

How Mobile Money Can Drive Financial Inclusion for Women at the Bottom of the Pyramid (BOP) in Indian Urban Centers

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Abstract. This paper looks at challenges and opportunities on how mobile money can drive financial inclusion for women at the BOP (Bottom of the Pyramid) in urban Indian centers. We explore the current ecosystem of financial transactions and the role of women in a BOP household. Specifically we look at how this ecosystem differs based on how long ago they migrated from rural India and how that impacts their financial transactions. By understanding the gaps and the barriers, we outline specific challenges and opportunities for driving financial inclusion for women, through mobile money. We also posit that the success of mobile money depends on whether the ‘solution’ moves away from the paradigms used for designing mobile money solutions for those at the top of pyramid.

Keywords: Financial inclusion, mobile money, women, bottom of the pyramid (BOP), microfinance, loans, credit, payments.

1 Introduction

Women have the responsibility of looking after the household and they may control some of the inflow of money in the urban BOP household, but the outflow of money is still very much controlled by men. In this scenario, women are very resourceful in managing the limited amount of money, by having secret savings and they optimize on the consumption of household resources, mostly without the knowledge of men. They fear that men may unnecessarily spend if they are aware of the existence of this money in the household.

1.1 Financial Transactions

Access to credits and repayments is a very important aspect of their financial ecosystem. Since income within the household is very limited, even with both the man and woman working, borrowing of money is key to their existence and survival. The two major reasons for 50% of the borrowings from non-banking sources are financial emergency and medical expenses [1]. Loan repayments (mostly informal lenders) form a large part of the financial transactions, for the women, on a daily basis.

Access to formal loans or even banks, is a challenge [1] due to various factors: Illiteracy; Lack of collaterals (no identity proof, lack of fixed assets); No permanent occupation.

They have to resort to informal money lenders. The access to this informal loan system again depends largely on how long they have been staying in the urban centre and the connections with the local community. The choice of the informal money lender depends on many factors: Ease of repayments; Trust - money lender being from the same community; Amount of money to be borrowed; How quickly they need the money, i.e., criticality of the situation (financial crises, medical emergency, etc.)

Women face yet another challenge – from a gender perspective. If they are borrowing money for the first time, they usually have to be accompanied by men to the money lender's place, even if they are the ones who will repay the money.

Women are mainly responsible for medical and healthcare of the children in the household. In the time of a medical crisis, women have to take quick decisions including borrowing of money or taking the sick to a doctor. At such times, they are in need of quick ready finances. All the transactions are purely cash based. They usually carry cash along with them as they do not feel safe to keep their money in their house.

These are some of the issues which largely influence their financial ecosystem.

Since the women in BOP in urban areas do have better access to technology as compared to women in rural India, they are more likely to adopt technology solutions that directly enhance their livelihood and financial inclusion. For example the penetration and the use of cell phones in urban India is higher than in rural India.

Can mobile money be a solution to address these gaps and barriers?

Case studies and pilots [2, 3, 4] of M-banking and M-payments in many parts of Africa, the Philippines and Bangladesh have shown positive impact on how mobile phones may alter patterns of money sharing within families by giving women greater autonomy and control over household savings.

We will look at specific design challenges pertaining to security, infrastructure and cultural issues, through two user stories, that will be fundamental to initiate adoption of mobile money and drive financial inclusion for women in the Indian ecosystem.

2 Research

We did primary dip stick research (6 participants) with women in the lower socio economic segment (Socio Economic Classification, SEC D). The research was done in urban and semi-urban centers in Bangalore.

All of the women were employed. The women who have been in the urban centers for more than 5 years were self employed and the others were daily wage earners. (This was also a finding of the research – that more the time they spend in the urban centre, more they try and move towards independence through self employment.)

Half of them were using mobile phones (either as a shared device or individual usage). Mostly they used mobile phones to make or receive calls. One of them was specifically using the mobile phone for her business (flower vendor, taking orders). The impact the phone has on their lives is that it increases their efficiency in their daily activity and reduces costs that they could have incurred without the phone [5].

For example: One of the participants, who needs to take public transport, gets a status call from her father when the bus is only two stops away. This helps her maximise the time with her family, otherwise she would need to wait at the bus stop for a long time.

To complement the primary research we also did an existing literature research which included: Impact and adoption of mobile phone [6] across the world in development initiatives; Existing mobile money initiatives and its impact [7, 8, 9]; General structures of the informal credit suppliers in India [1]; Role of women in micro lending and payments in rural and BOP [2]

2.1 Stories of Mallamma and Manjula

We highlight the challenges and the opportunities for mobile money through two user stories. Mallamma and Manjula are representative users where Manjula represents a more sophisticated user in terms of her financial transactions.

2.2 Mallamma



Migrated to Bangalore 5 years ago.

Occupation: Construction worker (without a permanent contract).

Family: Widow, mother of five children (2 children staying in the village).

Sister's family lives in the adjoining shack.

Household income: ~ Rs 3,700 (\$ 74) per month.

Mallamma lives in a kaccha house (shack) with no electricity or sanitation. She works as a construction worker without any permanent contract with her employer. This means, she has to look for work on a weekly basis. She lost her husband a year back and most of his financial liability has been passed onto her, even though she was not aware of most of her husband's borrowings. She has five children, two of whom have stayed behind in the village with their grand parents where they go to school. The children, who are with her in the city, have recently started working as house maids to help augment their mother's income.

From her construction work, Mallamma earns Rs 500 – 600 (\$12) a week, if she is able to find continuous work. She receives her wage on a weekly basis on a Saturday evening. She also has the flexibility of getting an advance on a Wednesday, in case of an emergency. Two of her daughters are able to earn Rs 600 a month each while working as house maids. So the total earnings in her household could be about Rs 2000 – 3700 (\$ 74).

Mallamma's expenses

She plans her expenses on a weekly basis, after receiving her wages on Saturday. This includes:

- Repayment of short term credit (which needs to be paid back in a couple of days, like credit from the grocery shop, people within the community).
- Small savings in form of a chit fund to pay long term credit. This chit fund is very specific to her community from her village, who have moved to the city

- Grocery buying for the coming week.
- She also does very small savings, which she keeps with her always, as she does not have any safe place to store them. She does not trust the men at home (specifically her brother-in-law). This small money is to take care of any unplanned expenses.

Once in every couple of months, she sends money (Rs. 300, \$ 6) back home to her parents for her children. She visits her village at least once every 3 months. This is usually an unplanned expense. She still has a very strong connection with her village.

Since she does not have regular employment and there is no assured source of income, she invariably ends up borrowing to make her ends meet. She has a credit of Rs. 5000 (\$ 100), borrowed from the village money lender, to pay for her daughter's medical expenses. Even though it was an emergency situation, they were not able to generate enough money locally in the city and they had to travel for three days, and spend more than Rs 300 (\$ 6), to go back to the village to borrow Rs. 5000 (\$ 100).

Over and above that there is a huge credit of Rs, 20,000 (\$ 400) passed on to her after her husband's demise. She was not even aware that her husband had borrowed this much amount of money from the village money lender. After her husband expired, the village money lender showed her some documents claiming that her husband had borrowed this money and now she is liable to pay. Typically, in her village, the village elders are involved as witness whenever money is lent. This also forces the person to repay in case there are any disputes.

Interestingly, in her village, women are not encouraged to appear before the money lender for loans. Only the men in the household go to the money lender. She recollects that her husband had said that Rs. 5000 had been borrowed for their daughter's treatment, but she had not been taken along as it was understood she would not be the one repaying the loan. Now, ironically enough, she is the one who has to repay all loans.

She feels more comfortable in borrowing money from the village money lenders as compared to the ones in the city. There are a few reasons for that: They know her and so the trust factor comes in -she has no social interaction outside her community; The rate of interest is lower as compared to the city; She can repay the loan depending on her convenience.

The ties with the village are very strong. Even in the scenario that she receives a large amount of money, say through chit funds, the first thing she does is to carry the money personally to the village for safe keeping, again spending that Rs. 300 and three days of travel. She does not trust that the money will be safe with her in the city, especially since she goes out everyday for work.

Opportunities for Mallamma

- *Mobile money to aid efficiency and access.* Mallamma still has very strong ties with her village. She travels every couple of months back to the village mainly to: Repay loans; Borrow money; Give money to her children and her parents. She can save a lot of time, effort and money if she can use some form of mobile money. The key challenges will be to bring in some form of social validation while these transactions are done, specifically repayment and borrowing of money.

- *Mobile money for savings and safety.* Mallamma does not trust the men at home. Moreover, she does not have any secure place to store money in the house. She feels most comfortable when she carries the money with her. Mobile money can be a secure alternative for her.
- *Mallamma may not use mobile money by herself.* Mallamma is illiterate and does not even understand fully how to use a mobile device. She may not be too comfortable using mobile money by herself; for her a proposed solution should address the challenges of accessibility and affordability [9] more than that of convenience.

She might need assistance. There is an opportunity where trusted people from her community [7] can provide the mobile money service, while it can be monitored through established financial institutions.

For example, the neighborhood grocery shop owner (who could be from the same community as Mallamma) can be a provider of financial services through mobile money. This will help Mallamma to transfer money back to the village for planned expenses as well as in case of emergencies. She can also get credit from her village where the money lender can send in the money directly or through the services of a local grocery store in the village. This will help Mallamma save cost of travelling every time there is a financial crisis. Since there is an overall monitoring by a financial institution Mallamma will feel very comfortable and secure while making the transactions. It's important to have a physical proof, like a receipt [6], every time a transaction is done, until they are comfortable with the concept of virtual money. Though the details of the transaction can always be available from where ever the financial institution operates from, it's essential that she have a proof of each and every transaction in case any dispute arises in the future.

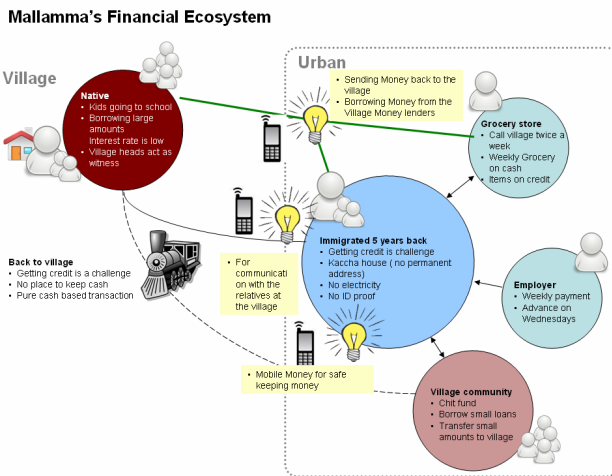


Fig. 1. Mallamma's Financial Ecosystem & Opportunities

2.3 Manjula



Migrated to the city 13 years ago.

Occupation: Flower vendor.

Family: Mother of 2-year-old girl and 8 year old son, living with her father and mother

Income: Rs 7000 (\$ 140) per month, contract flower supplier for temples

Manjula lives in a rented house with her parents. She used to have a flower stall near the temple. She had to close down the stall to take care of her family emergency (sister's child birth). Currently, she only takes care of the contract orders of three temples. Earlier her mother used to run the house, now she is bedridden with diabetes. With the reduced income she now has to borrow money to meet her expenses. She plans to open her flower stall in the next few weeks. This would give her substantial income to meet her expenses.

Manjula's expenses

She manages her expenses on a day-to-day basis, but some of her finances are on a monthly basis, based on the contract payments from the temples.

Daily expenses: Capital for the flowers; Payment of loans and small savings (This is through PIGMY, PIGMY is a form of saving fund, which also doubles up as a source of loan in times of need.); Medical expenses for her mother (last year she had to spend more than 30,000 rupees)

Monthly expenses: House rent; Interest for the loans; Payment of chits (This is also done on a weekly basis or whenever she gets money.)

Savings & loans

Along with PIGMY, Manjula also saves money for some emergency expenses as well as planned expenses like festivals and other rituals. This money is with her all the time. She visits her village once in a year or whenever there are some religious rituals. Last time she visited her village was for the ear piercing ceremony of her daughter.

She prefers PIGMY as the mode of saving and borrowing because: Can save on a daily basis to repay some of the loans incurred from money lenders, etc; Source of money for planned purchases (such as a television), family events (ear piercing ceremony of the child at home), etc; This system also prevents her from withdrawing money for frugal expenses, i.e., in a lot of ways their money is "locked in."; Once trust is built, she can borrow large amounts (Rs 25,000 – 30,000); Flexibility in payment (lenders are lenient if she does not pay for one day, they do not insist on two days payment on the next day).

Even though she prefers PIGMY for both her savings and loans, she feels it is a huge liability to maintain the records of her savings.

She has started saving in a nationalized bank to build some financial credibility. But she still prefers PIGMY as they come to collect from her doorstep. She is planning to take a loan from the bank but is not sure if she would be eligible.

During emergencies, she either borrows from the informal money lenders on an interest or from a pawn broker. In both cases, the money borrowed has to be paid back

in one go. The interest rates, from the informal money lenders, is very high (60 – 120% per annum). She prefers taking loan from the pawn broker because there is no harassment to repay, which generally happens with other money lenders (very often they use abusive language and harass her to pay up in front of the neighbors).

Even though Manjula runs her own business and takes care of all the household financial transactions, the lenders take reference of her father, the first time they lend the money. Now she has built enough trust and in fact, they prefer giving loan to her than to her father, as everyone knows that she is the one who will repay the loans. There have been couple of instances when her father had borrowed from the money lenders, at very high interest rate, and she had to repay. Whenever she has to collect the money (loans or savings) from PIGMY, she either takes her sister or her father (this is purely for safety purposes) as she has to go in the evening to collect the money from the lender's office.

Whenever she receives large sums of money, she either deposits in a bank or gives it to her relatives so that they can pay off their high interest loans. She has to inform them 2-3 months in advance whenever she wants her money back (the relatives sometimes take another low interest loan to pay her back).

Manjula owns a mobile phone. Earlier they had only one phone, which was used by her father and there have been instances when her clients have called her father and she has missed the orders. Her brother-in-law had given her his mobile for few days, and she found it very useful. Now she has purchased a mobile for herself. This has eased a lot of her work and also helped her in business.

Opportunities for Manjula

Most of the opportunities for Mallamma will hold true for Manjula. However, there can be some additional opportunities for Manjula.

- *Empowering Manjula through a personal finance tool.* Manjula handles various financial transactions and instruments – Some on a day-to day-basis and some of which are on a monthly basis. Most of the time she is not aware of the rate of interest that she is paying for the loan. She gravitates towards those loan instruments which are simpler to understand and easy to pay, though she may end up paying higher rate of interest. Mobile phone can empower her to manage her finances. Nokia in India has introduced a concept of Nokia Life Tools [10] – a range of agriculture, education and entertainment services designed specially for the consumers in small towns and rural areas of the emerging markets. Such services can be extended to the financial services with tie-ups between the hardware manufacturer and the financial institutions. This would help her to not only understand her earnings and the various loans but also plan for her future to fulfill her aspirations.
- *Mobile Phone as an information dissemination tool.* A mobile phone can be used as an information dissemination tool by the government and private initiatives to help women like Manjula understand how she can be part of more formal financial systems. And she can also receive daily updates on market prices as well. This information can be used to persuade people like Manjula to accept mobile phone as more than just a communication tool.
- *Mobile money for transactions.* Mobile money can be seen as a way through which regular monetary transactions can be expedited. The financial ecosystem around

Manjula is pretty much stabilized in terms of the people she interacts with financially. She has her customers who pay her back on a monthly basis and she still has to buy from the wholesale dealer on a daily basis. Her savings and loan repayments happen on a regular basis. She personally handles these transactions and more than often these are delayed, if she cannot travel on that day. An automatic payment system through mobile money can help her save time taken to travel and wait for the person involved (for example: PIGMY collector). Mobile money can help her to be more efficient in her daily activities and maintain a good work-home balance.

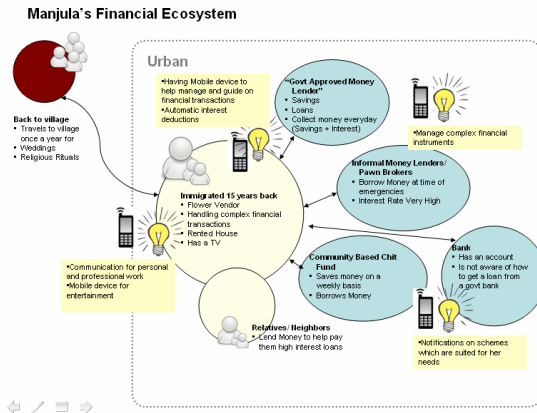


Fig. 2. Manjula’s Financial Ecosystem & Opportunities

2.4 Key Challenge for Mobile Money for Mamma and Manjula

We envision that there should be an ecosystem level adoption of such a mobile money initiative for maximum acceptance and convenience of handling the transactions.

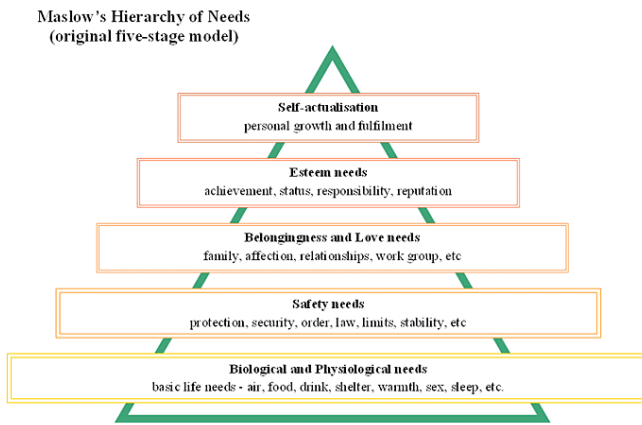
To help solve this, it’s important to understand community dynamics.

- People, when they migrate from rural to urban regions, have close contacts with those people in the city who belong to the same village or the surrounding villages.
- These community members help carry money or goods back to the village if people are unable to travel.
- There is availability of multiple loan options from different people within the community.
- Trust, reputation and credit histories of individuals are well known within communities and most often they may not need a collateral to avail of loans.

If mobile money can be initiated as a community model rather than an individual model, it will lead to widespread adoption. Ultimately, through these opportunities, mobile money will empower women and drive financial inclusion by providing better access to funds and decision making, safety and security of their savings, making them efficient and helping them plan their financial future.

3 Conclusion

For the women in the lowest socio economic class, as in the case with Mallamma and Manjula, there is an interesting new paradigm for a successful mobile money solution. This new paradigm is that this socio economic class being so deprived of conveniences /gadgets/devices and living life on the edge that a solution that simply looks at the question of enabling women to be able to “deal with money” via a device like the mobile phone misses the point! All other socio economic segments have more resources/money that makes it possible for them to own and use multiple devices where each device does specific tasks. In other words, if we look at the hierarchy of needs as stated by Maslow and map these to different Socio Economic Segments (SECs), we find that the higher one climbs the more the variety and number of devices and channels to help individuals achieve their everyday tasks and objectives.



However, for the lower SECs, no solution that assumes that one device will be designed for a few primary tasks is likely to succeed. Individuals who belong to the lower SECs live a much more complicated life than those who belong to the higher

How one mobile device can fulfill Mallamma's & Manjula's Needs
(Including Mobile money)

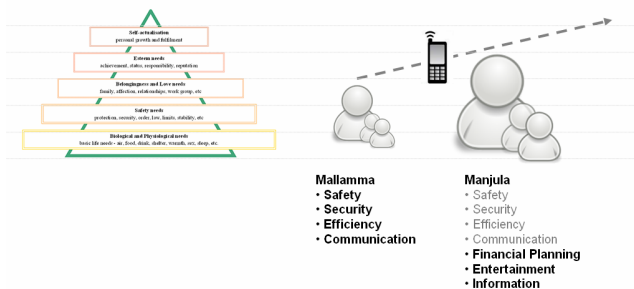


Fig. 3. The needs (including mobile money) of Mallamma and Manjula,that can be catered by through a device

SECs. They traverse all the levels of the hierarchy of needs all the time (example from Mallamma and Manjula's life) and hence advanced technology is even more important for the lower SECs to provide a flexible yet all encompassing solution. Hence, for high adoption of any mobile money solution and its consequent driving of financial inclusion for women, the device must also provide solutions for all other levels of needs in a smooth and seamless manner.

You can see that for Mallamma, the needs are less and basic, like safety and security and having efficiency through mobile money. But for Manjula her needs are more sophisticated and just one mobile device, along with fulfilling mobile money needs, will fulfill other needs as well.

Further studies can inform how many or what range of needs are to be fulfilled through a mobile device for women in lower socio economic segments, for the tipping point to be reached, which will drive them to adopt mobile money.

Since a mobile device will be capable of fulfilling many needs including mobile money, it will be the vehicle through which women in the lower socio economic segments can move up the levels of hierarchy of needs thereby empowering them to fulfill all needs ranging from basic needs to financial inclusion to self actualization.

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References

1. Informal lenders are giving banks a run for their loans (retrieved March 26, 2009), http://economictimes.indiatimes.com/News/News_By_Industry/Informal_lenders_are_giving_banks_a_run_for_their_loans/articleshow/2554678.cms
2. Moni, M., Uddin, M.: Cellular Phones for Women's Empowerment in Rural Bangladesh, Asian Center for Women's Studies. Ewha Womans University Press (2004)
3. Ivatury, G., Mas, I.: The early experience with branchless banking. CGAP, Washington, DC (2008)
4. von Reijswoud, V.: Mobile banking - an African perspective (retrieved February 2, 2009) <http://www.regulateonline.org/content/view/948/63/>
5. de Silva, H., Zainudeen, A., Ratnadiwakara, D.: Perceived economic benefits of telecom access at the Bottom of the Pyramid in emerging Asia, LIRNEasia (2008), <http://www.lirneasia.net>
6. Donner, J., Tellez, C.: Mobile banking and economic development: Linking adoption, impact, and use. *Asian Journal of Communication* 18(4), 318–322 (2008)
7. Morawczynski, O., Miscione, G.: Exploring trust in mobile banking transactions: The case of M-Pesa in Kenya (2008)
8. Bassef, C.: Digital Money in a Digitally Divided World: Nature, Challenges and Prospects of ePayment Systems in Africa. In: Workshop on Everyday Digital Money: Innovation in Money Cultures and Technologies, University of California, Irvine (2008)
9. Cracknell, D.: Electronic banking for the poor—panacea, potential and pitfalls. *Small Enterprise Development* 15(4), 8–24 (2004)
10. Nokia LifeTools (retrieved March 26, 2009), <http://www.nokia.co.in/A41427315>