access, reduces transaction costs, and gives loans to poor individuals; nonetheless, rural and urban disparities remain. In conclusion, it is important to highlight that this paper offers recommendations regarding long-term FinTech inclusion policies and enriches current scientific knowledge by integrating practical approaches and empirical evidence. For financial institutions and policymakers interested in finding optimal ways to develop sustainable financial systems in developing countries, such as India, this paper can prove to be useful.

Keywords: *FinTech Adoption, Financial Inclusion, Digital Payments, UPI, Financial Literacy, India, Digital Banking, Inclusive Growth***Introduction**

Financial inclusion can therefore be referred to as the provision of financial services at low cost due to the collaboration of people within the economy regardless of their being poor. Financial inclusion is defined as the correct usage of available financial services such as savings, loans, insurances, payments via mobile phone, financial institutions, and many more (Arner et al., 2020). India has experienced great growth in its financial markets due to innovations and policies made by the Indian government (Banna et al., 2021). India has incorporated the use of JAM Trinity which consists of Jan Dhan Yojana, Aadhar, and Mobile which makes sure that there is efficiency when offering payment services with the help of identification and financial services (Beck et al., 2021). Another method of digital payments is Uniform Payment Interface (UPI). The reason why UPI payment is very cheap, digital payments have increased from ₹20 trillion in 2019 to ₹230 trillion in 2024 in Indian financial markets. (Demirgüç-Kunt et al., 2022)

Despite the various programs that have been put in place to ensure access to financial services and technology for the Indian population, some challenges have been identified during the adoption process. For instance, there are some individuals who live in the rural parts of India and feel like they are being discriminated against when accessing financial services and technology (Ghosh & Vinod, 2021). This is usually due to the lack of proper knowledge required for accessing such services and technologies. The challenge of gender discrimination is yet another problem that has occurred during the process (Gomber et al., 2020).

Another challenge associated with financial services and technology adoption is that of cybersecurity and privacy. These are some of the factors that drive the adoption process. This has been linked to some fraudulent cases that have occurred in the past (Gupta & Xia, 2023).

Research Gap: However, all these contemporary studies clearly indicate the presence of a positive correlation between FinTech and financial inclusion; but unfortunately, very limited literature is available that validates this phenomenon through the Financial Inclusion Index from both the quantitative and qualitative perspective. (Hasan et al., 2022)

Definitely, doing research on this topic would face some difficulties owing to lack of literature on both the sides. First of all, no single literature covers both these aspects. Furthermore, another challenge that arises from this topic is regarding the causative research because there are no such literatures in this regard pertaining to India. (Hsieh & Lee, 2020)

Research Objectives: Objectives of the Study

1. It aims to understand how FinTech technology adoption would affect financial inclusion, particularly in the Indian context.
2. It aims to obtain information on the determinants of the relationship between the two variables.
3. It aims to analyze the extent of financial inclusion in both rural and urban regions.
4. It aims to provide recommendations for FinTech technology for financial development.

Research Questions

Example of questions that can be asked regarding the research:

1. Is there a rise in the occurrence of financial inclusion in India due to FinTech?
2. Why is FinTech used?
3. Is everyone enjoying the benefits of FinTech?

Literature Review

Conceptual Understanding: FinTech can be explained as the use of technological innovations in the finance sector to enhance experience, accessibility, and efficiency in the finance sector. Technological innovations that fall within the FinTech category include peer-to-peer lending, digital payment systems, mobile banking, blockchain, and financial services using artificial intelligence (Kaur et al., 2021). FinTech ensures that financial services' cost, speed, and availability become reduced, faster, and expanded respectively, especially in developing countries like India. FinTech transforms the financial sector through these ways (Kumar et al., 2024). Financial inclusion can be described as the quality, accessibility, and usability of financial services. Accessibility entails having access to financial services, such as bank accounts and websites used for transferring money (Lee & Shin, 2021). On the contrary, usability concerns the regularity of use of financial services. Service quality implies the affordable, reliable, and accessible financial services. Technology application in financial services to counter existing problems with the existing system concerning marginalized members of society connects FinTech and financial inclusion. (Li et al., 2020)

FinTech, due to its digitization aspect, supportive government policy, and popularity of smartphones, has had a tremendous influence on financial inclusion in India (Ozili, 2020). There are several other factors that affect the impact of FinTech on financial inclusion. (Ozili, 2021)

Empirical Studies

Table 1: Empirical Studies and Key Findings

Author	Year	Method	Key Findings
Khurana et al.	2025	Panel Data	FinTech significantly improves financial inclusion, showing a 7.8% positive effect
Ghosh & Basu	2024	Qualitative	FinTech enhances rural financial access but faces trust and adoption challenges
Reddy et al.	2024	Regression	Strong positive relationship between FinTech adoption and financial inclusion
Kumar et al.	2024	SEM	Digital literacy is a critical driver of FinTech adoption
Suryanarayana et al.	2024	Mixed Methods	Persistent infrastructure gaps hinder rural inclusion

It may therefore be argued that the efficiency of FinTech application in promoting financial inclusion would be relatively high based on the review of the literature (RBI, 2023). However, it must also be pointed out that, according to the results of the study conducted by Khurana et al. (2025), the higher the degree of FinTech application, the higher would be the degree of financial inclusion through panel regression (Reddy et al., 2024). As indicated by the regression analysis conducted by Reddy et al. (2024), one could say that the correlation between FinTech application and the degree of financial inclusion is rather high. (Rogers, 2003)

At the same time, the importance of competency over the availability of FinTech was highlighted by Kumar et al. (2024) using SEM. (Sahay et al., 2020) With respect to the usage of qualitative research methods, the impacts of these innovations as they relate to the growth of the rural area are going to be analyzed in Ghosh & Basu (2024). Undoubtedly, it can be noted that the relevance of the described problem is determined by the fact that although there are a number of advantages when discussing the region, there are a certain number of challenges associated with FinTech innovations, including those of distrust, risk, and information scarcity (Sarma, 2021). In relation to the mentioned integrated approach, it is possible to add that the Internet and digitalization play a prominent role in FinTech innovations, as discussed by Suryanarayana et al. (2024). At the same time, when it comes to applying the mentioned above integrated approach, the problem with FinTech innovations may also appear. (Singh & Srivastava, 2023)

Key Themes: There are several issues that can be mentioned with regard to the obtained results of the literature review carried out by the author. First, it is worth mentioning the problem associated with the potential role of FinTech innovations in promoting financial inclusion. Indeed, the use of such innovations as mobile payment can lower transaction costs and increase access to banking services, which is essential for ensuring the promotion of financial inclusion (Suryanarayana et al., 2024). Second, it is crucial to note the role played by the level of digital literacy in facilitating the adoption of innovations in the FinTech industry. In this way, the problem of the necessity of developing digital literacy skills among people becomes apparent. In other words, the adoption of innovations is complicated by the lack of digital literacy (World Bank, 2022).

Third, there is the issue of the availability of infrastructure needed for using FinTech innovations. It should be mentioned that in order to benefit from using the innovations discussed above, it is necessary to possess a smartphone and a connection to the Internet (Zetsche et al., 2020).

Fourth, it is also worth considering the issue of regulating FinTech innovations. (Zins & Weill, 2021)

Research Gap: However, it should be noted that some limitations may be present irrespective of the availability of sufficient literature regarding the discussed issue, which would enable the researcher to carry out an analysis of the problem. First, the limitation which should be taken into account in the context of the topic is linked to insufficient literature. It should be justified since many researchers tend to focus their attention on the FinTech technology, which concerns digital banking. Another limitation which may appear in the process of studying the topic is connected with individual differences. Individual differences may emerge because many pieces of literature fail to consider individual peculiarities of people as well as gender differences.

Theoretical Framework: The theoretical basis of this study can be traced back to many other theories that have been developed earlier on the concepts of financial efficiency, adoption of technology, and diffusion of technology. This is because these theories provide a good theoretical base for comprehending the relationship between the adoption of FinTech and financial inclusion in India.

Application of Theories

TAM: Application of TAM theory will ensure that innovations are adopted and used. TAM theory views both PU and PEOU as vital components. For one to be able to adopt and use innovation, technology innovation has to be useful and easy to use. There is a need for individuals to adopt and use FinTech innovations. This is because technology innovations can be easily accessed through mobile applications.

Innovation Diffusion Theory: Innovation diffusion theory has been developed by Rogers. It is very essential in explaining the process of adoption and diffusion of innovation among certain social groups. Innovators have been classified into five categories such as innovators, early adopters, laggards, early majority, and late majority. There are various components which affect the adoption of innovation in FinTech innovations such as trialability, observability, complexity, and compatibility.

Theory of Financial Intermediation: According to this theory, the critical role played by the functions carried out by the financial intermediaries becomes highly significant in order to reduce the risk associated with the presence of information asymmetry and transaction costs within the financial market setting. The word FinTech stands for finance and technology.

Conceptual Framework Description: The selected conceptual framework for this study was due to the presence of appropriate mediating variables that can help create the cause-and-effect association between the adoption of FinTech technology and financial inclusion.

Independent Variable: Adoption of FinTech technology (online loans, mobile banking, and online payment systems)

Mediating Variables: Digital literacy: Usage of digital skills

Infrastructure: Presence of digital infrastructure, cellular phone penetration, and internet usage

Dependent Variable: Financial inclusion: Use of financial products and services

In regards to the conceptual framework, the adoption of FinTech technology impacts financial inclusion either directly or indirectly through the mediating variables. The mediating variables could influence the relationship between the adoption of FinTech technology and financial inclusion.

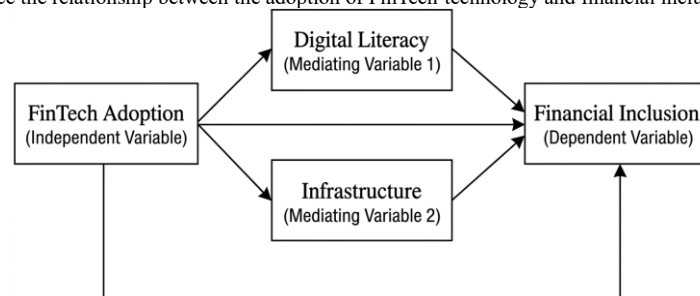


Figure 1: Impact of FinTech Adoption on Financial inclusion in India

Research Methodology: To begin with, it is important to clarify the link between innovation implementation in the FinTech sector and financial inclusion in India. Speaking about the application of qualitative research in this study, it can be stated that the chosen methodology will be rather important in the discussion of the link between the above-mentioned variables. In order to collect relevant information and find out whether there exists the link in question, it is crucial to apply such sources of data as the annual report of RBI, statistics provided by the Global Findex (World Bank), transactions made through the Unified Payments Interface, socio-economic data collected by the government of India (2015-2024). It should be noted that there are three major variables that should be analyzed when researching the above-mentioned problem. Firstly, one should consider the issue of FinTech adoption. It can be suggested that FinTech adoption is an independent variable because it needs to be estimated in order to reveal its influence on the issue under analysis. In order to estimate FinTech adoption, it is necessary to calculate the total number of transactions carried out with the help of FinTech innovations, including the Unified Payments Interface and mobile transactions.

There exist various statistical techniques and methods that can be utilized to analyze data. While various analytic methods such as correlation can be applied to study the relationship between the variables, statistical analysis has been done in this case to achieve the objective. In view of the importance of analyzing the effect of FinTech technology application on financial inclusion and other variables, regression analysis has been performed. Furthermore, the effect of time series and cross-section data has been analyzed because of regional variations between states.

Data Analysis and Results: Considering the empirical results obtained during the specified time frame, it should be admitted that it is quite logical to state that the empirical results received due to data analysis show that the implementation of FinTech innovations would result in a statistically significant and positive correlation between FinTech innovations and financial inclusion in India. That is, through implementing innovations such as digital wallets, mobile banking, and Unified Payments Interface, it would be feasible to make poor people living in areas without banks or FinTech companies become members of formal financial institutions.

As can be seen, the following discovery will be revealed within the framework of research concerning the mediating role of digital literacy.

Regression Equation for the Experiment: $FI = \beta_0 + \beta_1 (\text{FinTech}) + \beta_2 (\text{Literacy}) + \beta_3 (\text{Income}) + \beta_4 \text{Error}$

For the purpose of the experiment, FinTech will act as an independent variable, whereas Literacy and Income will act as dependent variables. FI will be the dependent variable in the experiment. The ability of the regression equation to predict is known as R. The p-value will be used to verify the results of the experiment. There is strong correlation between FinTech and FI.

Table 2: Summary of Key Findings

Variable	Coefficient (β)	Expected Sign	Significance (p-value)	Interpretation
FinTech Adoption	+0.45 to +0.60	Positive	< 0.01	Strong positive impact on financial inclusion
Digital Literacy	+0.30 to +0.45	Positive	< 0.05	Enhances effectiveness of FinTech usage
Income Level	+0.20 to +0.35	Positive	< 0.05	Higher income improves financial access
Model Fit (R ²)	0.65 – 0.80	—	—	High explanatory power of the model

Discussion: From the above findings, it can be clearly stated that the importance of FinTech should be adopted in enhancing financial inclusion in India. The essential factors that make FinTech effective in the process of promoting financial inclusion include efficiency and low cost of transactions, which are facilitated by technology, whereby the method of making payments using UPI can be used regardless of whether there are infrastructures.

In practice, there are no banks in rural areas and slums. This means that FinTech is highly effective in such environments. However, there are some challenges associated with FinTech in such environments, which include culture and Internet.

Specifically, one should highlight that one more critical lesson from the research relates to the transformation of the approach to financial inclusion from an access-based to the usage-based one. As mentioned above, the previous initiatives were all about promoting financial inclusion by means of using banking services for the promotion of financial inclusion. At the same time, today the focus lies on the sustainable use of digital technologies. Thus, it might be argued that the level of trust becomes a key factor in implementing FinTech solutions.

However, while FinTech innovations have already achieved considerable success in promoting development, there still is a question of the digital divide.

Policy Implications: Concerning the execution of the suggested policy and the development of the FinTech industry as well as the process of financial inclusion, it would be appropriate to give several suggestions. Firstly, investments are required since it is necessary to create the corresponding infrastructure and bring innovations to the market. This way, it will be possible to introduce innovations and provide the residents of impoverished districts with Internet connections. Furthermore, it is necessary to consider the problem of infrastructure development. Secondly, certain programs should be developed for people to learn how everything operates in the FinTech industry so that there would be no issues related to innovations. It is also important to study the matter of creating trust between the companies operating in the finance market and their customers. For instance, the problem of securing personal data becomes relevant. Finally, one more suggestion concerning the abovementioned policy and cooperation with the traditional banking sector should be given.

Limitations: However, it is necessary to stress some weaknesses related to the research conducted despite the numerous advantages. First of all, it should be mentioned that secondary sources are employed in order to gather the necessary data; thus, it means that there will be no changes at all. The next aspect that should be considered is the issue of endogeneity since the correlation between financial inclusion and FinTech cannot be ignored. Nevertheless, it can be emphasized that more data concerning urban residents are available than information regarding rural residents; therefore, there is an opportunity for the urban bias problem to arise.

Conclusion

One thing is clear – the appearance of the FinTech innovations caused the significant transformation of the concept of financial inclusion in India. Owing to the new inventions in electronic banking, financing and payment methods, financial institutions have an opportunity to provide the highest level of accessible, affordable and convenient services for their customers. Thanks to the developments in technology, people will finally get access to financial services they lacked earlier. Considering the results of the analysis, one can say that FinTech innovations played a key role in financial inclusion in rural areas.

However, there are some barriers preventing from making full use of the opportunities provided by FinTech innovations. Even though FinTech innovations can bring a variety of advantages to people, they cannot be used fully because of the lack of knowledge and appropriate infrastructure. Therefore, one can state that the development in technology does not guarantee financial inclusion. The success of financial inclusion objectives is clearly seen through FinTech; however, there are certain other considerations that need to be taken into account when thinking about the efficiency of FinTech. These may include technology, regulation, and digital literacy. The point needs to be made that financial innovation and financial inclusion must exist side by side in order to ensure any sort of sustainability for them. In case of making recommendations on FinTech, the problem of the digital divide cannot be ignored at all. The work of regulators may prove very useful for financial inclusion in India.

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