

ROLE OF MOBILE BANKING IN FINANCIAL INCLUSION

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ABSTRACT

There is increased emphasis on financial inclusion from the government, regulators, NGOs, and individuals. Proponents of development finance like Md. Yunus are going to extent of making it as a fundamental right of an individual. But, there is demand as well as supply side constraints to it . A large section of the society is deprived of financial services like credit, loan, insurance, financial education, remittances, pension etc. So does it mean that the poor are not availing the financial services? The answer to it is no. They have got their own mechanism to do so, they do it in multiple ways involving informal sources (collins et al, 2009). Here, informal methods serve the purpose, but it is much more costly and has various ill effects. In this situation mobile banking seems to a feasible solution. It has got benefits for multiple stakeholders. At the macro level use of mobile banking will increase Gross Domestic Product. At the same time there are limitations or dangers of mobile banking at mcro level. It could lead to increased instances of money laundering and may be in criminal activities. Whereas, at micro level it will benefit the organization as well as consumers in terms of addressing constriants being faced by them The objective of this paper is to highlight the importance of mobile banking in bringing about financial inclusion in a developing country like India. Although we will emphasize its relevance in the Indian context, it should be applicable to the poor in general residing in similar conditions elsewhere. To make it happen we propose a tripartite institutional arrangement involving one of the largest network in the country i.e. India Post.

Keywords: Mobile Banking, Financial Inclusion, India.

INTRODUCTION

There is increased emphasis on financial inclusion from the Government, regulators, banks, NGOs and individuals. Proponents of development finance like Md. Yunus are going to the extent of making it as a fundamental right of an individual. Customers are unaware about functioning of financial system at large and specifically products available to them. Even if they are aware, accessing them is costlier because of higher transaction costs involving information cost, travelling cost, and opportunity cost. Many a time even products don't match their needs, forcing them to not join the system. Apart from this, majority of them are engaged in an occupation where regular income is not join the

system is not guaranteed; thus making the existing financial system unsuitable to address their needs / concerns. In addition, behavioral constraints like fear of the system, lack of trust etc. comes into picture to work as a hindrance to creating an inclusive financial environment. Overall increase in the teledensity and specifically increasing trends towards wireless connection in rural as well as urban areas provides the required infrastructure for mobile banking.

Financial inclusion is delivery of banking services at an affordable cost to the vast section of disadvantaged and low income groups. Unrestrained access to public goods and service is the sine qua non of an open and efficient society. As banking services are in the

nature of public good, it is essential that availability of banking and payment services to the entire population without discrimination is the prime objective of the public policy [Leeladhar, Governor, RBI]. At present, many peoples in remote areas and rural areas have not appropriate banking services in India. Therefore, the government of India and the Reserve Bank of India encouraging to commercial and cooperative banks to provide banking facilities to those peoples through modern technology i.e internet banking, ATM, smart cards, mobile banking and business correspondent

Statement of the Problem:

A Significant portion of the global population remains unbanked or underbanked, limiting their ability to save, invest, and access credit. Traditional banking systems often require physical presence, documentation, and financial stability barriers that exclude millions of individuals, particularly in developing economies. The introduction of mobile banking has revolutionized financial accessibility by providing an alternative to traditional banking through mobile phones. Access and usage disparities: while mobile banking services are widely available, not all individuals can utilize them due to factors such as lack of digital literacy, unreliable internet connectivity or unaffordable mobile data plans. Security and Fraud risks: Mobile banking platforms are vulnerable to cyber threats, phishing scams and identity theft, which deter some users from adopting these services. Regulatory and Policy Challenges: The regulatory environment varies across regions, with some government imposing restrictions that hinder the seamless expansion of mobile banking services. Economic and Social Impact: While mobile banking enhances access to whether it leads to long-term financial stability and economic growth for marginalized groups.

Review of Literature:

Chakrabarty(2011): In order to enhance efficiency of mobile banking system Reserve Bank of India has introduced the Inter Bank

Mobile Payment system (IMPS) which provides a centralized interoperable infrastructure and enables money transfer between customer accounts in different banks through mobile phones in real time. This service works on the existing National Financial Switch(NFS) Interbank ATM transaction switching infrastructure and message format- and hence easy for banks to adopt.

Dolan(2009): Customer churn is one of the significant challenges for mobile network operators and mobile money services help in reducing it. With the interoperability issue of mobile as well banking services, its impact would be interesting to see. Based on the life cycle of mobile banking in the system, role of different stakeholders will vary including competing players, infrastructure providers, and regulators.

Lin(2011): also talked about variables affecting of mobile banking as 1) Innovation attributes comprising perceived relative advantage, perceived ease of use, and perceived compatibility and 2) Knowledge based trust comprising perceived competence, perceived benevolence, and perceived integrity . They ultimately form attitude towards adoption of mobile banking which results in behavioral intention to adopt mobile banking.

Zhou(2011): Mobile banking frees users from spatial and temporal limitations, and switching cost is low. But, adoption of it get affected by trust, which may be at a personal level, organizational level, and third party label like Verisign, Informational quality, system quality, structural assurance, and trust propensity helps in forming initial trust which facilitates perceived usefulness ultimately leading to usage intention. Among the factors affecting initial trust, structural assurance and information quality have relatively large effects.

Kleijnen et al. (2007): talked about value of mobile service in its intention to and cognitive effort) from benefits (time convenience, user control and service compatibility) with moderating role played by time consciousness

ultimately forming intention to use the technology.

Limitations of the Study:

As in most empirical research, this study has several limitations which actually create scope for future researches

Despite effort to provide a comprehensive analysis, the study has some inherent research limitations: Geographical constraints; the study may focus on specific regions or countries limiting its global applicability. Sample size an Representation; The research findings depends on the sample population, which may not fully represent all mobile banking users and non-users. Short-term Focus; The study may analyze current trends but might not capture the long-term impact of mobile banking on financial inclusion.. Behavioral and Psychological Barriers; user perception and behavioral tendencies affect mobile banking adoption and this study is constrained by: Resistance to Change; Some individuals are reluctant to shift from traditional banking methods due to fear of technology or unfamiliarity with digital platforms. Perceived complexity of mobile banking; Some potential users find mobile banking applications too complicated, leading to underutilization. Fear of Financial loss; Users who have experienced or heard of mobile banking fraud tend to avoid digital transaction altogether. Limited Integration with Traditional Banking System; Mobile banking is not fully integrated with traditional financial institutions; creating challenges for seamless financial inclusion; Interoperability Issues; Many mobile banking platforms are not interconnected, making it difficult to transfer money across different banks and service providers. Lack of access to format credit; Many mobile banking users cannot access traditional banking loans due to the absence of a comprehensive. Reliance on cash Transactions; Despite mobile banking services, cash transactions remain dominant in many economies, limiting digital financial inclusion.

Research Gap & Objectives of the Study:

Inconsistent impact of mobile banking on financial inclusion ; while numerous studies have documented the positive impact of mobile banking on financial inclusion, there is inconsistency in how this impact is measured across different regions. The existing literature lacks a standardized framework for assessing the success of mobile banking in reaching the unbanked population. The effectiveness of digital literacy programs in promoting mobile banking adoption. The role of cultural and behavioral factors in influencing mobile banking usage.

Objectives of the Study:

- To examine the impact of mobile banking on financial access
- To assess the adoption rate of mobile banking among different demographics
- To identify the barriers to mobile banking adoption.
- To evaluate the role of mobile banking in enhancing savings and credit access.
- To analyze the impact of mobile banking on small businesses and entrepreneurship.
- To explore the role of government policies and regulations in mobile banking expansion

Research Methodology:

The proposed dissertation has taken into consideration the secondary data available in several research articles prevalent in the different reputed national and international journals downloaded from EBSCO host and Emerald and also collect the primary data from various people. It also incorporates the necessary information inputs from the statutory and non statutory disclosure provided by the banks in the public domain in the form of their quarterly, half early and annual reports. A part from that, data base from official website of Reserve Bank of India is also used. Analysis of reports from financial institutions, government agencies, and international organizations on

mobile banking. Review of existing literature on mobile banking adoption, security issues, and regulatory policies. Examination of mobile banking statistics, transaction volumes and trends from banking institutions and mobile service providers.

Significance of the Study:

Mobile banking plays a vital role in empowering individuals and households, especially in low-income and rural communities. Enhances access to financial services; By analyzing mobile bankings reach the study providers insights into how mobile financial services help individuals open accounts, save money and access credit without visiting physical bank branches. Promotes Financial Literacy; The study highlights how mobile banking applications educate users on financial management, budgeting, and responsible borrowing, contributing to better financial decision-making. Encourages savings and investment ; Mobile banking enables users to save money conveniently, leading to improves financial security and long-term investment opportunities. Facilitates secure and convenient transactions; The study examines how mobile banking reduces reliance on cash transactions, improving security and efficiency for individuals. Empowers women and marginalized groups; Many women and marginalized communities lack access to traditional banking services. This research explores how mobile banking bridges this gap, fostering financial independence.

Hypothesis:

The research is based on the following hypothesis:

H1: Mobile banking usage does not significantly differ between urban and rural populations.

H2: Mobile banking encourages financial savings by providing convenient.

Results and Findings:

Part :1 Doctrinal research

Based on the research methodology, data collection and statistical analysis conducted over three months, the following.

With more than one and half lakhs of branches , post offices are hard to ignore by Banks when it comes to fulfilling the mandate of financial inclusion. It also makes economic sense, because it saves the cost of setting up branches in the respective area as well as provides some localized knowledge in built in the system. Localized knowledge will help in mitigating the behavioral issues in adoption of mobile banking.

In order to facilitate financial inclusion we propose a tripartite arrangement between banks, post office and mobile operators/business correspondence (BC) as under.

The arrangement will be such that post offices will be divided on regional basis and bidding would be done by interested banks for that particular region.

One might argue that this responsibility should be given to Lead Banks of respective region as they are already working on similar lines and have established their foot hold in their respective areas. The lead banks are based on social responsibility assigned to the banks having maximum network in the area under consideration. Our idea is to make this arrangement on commercial basis, and linking it with social responsibility might dilute it. Moreover the impact of Lead Bank scheme is not so encouraging. A Report of the High Level Committee to Review Lead Bank scheme(Thorat 2009) has identified several weaknesses in the system which has adversely affected its working. In view of this, we propose to have a separate arrangement based on commercial interest.

Since post offices have reach with readymade infrastructure, it will save a lot of cost for banks and provide a brick and mortar retail outlet to serve the customers. After getting the bid of a particular region, the banks concerned would have one employee working in the post office. The bank would also provide training to existing post office employees and apprise them about working of financial system especially focused on financial inclusion. To supplement it, mobile

banking system with the help of mobile operators NBFCs would be working in the same area or some would be integrated.

Several actions are necessary to accelerate the financial inclusion through m-banking while at the same time ensuring customer protection. Many of these action fall in the policy and regulatory space.

- Building customer awareness and informing the public on use of M-banking modes is required.
- The RBI and commercial banks should plan a coordinated campaign in partnership with trainers and professional to educate customer.
- Technology used for mobile banking must be secure and should ensure confidentiality integrity, authenticity and non-repudiability i.e. authentication by ID and MPIN
- Customer should regularly check transaction history details and statements to make sure that there are no unauthorized transaction. Change passwords or PIN and avoid using easy-to-guess password.
- Mobile number portability programme should implement immediately it will be led to use their mobile phone as m-banking device.
- Bank should develop m-banking software in regional language and should use most commonly used phrases, name and shortcuts in the software.
- Telecommunication department and cellular service providers should extend their network coverage in rural and remote areas to facilitate them communication and m-banking also. The government should provide conditional financial

support to cellular service providers to extend such network in rural areas.

- Bank should enhance their refund facilities concerns to if wrong transactions made by customers by mistake or if any.
- Bank can offer EMI or rental based mobile phone handsets to poorer peoples with tie up with mobile handset company. It may gives access to them via m-banking services

Case study& Statistical data:

Reserve Bank of India vs Airtel Payment Bank (2018)

RBI imposed a fine on Airtel Payment Bank and ordered it to refund affected customers. The ruling emphasized the importance of explicit consent and customer choice in mobile banking services. The case reinforced consumer protection laws and set a precedent for financial data security and transparency in mobile banking.

MTN Uganda vs Bank of Uganda (2020):

The court ruled that mobile money services must comply with banking regulations, as they handle large volumes of financial transactions. Following this case, Uganda passed the National Payment System Act (2020), which regulates mobile money services under the Central Bank. The ruling established a legal framework for mobile banking, ensuring consumer protection and regulatory compliance.

T-Mobile USA vs Consumer Financial Protection Bureau (2020):

The court ruled that T-mobile had to enhances its fraud prevention measures and compensate affected customers. The decision reinforced the importances of cybersecurity in mobile banking. It led to stricter regulatory oversight of telecom companies offering financial services.

Kenya's M-Pesa Regulation case (2015):

The Kenyan courts ruled that while M-Pesa played a crucial role in financial inclusion

regulatory frameworks should ensure fair competition. The among mobile money services to promote inclusivity and prevent monopolistic practices. The decision strengthened consumer

protection and enhanced competition in the mobile banking sector.

Part 2 Non Doctrinal Research

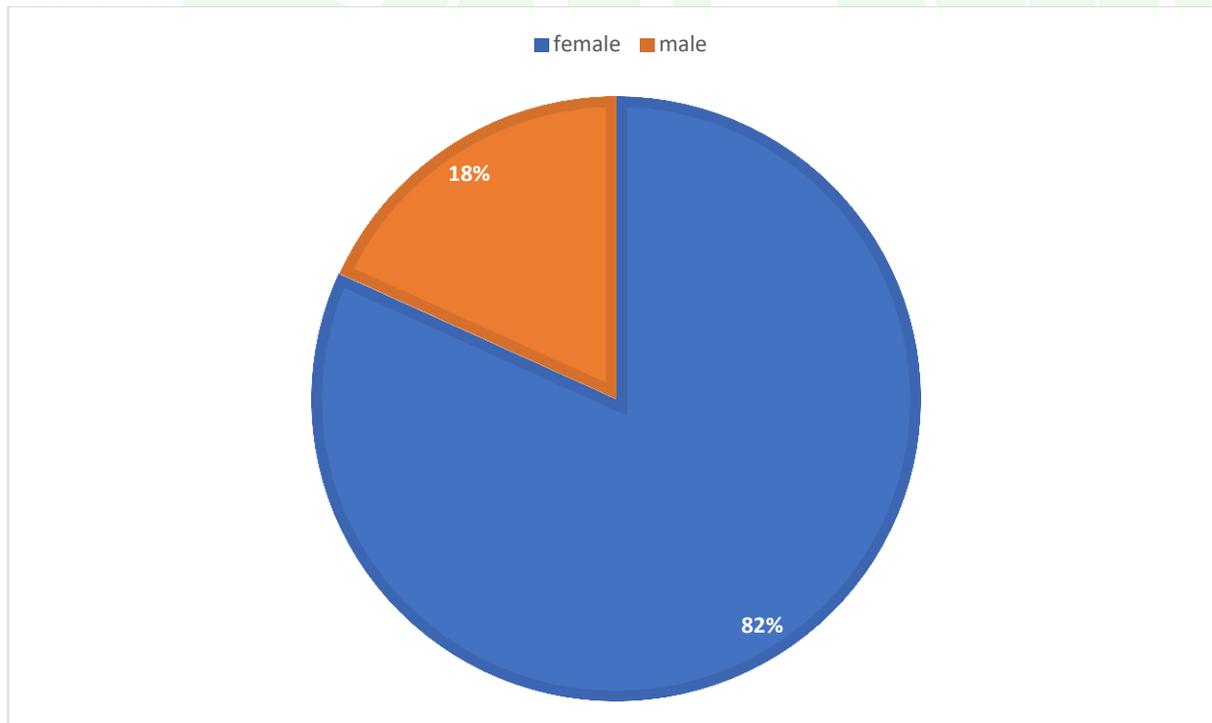
Table no- 1 : Mobile Banking improves financial literacy and awareness among underserved communities.

Indicators	Yes	No	Total
Male	14 (25.45)	3 (3.63)	16 (29.09)
Female	31 (56.36)	7 (12.72)	38 (69.09)
Total	45 (81.81)	10 (18.18)	55 (99.99)

Source: Primary source

55 Responses

Pie chart no 1 exhibits



From the Table shows that, given data we infer that 29.09 percentage are male and 69.09 percentage are female. In the table the mobile banking improves financial literacy and awareness among underserved communities. Overall 81.81 percentage of respondents reacts Yes while 18.18 percentage of respondents reacts no.

The male respondent 25.45 percentage reacts yes and 3.63 percentage reacts no. the female respondents 56.36 percentage reacts yes and 12.72 percentage no. From these percentage, we can conclude that while a significant portion of both females and males believes that these are Mobile banking improves financial literacy and awareness to males.

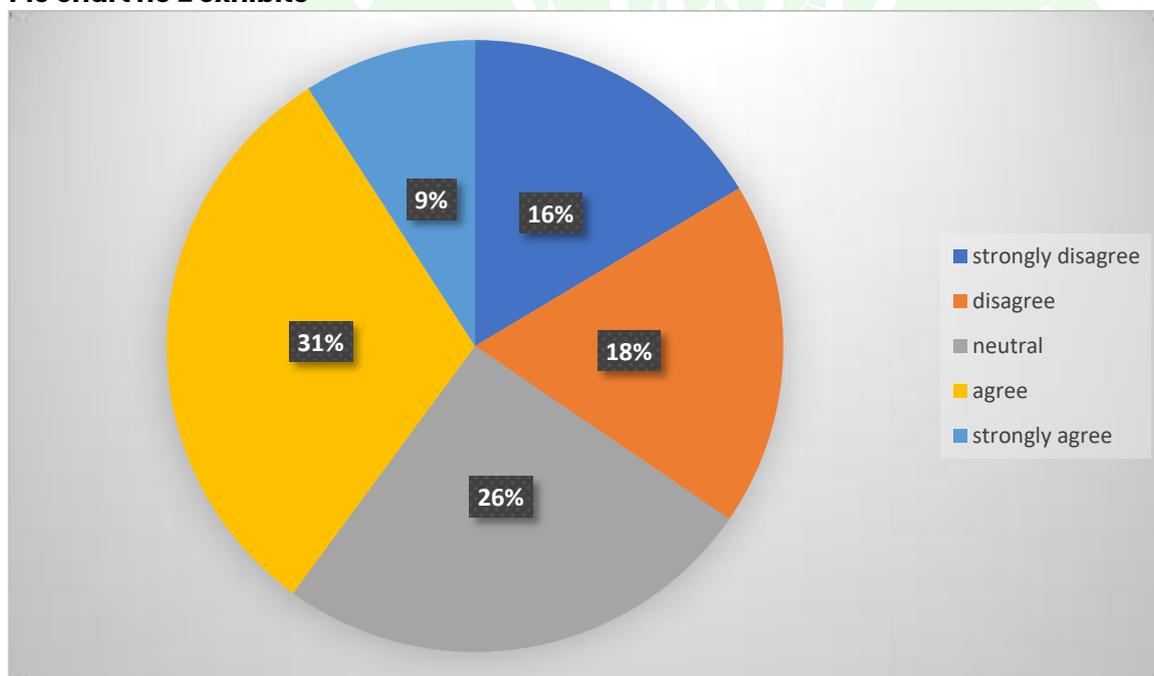
Table no 2: use of mobile banking significantly reduces financial barriers in rural and remote areas.

Indicators	Strongly Agree	Agree	Neutral	Strongly Disagree	Disagree	Total
Male	3 (5.45)	4 (7.27)	1 (1.81)	2 (3.63)	6 (10.9)	16 (29.09)
Female	2 (3.63)	13 (23.63)	13 (23.63)	7 (11.90)	4 (7.27)	38 (69.09)
Total	5 (9.09)	17 (30.90)	14 (25.45)	9 (16.36)	10 (18.18)	55 (99.99)

Sources: Primary sources

55 Responses

Pie chart no 2 exhibits



From the table shows, that given data we infer that 29.09 percentage are male and 69.09 percentage are female. In the table present how effectively Use of mobile banking significantly reduces financial barriers in rural and remote areas overall, 22.00 percentages of respondents agree or strongly agree that these frameworks are sufficient, while 19.00 percentages disagree or strongly disagree and 14.00 percentages of respondents are neutral.

The male respondents 5.45 percentages strongly agree, 7.27 percentages agree, 1.81 percentages neutral, 3.63 percentages strongly disagree, 10.9 percentages disagree. The female respondents 3.63 percentages strongly agree, 23.63 percentages agree, 23.63 percentages neutral, 10.90 percentages strongly disagree, 7.27 percentages disagree. from these percentages , we can conclude that while a significant portion of both females and males believes that use of mobile banking significantly reduces financial barriers in rural and remotes agree a large percentages of females express positive views compared to males

Table no 3: Group benefit the most from mobile banking in terms of financial of financial inclusion

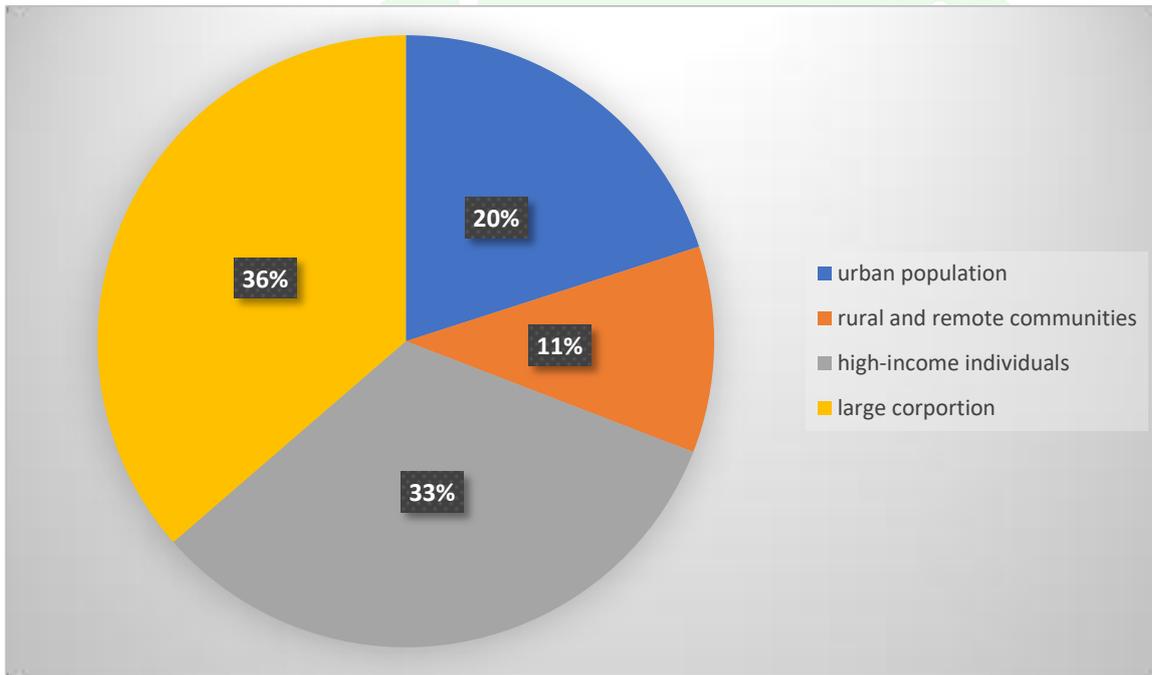
Indicators	Urban Population	Rural and remote	High-income	Large corporation	Total

		communities	individuals		
Male	2 (3.63)	3 (5.45)	5 (9.09)	6 (10.90)	16 (29.09)
Female	9 (16.36)	3 (5.45)	13 (23.63)	14 (25.45)	38 (69.09)
Total	11 (20.00)	6 (10.90)	18 (32.72)	20 (36.36)	55 (99.99)

Source: Primary source

55 Responses

Pie chart no 3 exhibits



From the table shows that given data we infer that 29.09 percentage are male and 69.09 percentage are female. In the table presents the group benefit the most from mobile banking in terms of financial inclusion. Overall, 20.00 percentage of respondents to urban population, 10.90 percentage of respondents to rural and remote communities, 32.72 percentage of respondents to high-income individuals, 36.36 percentage of respondents to large corporation.

The male respondent of urban population is 3.63 percentage, 15.45 percentage rural and remote communities, 9.09 percentage High-income individuals, 10.90 percentage Large corporation. The female respondent of urban population is 16.36, 3.63 percentage rural and remote communities, 23.63 percentage High-income individuals, 25.45 percentage Large corporation.

From these percentages, we can conclude that while a significant portion of both females and males believe that these are the measures to improve benefit of mobile banking a large percentages express positive views compared to males.

Table no 4: Mobile banking service is most commonly used for financial inclusion

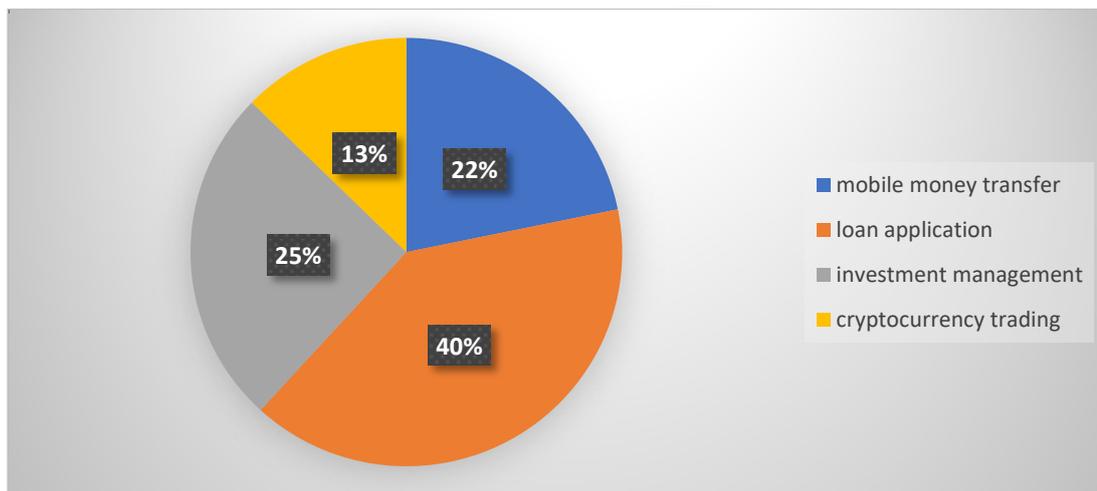
Indicators	Mobile money transfer	Loan application	Investment management	Cryptocurrency trading	Total
Male	3 (5.45)	4 (7.27)	6 (10.09)	3 (5.45)	16 (29.09)
Female	8	12	13	6	39

	(14.54)	(21.81)	(22.81)	(10.90)	(69.09)
Total	11 (20.00)	16 (29.09)	19 (34.54)	9 (16.36)	55 (99.99)

Source: Primary source

55 Responses

Pie chart no 4 exhibits



From the table shows that given data we infer that 29.09 percentage are male and 69.09 percentage are female. In the table presents the following measures to mobile banking service is most commonly used for financial inclusion. Overall, 21.8 percentage of respondent mobile money transfer , 40 percentages of respondent loan application, 25.45 respondent investment management, 12.72 percentages of respondent cryptocurrency trading.

The male respondent of mobile money transfer is 3.63 percentages, loan application is 12.72 percentages, investment management is 7.27 percentage, cryptocurrency trading is 5.45 percentages. The female respondent of mobile money transfer is 18.18 percentages, 25.45 of respondent is loan application, investment management is 18.18 percentages, cryptocurrency trading is 7.27 percentages.

From these percentages, we can conclude that while a significant portion of both female and males believe that these mobile banking service is most commonly used for financial inclusion.

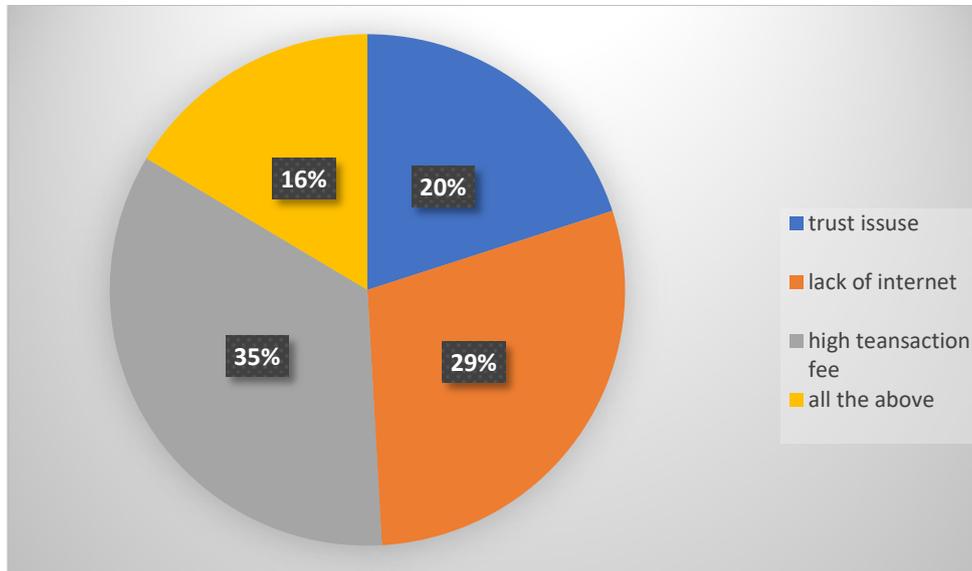
Table no 5: Challenge of mobile banking in financial inclusion

Indicators	Trust issues	Lack of internet	High transaction fee	All the above	Total
Male	3 (5.45)	4 (7.27)	6 (10.09)	3 (5.45)	16 (29.09)
Female	8 (14.54)	12 (21.81)	13 (21.18)	6 (10.90)	38 (69.09)
Total	11.00 (20.00)	16 (29.09)	19 (34.54)	9 (16.36)	55 (99.99)

Sources: Primary source

55 Respondent

Pie chart no 5 exhibits



From the table show that, given data we infer that 29.09 percentages are male and 69.09 percentages are female. In the table present challenge of mobile banking in financial inclusion. Overall, 20 percentages of respondents trust issues, 29.09 percentages of respondent lack of internet, 34.54 percentages of respondent high transaction fee, 16.36 percentages of respondent all the above. The male respondent of trust issues is 5.45 percentages, 7.27 percentages of respondent lack of internet, 10.09 percentages of respondent high transaction fee, 5.45 percentages of respondent all the above. The female respondent of trust issues is 14.54, 21.81 percentages of respondent lack of internet, 10.90 percentages of respondent high transaction fee, 10.90 percentages of respondent all the above.

From these percentages, we can conclude that while a significant portion of both females and males believe that these are the initiatives to challenge of mobile banking in financial inclusion money agents, and simplified banking processes have encouraged rural users to adopt mobile banking at rates similar to their urban counterparts.

Testing of Hypothesis:

Hypothesis(H1): The expansion of mobile banking coverage has led to widespread smartphone adoption, even in rural areas. Many developing countries have seen a sharp increase in rural mobile phone ownership, allowing residents to access banking services. Government and private sector initiatives have also contributed to expanding internet infrastructure, making mobile banking feasible for both urban and rural.

Government and financial institutions have actively promoted financial inclusion through mobile banking. Rural areas, which historically, have benefited from digital financial services. Initiatives such as microfinance apps, mobile

Hypothesis(H2): Traditional banking methods often require individuals to visit physical branches, which can be time-consuming and inconvenient. Mobile banking eliminates this barrier by allowing users to manage their finances anytime, anywhere. With just a few taps on a smartphone, users can transfer funds to savings accounts, set up automatic deposits and monitor their balances. This ease of access encourages more frequent and consistent savings behaviour.

Mobile banking often eliminates fees associated with traditional banking, such as withdrawal

charges and paper statement. Digital wallets and online banking services also provide low-cost or free transactions, allowing users to save money that would otherwise be spent on bank fees. The ability to make cost-effective financial decisions encourages users to allocate more funds toward savings.

Conclusion:

Despite the rapid growth of mobile banking and its role in financial inclusion, significant research gaps remain. Future studies should focus on addressing these gaps to develop more effective mobile banking policies, improve service delivery and enhance financial inclusion outcome. By filling these gaps, researchers, policymakers, and financial institutions can create a more inclusive financial ecosystem that benefit all segments of society. The significance of this study extends across multiple sectors, from individuals and businesses to financial institutions, policymakers, fintech firms and researchers. By analyzing the role of mobile banking in financial inclusion, this research provide critical insights that can drive innovation, policy reforms, and strategic decision in the financial sector. Addressing the challenges of mobile banking adoption and security will further enhances its effectiveness in bridging the financial gap and promoting inclusive economic growth worldwide. Mobile banking significantly improves financial inclusion by providing access to banking services in remote areas. It enhances economic empowerment by supporting savings, credit access, and digital payments.

Despite its benefits, challenges such as digital illiteracy, security risks and regulatory constraints remain. Addressing these challenges requires investment in education, infrastructure, cybersecurity and policy reforms. The future of mobile banking is bright, but collaborative efforts are necessary to maximize its impact on financial inclusion.

Suggestions:

Mobile banking plays a crucial role in advancing financial inclusion by providing access to banking services for underserved populations, particularly in rural and remote areas. With the widespread use of mobile phones, individuals who previously lacked access to traditional banking can now perform transaction, save money and access credit through mobile financial services. This technology reduces dependency on physical bank branches, lowers transaction costs and increase financial literacy by making digital banking more accessible.

- **Economic growth & development:** By enabling more people to participate in the financial system, mobile banking contributes to economic stability and development.
- **Government & regulatory support:** Many government promote mobile banking as part of financial inclusion policies, ensuring broader access to financial services.
- **Security & Fraud Prevention:** Mobile banking integrates security features like biometric authentication and encryption, enhancing transaction safety.
- **Women financial empowerment:** it enables women to access banking services independently, contribution to gender equality in financial inclusion.
- **Financial literacy & awareness:** Mobile banking platforms often provide educational tools that helps users improve their financial knowledge and decision making
- **Microloans & credit access:** mobile banking facilitates access to microloans and digital credit, helping small businesses and individuals grow financially.

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