

# Effects of Mobile Banking towards Financial Inclusion: A Study in the District of Darjeeling

## *Abstract*

Financial inclusion ensures access to and use of financial services for an individual or a micro-enterprise. The problem of lack of access to the formal banking system is recognized as an important obstacle to financial inclusion that creates blockage not only to economic growth in general and but poverty reduction in particular for any nation. In this modern era of technology, the mobile banking seems to be the most innovative, feasible, and sustainable option to bring the financially excluded people into the formal banking system, particularly in a country like India, where there are more mobile phones than people. The paper aims to analyze the effect of mobile banking on financial inclusion in the district of Darjeeling, West Bengal. The study is basically based on the primary data, collected through a structured questionnaire. The correlation test and chi-square test have been applied to analyze the data with the help of SPSS. The study finds that most mobile banking service users are satisfied and opined that mobile banking service assists in achieving financial inclusion in Darjeeling.

**Keywords:** *Mobile Banking, Access to Financial Services, Banking System, Satisfaction, Financial Inclusion, Economic Growth, etc. (should include ascending order)*

## **1. Introduction:**

Mobile banking has emerged as a promising tool for financial inclusion in developing countries, particularly in India where a significant portion of the population remains unbanked. The proliferation of mobile phones, coupled with the widespread adoption of mobile money services, has opened up new avenues for expanding access to financial services to underserved and marginalized communities. The existing literature suggests that mobile banking has the potential to foster risk-sharing, promote welfare, and enhance saving among the previously unbanked population. Moreover, studies have shown that the adoption of mobile banking can contribute to improving the quality of growth, reducing inequality, and alleviating poverty in developing countries. In the context of India, the expansion of mobile

banking has been driven by the government's push for financial inclusion, as well as the efforts of private banks and fintech companies to leverage digital technologies to reach a wider customer base (Asfaw, 2015; Siano et al., 2020; Msweli and Mawela, 2021). However, the adoption of mobile banking in rural areas remains a challenge due to factors such as the absence of interoperability, inadequate security of financial transactions, and issues with the personalization of services. Despite these challenges, the potential benefits of mobile banking for financial inclusion in India are significant. The technology ~~has the ability to~~ can "leapfrog" the provision of formal banking services by solving the problems of weak institutional infrastructure and the cost structure of conventional banking. The present study has ~~made an attempt~~ attempted to ~~analyse~~ and analyze the effect of using mobile banking services towards the achievement of financial inclusion in the district of Darjeeling, West Bengal, India.

### **1.1 Significance of Mobile Banking in Financial Inclusion:**

Mobile banking has played a significant role in promoting financial inclusion in India, particularly in reaching the unbanked and underbanked populations. In India, mobile banking has made a substantial contribution to financial inclusion, especially in terms of reaching underbanked and unbanked people. It is more inexpensive for those with low incomes since it provides improved access to banking services, reduced transaction fees, and financial literacy materials. To promote the use of mobile banking and guarantee transaction security, the Indian government has started programs like the Reserve Bank of India (RBI) and the Pradhan Mantri Jan Dhan Yojana. This has made it possible for people, particularly women, to engage in economic activity and handle their money on their own.

### **1.2 Challenges to Mobile Banking:**

Ensuring digital literacy, addressing security issues, providing dependable internet connectivity in rural regions, and expanding services beyond banking to include loans and insurance are all essential for making the most of mobile banking services.

## **2. Literature Review:**

According to a study by Akter et al. (2021), mobile banking has a favorable effect on financial inclusion in 17 developing countries, particularly in areas without conventional banking infrastructure. However, issues with effectiveness and utilization still exist. The study, which was conducted between 2011 and 2017, emphasizes the necessity of more work to remove obstacles that prevent underbanked communities from fully utilizing mobile

banking services. The study emphasizes how crucial mobile banking is as a financial inclusion accelerator.

According to Bhutani and Kumar (2023), mobile banking is crucial for advancing financial inclusion in India. They draw attention to obstacles such as limited literacy, geographic restrictions, and unorganized financial sectors. By removing the requirement for internet access and in-person bank visits, mobile banking can help customers manage their finances on their phones. But difficulties including limited digital literacy, poor infrastructure, security worries, and legal obstacles must be resolved.

Ponnuraj and Nagabhushanam (2015) examine the difficulties and present situation of the mobile banking industry as it relates to rural India. In addition to highlighting the obstacles to broad adoption, they also draw attention to the possibilities for financial inclusion. The analysis highlights service delivery gaps and adoption-influencing factors by contrasting the banking and unbanked demands of rural areas. A comprehensive perspective on the topic is offered by the analysis.

Bharali and Borman (2018) emphasize the necessity of a strong financial system for long-term growth and the significance of mobile banking for financial inclusion. They contend that technology is essential to attaining financial inclusion and that in India, mobile banking is the best choice. However, public acceptance is crucial to mobile banking's success, especially in rural areas. The study, which focused on the rural populace in Assam's Jorhat area, discovered that although awareness exists, there are obstacles in the form of unfavorable attitudes and low service utilization.

Vadavadagi and Allagi(2014) looked at mobile banking in India with an emphasis on its potential for financial inclusion. The technologies, benefits, and difficulties are examined using secondary data and an exploratory research methodology. According to their findings, mobile banking can boost economic growth and reach unbanked communities. Still, the report identifies adoption hurdles and calls for cooperation from the government, financial institutions, and telecom firms. In order to improve adoption rates, the studies recommend raising customer knowledge, fostering trust, and resolving security and usability issues.

Geeta (2016) emphasizes how ICT is used for outreach and credit delivery in rural regions. She draws attention to the accessibility and transaction security potential of biometric technologies. She highlights the value of electronic Benefit Transfer (EBT) via ICT-based banking, which lowers transaction costs and the need for cash. Financial inclusion is also

covered in the study, with particular attention paid to obstacles including low awareness and expensive transactions. In rural locations, mobile banking stimulates economic activity.

### **3. Research Gap:**

Several relevant previous studies have been conducted by many researchers. They are presented above in the literature review. But However no such seminal research work has not been done in the usage of mobile banking towards the achievement of financial inclusion in the district of Darjeeling, West Bengal, India. The current study has tried to explore this untouched area.

### **4. Statement of Problem:**

In the present age of technology, the Indian financial system is trying to be equipped with modern technologies in all round respects to achieve the national objective of the digital India. The banking sector is not lagged behind in this race at the technological era. It is also investing huge amounts of funds to provide all possible comfort and convenience to its customers by providing mobile banking so that they do not need to wait in long queues in the bank to complete a transaction. This mobile banking is a kind of revolution in the banking digitization process. The research endeavors to study the effect of mobile banking services provided by banks on financial inclusion.

### **5. Scope of the Study:**

The present study has tried to highlight the reasons for the adoption of the mobile banking service provided by banks. The research also attempts to study the customers satisfaction with mobile banking services. Finally, the paper has analyzed the effect of mobile banking towards the financial banking from the point of view of the respondents at the ground level in the district of Darjeeling.

### **6. Objective of the Study:**

The objective of the study is to analyze the effect of mobile banking towards financial inclusion in the district of Darjeeling, West Bengal.

### **7. Research Methodology:**

The present research work is exploratory and quantitative in nature. The study has been developed with the help of primary and secondary data. The primary data have been collected from respondents through field surveys with the help of circulating a structured

questionnaire. The questionnaire has been framed after studying various related past research works. The secondary data have been collected from various research articles, papers, journals, and websites. Purposive and convenience sampling techniques have been used to select the respondents for interviewing the questionnaire. The survey has been conducted in the district of Darjeeling, West Bengal, India from the month of November 2024. Finally, 130 respondents have accurately answered to the questionnaire in the survey. Various tables, percentages, and various statistical tools like correlation test and chi-square test have been applied in the study to analyze the primary data. The primary data have been analyzed with the help of the statistical package SPSS (version-26) to reach a reasonable inference.

### 8. Research Hypothesis:

Three sets of hypotheses have been framed for the present research work. These are as below.

H1: There is no significant relation between the reason for the adoption of mobile banking and the satisfaction of the users of mobile banking.

H2: There is no significant relation between features of mobile banking that satisfy the customer and the satisfaction of the users of mobile banking.

H3: There is no significant difference between the satisfaction of the users of mobile banking and mobile banking assists in financial inclusion.

### 9. Data Analysis and Discussion:

The primary data collected from the field survey have been analyzed below in various sub-sections like demographic aspects and technical aspects and hypothesis testing to evaluate the impact of mobile banking usage towards the achievement of the financial inclusion in the study area.

#### 9.1 Demographics of the Respondents Aspect:

##### 9.1.1 Gender of the Respondents:

**Table-1**

Gender		
	Frequency	Percent
Male	78	60
Female	52	40
Total	130	100

(Source: Primary Data)

**Observation:** From the above table, it is revealed that 60% of the surveyed respondents are male whereas 40% of the respondents are female in the study.

### 9.1.2 Age of the Respondents:

**Table-2**

Age(in Years)		
Delete Yrs from below	Frequency	Percent
Below 20 Yrs	26	20
20 Yrs-30 Yrs	39	30
31 Yrs-40 Yrs	52	40
41 Yrs-50 Yrs	13	10
Above 50 Yrs	0	0
Total	130	100

(Source: Primary Data)

**Observation:** From the above table, it has been seen that 40% of the surveyed respondents are in the age group of 31 yrs to 40 yrs whereas 10% of the respondents belong into the age range between 41 yrs years to 50 yrs years.

yrs → years

### 9.1.3 Occupation of the Respondents:

**Table-3**

Occupation		
	Frequency	Percent
Private Job	26	20
Govt. Job	39	30
Business	39	30
Student	26	20
Total	130	100

(Source: Primary Data)

**Observation:** From the above table, it has been found that 30% of the surveyed respondents are in Government jobs or having their own businesses whereas 20% of the respondents are in private jobs or students.

### 9.1.4 Educational Qualification of the Respondents:

**Table-4**

Education		
	Frequency	Percent
Illiterate	0	0
Primary	39	30

MP	39	30
HS	26	20
UG	13	10
PG	13	10
Total	130	100

(Source: Primary Data)

**Observation:** From the above table, it is observed that 30% of the surveyed respondents studied up to primary school and Madhyamik, whereas 10% of the respondents have undergraduate and postgraduate qualifications.

### 9.1.5 Monthly Income of the Respondents:

**Table-5**

Monthly Income (in Rs.)		
Delete Rs. from below	Frequency	Percent
Below Rs. 15000	13	10
Rs.15001- Rs.30000	52	40
Rs.30001- Rs.45000	39	30
Above Rs. 45000	26	20
Total	130	100

(Source: Primary Data)

**Observation:** From the above table, it is seen that 40% of the surveyed respondent's monthly income level ranges between Rs. 15001 to Rs. 30000 whereas 10% of the respondent's monthly income level is below Rs. 15000.

## 9.2 Technical Aspect: Characteristics

### 9.2.1 Reasons for Adopting Mobile Banking Services:

**Table-6**

Reasons for Adopting Mobile Banking Services		
	Frequency	Percent
Cash Cash Back	23	17.69
Immediate Fund Transfer	35	26.92
Lack of Time to Visit Bank Branch	30	23.08
Time-Saving	14	10.77
Anytime Anywhere Banking	16	12.31
Cost Effective	9	6.92
Ease of Use	3	2.31
Total	130	100.00

(Source: Primary Data)

**Observation:** From the above table, it is observed that 26.92% of the surveyed respondents consider immediate fund transfer, 17.69% of the respondents consider cash back



back facility, and 23.08% of the respondents consider a lack of time to visit the bank branch. 10.77% of the respondents consider time savings, 12.31% consider anytime anywhere banking facility, 6.92% of the respondents consider cost-effectiveness, and 2.31% of the respondents consider ease of use as their own reason for adopting mobile banking service provided by banks.

### 9.2.2 Preferred Mobile Banking Services:

**Table- 7**

Most Preferred Mobile Banking Services		
	Frequency	Percent
PhonePe	52	40
GooglePay	26	20
Paytm	39	30
Mobikwik	13	10
True Caller	0	0
Whatsapp	0	0
Total	130	100

(Source: Primary Data)

**Observation:** From the above table, it is found that 40% of the surveyed respondents prefer to use phonepe, 30% of the respondents prefer to use paytm, 20% of the respondents prefer to use googlepay, 10% of the respondents prefer to use mobikwik whereas no respondent prefers to use whatsapp and true caller for mobile banking service.

Use the exact brand name of the services

### 9.2.3 Uses of Mobile Banking Facility:

**Table-8**

Uses of Mobile Banking Facility		
	Frequency	Percent
Recharge	125	96.15
Pay Bills	130	100.00
Loan Related	40	30.77
Insurance Related	50	38.46
Wealth Related	60	46.15
Travel Related	80	61.54
Transit & Food Related	60	46.15
Purchases	10	7.69
Total	130	100.00

(Source: Primary Data)

**Observation:** The above table reveals a multi-response situation for a respondent. It shows that 100% of the surveyed respondents use the mobile banking facility for bills payments,



followed by recharge with 96.15% of respondents. 30.77% of respondents use the mobile banking service for loan-related issues, 38.46% of respondents use it for insurance-related issues, 46.15% of respondents use it for wealth-related issues, 61.54% of respondents use it for travel-related issues, 46.15% of respondents use it for transit & food-related issues and of respondents use for 7.69% of respondents use mobile banking service for purchasing purposes.

#### 9.2.4 Features of Mobile Banking that Satisfy the Customer:

**Table-9**

Features of Mobile Banking that Satisfy the Customer		
	Frequency	Percent
Easy to Understand	24	18.5
Easy to Access	57	43.8
Faster Service	36	27.7
Safe and Secure Transactions	2	1.5
Refund Policy for False Transaction	5	3.8
Low Charges	6	4.6
Total	130	100

(Source: Primary Data)

**Observation:** From the above table, it is exhibited that 18.5% of the surveyed respondents consider it easy to understand, 43.8% of the respondents consider it easy to access, 27.7% of the respondents consider faster service, 1.5% of respondents consider safe & secure transactions, 3.8% of the respondents consider refund policy for false transaction and 4.6% of respondents consider low charges as features of mobile banking that satisfy the customer.

#### 9.2.5 Satisfaction of Users of Mobile Banking:

**Table-10**

Satisfaction of Users of Mobile Banking		
	Frequency	Percent
Yes	91	70
Neutral	13	10
No	26	20
Total	130	100

(Source: Primary Data)

**Observation:** The above table shows that 70% of the surveyed respondents are satisfied with using mobile banking services, whereas 20% are not satisfied with the same.

#### 9.2.6 Mobile Banking Assists in Financial Inclusion:

**Table-11**

Mobile Banking Assists in Financial Inclusion		
	Frequency	Percent
Yes	78	60
Neutral	26	20
No	26	20
Total	130	100

(Source: Primary Data)

**Observation:** The above table presents that 60% of the surveyed respondents are with the opinion that the mobile banking service assists in the achievement of financial inclusion through the banking sector in India whereas 20% of the respondents do not agree with the above opinion.

### 9.3 Hypothesis Testing Analysis through Correlation Test:

**9.3.1 Correlation Test:** A correlation test is used to denote the degree of association between variables. Suppose two variables are so related that variations in the magnitude of one variable tend to be accompanied by variations in the magnitude of the other variable. In that case, they are said to be correlated. In the study, a correlation test between (i) Reasons for Adopting Mobile Banking and the Satisfaction of Users of Mobile Banking and (ii) Features of Mobile Banking that Satisfy the Customer and Satisfaction of Users of Mobile Banking has been done.

Do not use 4<sup>th</sup> subheadings.

#### 9.3.1.1 Hypothesis-1

H<sub>0</sub>: There is no significant relation between the reason for the adoption of mobile banking and the satisfaction of the users of mobile banking.

H<sub>1</sub>: There is a significant relation between the reason for the adoption of mobile banking and the satisfaction of the users of mobile banking.

**Table-12**

Correlations			
		Reasons for Adopting Mobile Banking	Satisfaction of Users of Mobile Banking
Reasons for Adopting Mobile Banking	Pearson Correlation	1	0.711
	Sig. (2-tailed)		0.000
	N	130	130

Satisfaction of Users of Mobile Banking	Pearson Correlation	0.711	1
	Sig. (2-tailed)	0	
	N	130	130

(Source: Compiled by researcher)

**Interpretation:** In the above table, the bivariate correlation test has been applied to test the correlation between the reasons for adopting mobile banking and the satisfaction of users of mobile banking. In the above correlation matrix, Pearson's correlation coefficient is 0.711, and the P-value for the two-tailed test is 0.000 which is less than 0.01 at the 1% level of significance. Hence, it can be concluded that there is a strong and positive correlation between the reasons for adopting mobile banking and the satisfaction of users of mobile banking services.

### 9.3.1.2 Hypothesis-2

H<sub>0</sub>: There is no significant relation between features of mobile banking that satisfy the customer and the satisfaction of the users of mobile banking.

H<sub>1</sub>: There is a significant relation between features of mobile banking that satisfy the customer and the satisfaction of the users of mobile banking.

**Table-13**

Correlations			
		Features of Mobile Banking that Satisfy the Customer	Satisfaction of Users of Mobile Banking
Features of Mobile Banking that Satisfy the Customer	Pearson Correlation	1	0.465
	Sig. (2-tailed)		0.000
	N	130	130
Satisfaction of Users of Mobile Banking	Pearson Correlation	0.465	1
	Sig. (2-tailed)	0	
	N	130	130

(Source: Compiled by researcher)

**Interpretation:** In the above table, the bivariate correlation test has been applied to test the correlation between the features of mobile banking that satisfy the customer and the satisfaction of the user of mobile banking. In the above correlation matrix, Pearson's correlation coefficient is 0.465, and the P-value for the two-tailed test is 0.000 which is less than 0.01 at the 1% level of significance. Hence, it can be concluded that there is a positive

correlation between the features of mobile banking that satisfy the customer and the satisfaction of users of mobile banking services.

**I do not find any significance in the below Chi-Square Test within Correlation Test**

**9.3.2 Chi-Square test:** The Chi-Square test has been applied in the present study to test the hypothesis that two categorical variables are independent to each other. In other words, to test whether there is any difference in the average of the two variables. In the current study, a chi-square test has been conducted between two variables namely satisfaction of users of mobile banking and mobile banking assists in financial inclusion. It has been done to check whether there is any significant difference between the average of satisfaction of user of mobile banking and mobile banking assists in financial inclusion.

### 9.3.2.1 Hypothesis-3

$H_0$ : There is no significant difference between satisfaction of the users of mobile banking and mobile banking assists in financial inclusion.

$H_1$ : There is a significant difference between satisfaction of the users of mobile banking and mobile banking assists in financial inclusion.

**Table-14**

Crosstabulation between Satisfaction of User of Mobile Banking and Mobile Banking Assists in Financial Inclusion						
			Mobile Banking Assists in Financial Inclusion			Total
			Yes	Neutral	No	
Satisfaction of User of Mobile Banking	Yes	Number	65	26	0	91
		% of Total	50.00%	20.00%	0.00%	70.00%
	Neutral	Number	13	0	0	13
		% of Total	10.00%	0.00%	0.00%	10.00%
	No	Number	0	0	26	26
		% of Total	0.00%	0.00%	20.00%	20.00%
Total	Number	78	26	26	130	
	% of Total	60.00%	20.00%	20.00%	100.00%	

(Source: Compiled by researcher)

**Table-15**

Chi-Square Tests			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	136.19	4	0.000
Likelihood Ratio	138.185	4	0.000

Linear-by-Linear Association	77.524	1	0.000
No of Valid Cases	130		

(Source: Compiled by researcher)

**Interpretation:** The above table reveals that the Pearson Chi-Square or P value of the test at the 1% level of significance is 0.000 which is less than 0.01. So, the null hypothesis is rejected and the alternative hypothesis is accepted. Therefore, it can be concluded that there is a significant difference between the satisfaction of the users of mobile banking and mobile banking assists in financial inclusion.

The cross-tabulation reveals that 70% of respondents are satisfied with the usage of mobile banking services and 60% of respondents agreed that the usage of mobile banking assists in financial inclusion.

### 10. Findings of the Study:

The findings from the above discussion have been represented below.

Use the "0" left alignment

1. Majority Most of the surveyed respondents are male.
2. Majority Most of the respondents are of the middle age group between 30 yrs to 40 yrs.
3. Most of the respondents are in business and govt. jobs.
4. Most of the respondents have the highest qualification is in Primary and Madhyamik education.
5. Majority Most of the respondents have a monthly income ranging from Rs. 15000 to Rs. 30000
6. 'Immediate fund transfer' has been considered as the most preferred reason for adopting mobile banking services.
7. 'PhonePe' mobile banking service has been mostly used by the respondents.
8. Most of the respondents use the mobile banking service for Payment of bills
9. The 'Easy to access' feature has been considered as the utmost feature for the satisfaction of using mobile banking services by most of the respondents.
10. Majority Most of the respondents are satisfied with using mobile banking services.
11. Most of the respondents agree with the view that more use of mobile banking services helps in more achievement in the financial inclusion through the banking sector in India.

12. There is a significant relation between the reason for the adoption of mobile banking and the satisfaction of the users of mobile banking.
13. There is a significant relation between features of mobile banking that satisfy the customer and the satisfaction of the users of mobile banking.
14. There is a significant difference between the satisfaction of the users of mobile banking and mobile banking assists in financial inclusion.

### 11. Suggestions for the Study:

The Indian banking sector has a vital role in the achievement of the financial inclusion in India.

Use the "0" left alignment

1. Banks must organize a more awareness programme in the branch about the mobile banking service for all the customers specially for old age customers.
2. Banks must make the users of mobile banking services aware of every new function incorporated in the mobile banking.
3. Banks must give memo training about the use of that new function. The bank must ensure the customers about the safety and security about of the transaction made through mobile banking service.
4. Banks must offer some incentive facility to the users of the mobile banking service so that more customers can engage them to complete transactions through mobile banking facility facilities.

### 12. Conclusion:

The study shows that the users of mobile banking are satisfied with the service facilities. it will encourage more prospective users to use mobile banking services. It will ultimately assist the banks to achieve more financial inclusion in India. But However the users of mobile banking are younger customers than old age customers. Old-age people should be encouraged and trained about the effectiveness and facility facilities available under mobile banking services. In, conclusion, it can be said that the more use of mobile banking services will lead to more achievement of financial inclusion in India through the Indian Banking sector.

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