

Role of Mobile banking in Financial Inclusion

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ABSTRACT

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. 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, and 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 the flow of money, spread entrepreneurship, and increase Gross Domestic Product. At the same time there are limitations or dangers of mobile banking at macro 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 constraints 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

1. 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.

Access to financial services brings so many benefits to society then why it is not happening? It has got demand as well as supply side constraints as mentioned in Table 1. There are large sections of society 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, and 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 of it.

Table 1: Constraints for financial inclusion

Demand side constraints	Supply side constraints
1. Lack of awareness about financial system and products/services	1. Inappropriate products 2. Feasibility of products
2. Cost of product	3. Costlier to serve
3. Nature of Product	4. Unwillingness of employee to serve in those areas. (H.R. Issue)
4. Irregular and/or less income	
5. Lack of trust in Banks.	

Mobile banking has got benefits for multiple stakeholders. At the macro level use of mobile banking will increase the flow of money, spread entrepreneurship, and increase Gross Domestic Product. At the same time there are limitations or dangers of mobile banking at macro 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 constraints mentioned in above Table 1.

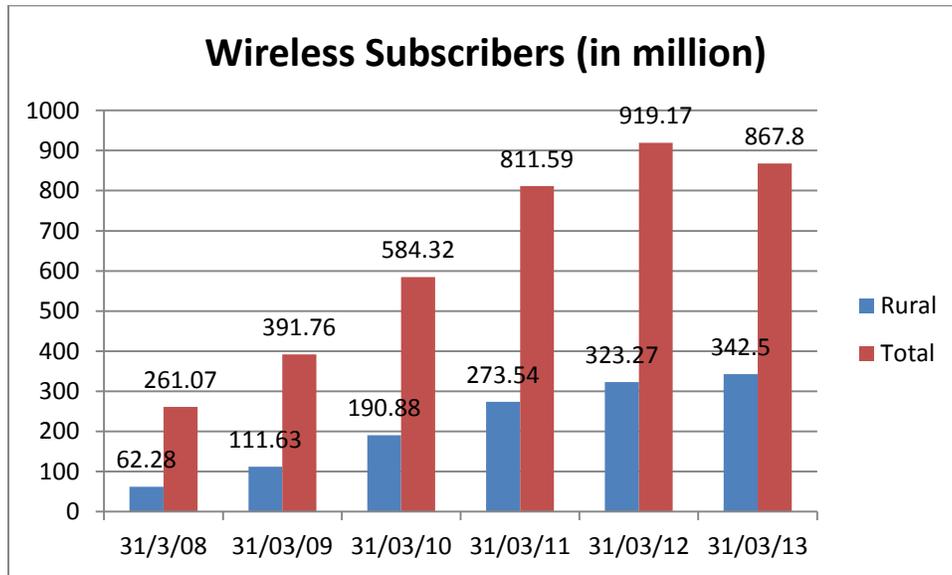
Customers are unaware about functioning of financial system at large and specifically products available to them. Even if they are aware, accessing them is costlier because of higher transaction costs involving information cost, travelling cost, and opportunity cost. Many a time even products don't match 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 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.

When it comes to organizations, they don't have products matching the need of customers, many a times because of lack of information about them. Even when they are aware about the needs, products are not feasible. Serving to these customers are usually costlier because of higher information cost, and accessing cost (geographical constraints). Here also behavioral aspects like unwillingness of the employees to work in those areas come into picture.

Ahmed et al. (2012) advocates the use of branchless banking and calls it as building a general payments infrastructure that allows people and businesses to deposit and withdraw funds and make electronic payments from alternative channels like retail store. It is more likely for the poor to use mobile banking, because they usually lack alternative channel of delivery unlike their rich counterparts (Ivatury and Mas (2008)). It is win-win situation for both financial service providers and customers. For financial service providers, it provides one more delivery channel with

reduced transaction cost, increased sales volume. Whereas, for customers the benefits are in terms of convenience of using the services anytime and reduced transaction cost (Tiwari, and Buse, 2007). Here, some research has pointed out the cost of handset as a deterrent of adoption of mobile banking; but in case of India it doesn't hold true because the cost of handset here is quite low.

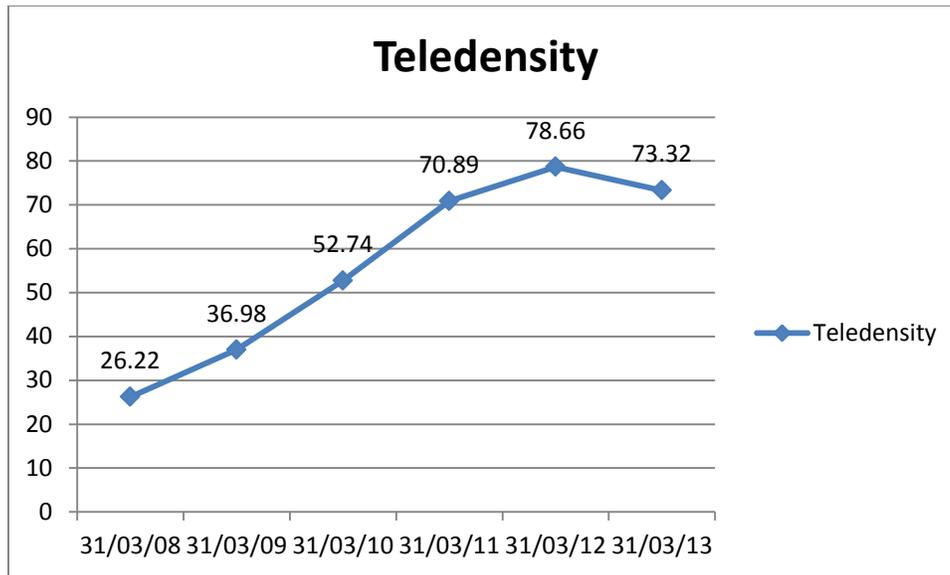
Graph 1: Wireless subscriber (in Million)



Source: Annual report of Telecom Regulatory Authority of India (2013)

On the one hand we have the issue of financial exclusion, but at the same time mobile phone usage (more than 900 million) is increasing cutting across every strata of the society (Graph 1). Increasing share of rural wireless subscribers across the year shows the potential of mobile banking. In this context, mobile money is seen as a chance for the poor and a number of mobile banking initiatives for banking the unbanked are currently underway in India. As on May 31, RBI had permitted 69 banks to provide mobile banking services to their customers (Business Standard July 30, 2012).

Graph 2: Teledensity in India



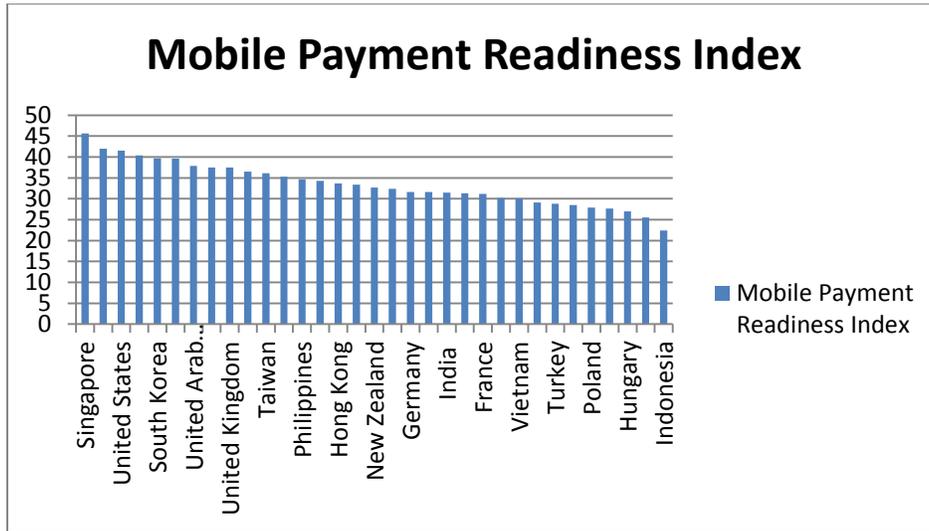
Source: Annual report of Telecom Regulatory Authority of India (2013)

Overall increase in the teledensity (in graph 2), and specifically increasing trends towards wireless connection in rural as well as urban area provides the required infrastructure for mobile banking.

2. MOBILE BANKING AND ITS PRESENCE IN INDIA:

Several mobile banking services exist worldwide: M-PESA (Kenya), Wizzit (S.A.), GCash (Philippines), multipurpose prepaid (China). Similar initiatives have been taken in India also at every level. At the highest level, Reserve Bank of India has supported this through policy measures like payment system to smoothen the process. All banks have cashed in on this and have a mobile banking service. Some illustrative examples are: State Bank of India (State bank freedom), Bank of India (star connect), ICICI (iMobile), HDFC (ngpay), Standard chartered (breeze mobile), Axis Bank (axis mobile), Bank of Baroda (baroda M-Connect), Union bank of India (Umobile) (Deoras, 2012). Even non-banking organizations like EKO, FINO etc. are acting as business correspondent and facilitating the process of financial inclusion through mobile banking. By using the experiences of one of the banking correspondent EKO, Nandhi (2012) found that mobile banking has spurred access and usage of financial services among the poor of Delhi. In effect, many of them got included in to mainstream financial system.

Graph 3: Mobile Payment Readiness Index



Above table indicates the situation of mobile payment at global level and India is not far behind in this index i.e. conditions are conducive for the mobile payment to come in the marketplace in a big way.

2.1. Mobile Banking Models and its importance:

Table 2: Number and value of transactions through mobile

	May, 2011	May, 2012
Number of bank transactions through mobile	1.28 million	3.34 million
Value of bank transactions through mobile	Rs. 91 Crore	Rs. 286 Crore

Source: Business Standard July 30, 2012

One can get overwhelmed by the kind of increase in the number of transaction as well as value of those transactions (in table 2), but here we need to be cautious because it also includes transactions done by the regular customers in the cities and having bank accounts beforehand. They are using it as another delivery channel, in contrast to the poor, who is perhaps using it as only channel. Initiatives mentioned above have reached to very limited portion of the society, and still a large number of people are either unaware of mobile banking or afraid of using it for availing financial services.

We cannot undermine the growth potential coming from whatever sector; threefold increase in a single year is really worth considering for any banking institution. The contribution from a large chunk of unbanked population who would be getting included in the financial system for the first time; and having their money circulated in the system would be huge and cannot be ignored. They might not have value wise huge money to contribute to this kitty but collectively the volume will be sizable and will make a good business sense.

Broadly mobile banking operates through four models shown in table 3, but in India we have three models working 1) Exclusively bank driven, 2) Driven by bank with a support of third parties like Non-Government Organizations, and 3) Driven by bank with the support of Mobile Network Operators (MNO).

Table 3: Mobile Banking Models

1. Exclusively bank driven	2. Driven by bank with a support of third parties like Non-Government Organizations
3. Driven by bank with the support of Mobile Network Operators (MNO)	4. Fully MNO driven

Here Exclusively bank driven model is perhaps by and large concentrating on existing customers; and other two models the focus of this study. In India, the onus is still on banks to provide mobile banking; whereas most successful mobile banking operation relating with financial inclusion has come from the mobile operator i.e. M-PESA from Vodafone. The same operator in India has joined hands with HDFC bank but would be playing a dormant role.

3. ADOPTION ISSUES:

3.1. Adoption Theories:

There are number of theories used in explaining the issue of adoption by various researchers (Table 4). Theory of reasoned action (Fishbein and Ajzen, 1975) provided the initial impetus to this field, where they proposed that attitude and subjective norm helps in forming intention ultimately leading to usage of the products/services/ideas. Attitude of individuals towards mobile banking can be positive or negative depending upon individual's perception. Issues like fear of technology might create negative attitude towards mobile banking. Subjective norms i.e. what

individuals think that society's perception about mobile banking. Here, based on individual's perception that mobile banking is being perceived positively in society might increase the chances of adopting it.

Theory of reasoned action (TRA) further got developed in Theory of Planned Behavior (TPB) with the addition of one more variable which is perceived behavioral control (Ajzen, 1991). Perceived behavioral control is based on Bandura's concept of self-efficacy, which talks about individual's perceived capability to perform certain action or to control it (Bandura, 1982). Various concepts like: extrinsic motivation, intrinsic motivation, utility, expectancy, value etc. from motivation theories have been adopted by adoption theorist to explain the phenomenon.

Table 4: Major Theories Used in Adoption of products/services/ideas

1. Theory of reasoned action (TRA)	2. Social cognitive theory (SCT)
3. Motivation theory	4. Theory of planned behavior (TPB)
5. Technology Acceptance Model (TAM)	6. Unified theory of acceptance and use of technology (UTAUT) Model
7. Innovation diffusion theory	

Taking a lead from these theories technology adoption theories have been developed. Technology acceptance model (TAM) is extension of TRA. With addition of perceived usefulness and perceived ease of use it tries to explain the attitude and intention of individuals. TAM is consistent with social cognitive theory by stating that expectancy lead towards intention and behavior. TAM further got developed in TAM 2 with modification like removal of attitude between perceived usefulness and perceived ease of use; and intention to use. Adding to it, TAM 2 also tries to explain the perceived usefulness with the help of variables like subjective norm, image, job relevance, output quality, and result demonstrability. Taking it further, Unified Theory of Acceptance and Use of Technology (UTAUT) have been developed. It talks about the relationship between behavioral intention and four variables namely performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh, et. al., 2003; Venkatesh and Davis, 2000). Rogers (1983) talks about innovation adoption and makes a segregation of adopters namely innovators, early adopters, early majority, late majority, and laggards. In general, more playful individuals are expected to rate any new system as being easier to use compared to those who are less playful (Venkatesh, 2000).

3.2.Mobile Banking Adoption Issues

Mobile banking is beneficial to organizations as well customers and there is a very good potential for growth. However, it is not picking up for a number of reasons which researchers have explored.

The most commonly cited variables affecting adoption of mobile banking services are: compatibility, perceived usefulness, risk, perception of cost, low perceived relative advantage, and complexity. Other issues like cost of Internet connectivity, complexity of user interface, lack of awareness among customers, limitations in functionality of mobile devices, accessibility issues, security concerns, organizational changes, small number of choices (only a few banks offer mobile banking), and technology overload as variables also affect mobile banking (Mas, and Michael 2012). Amin (2007) also reiterates the variables in the Malaysian context as perceived usefulness; perceived ease of use; perceived credibility; the amount of information on mobile credit card and usage intentions.

Kleijnen et. al. (2007) talked about value of mobile service in its intention to use in Netherlands. They consider value is created by subtracting costs (risk 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.

Mobile banking frees users from spatial and temporal limitations, and switching cost is low. But, adoption of it gets affected by trust, which may be at a personal level , organizational level , and third party label like Verisign. Information 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 larger effects (Zhou, 2011).

Lin (2011) also talked about variables affecting adoption 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.

Customer churn is one of the significant challenges for mobile network operators and mobile money services helps 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 (Dolan, 2009).

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 transfers 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 (Chakrabarty, 2011).

4. SOLUTIONS AND RECOMMENDATIONS

Proposed framework for financial inclusion using mobile banking

With more than one and half lakhs of branches, post offices are really 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 inbuilt 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.

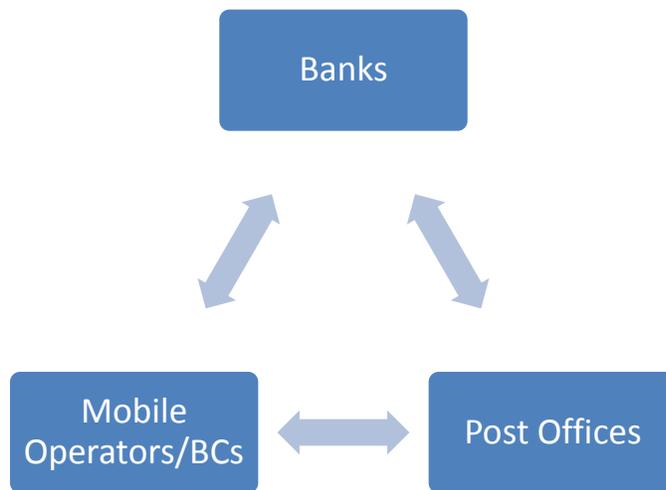


Figure: Tripartite arrangement for Financial Inclusion

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 appraise them about the working of financial system especially focused on financial inclusion. To supplement it, mobile banking system with the help of mobile operators working in the same area or some NBFCs would be integrated.

5. CONCLUSION

Importance of financial inclusion has been emphasized by every stakeholder, and mobile banking shows a potential in helping to achieve this. But, there are various issues, which come in the way of accomplishing the task. Adoption of technology has got its own share of difficulty to overcome along with the issues of financial inclusion. In this paper, we have tried to resolve it by proposing a tripartite model involving banks, post offices, and mobile operators/ BCs by building on their individual strengths and overcoming the hindrances. However, security and regulatory issue need to be addressed.

The system will need a close monitoring in view of terrorist financing and money laundering. The frequency of transactions may be indicative of the security threats. The surveillance system will require modification depending on the experience. It is suggested that proposed system should be implemented in phases, wherein regulatory and security issues can be addressed simultaneously. This can be done by putting a ceiling on the amount and number of transactions that may happen. Later, transactions can be scaled up with the strengthening of the system. The system in fact will also help in detection of such transactions which were not detected earlier due to use of informal channels.

6. FUTURE RESEARCH DIRECTIONS

It is a new area; therefore there are number of issues to be explored. There are regulatory issues when multiple actors get involved in the process. There is security issue involved which increases the vulnerability of the poor.

Adoption process of mobile banking by customers as well as by banks needs to be studied in the Indian context. Moreover, facilitating and inhibiting factors for the same in the Indian Context need to be explored.

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