Effects Of Mobile-Based Financial Services On Migrant Households' Remittances And Savings

A Case Study Of Migrant Workers In Dundahera

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Abstract

Unreliable, expensive, and insecure channels of remittances and traditional savings instruments had inhibited migrant households' ability to utilise their remittances to save and create wealth. This study evaluates the effect of mobile-based financial services on migrant workers' financial choices based on interviews and surveys of seventy migrant workers employed in two apparel manufacturing units in Dundahera, Gurugram.

This paper examines the role of mobile-based financial services as channels of remittances; and as platforms for managing savings for migrant households. The results showed that wage payment in bank accounts had a significant impact on whether migrant workers used mobile-based financial services to operate their bank accounts. In addition, workers who operated their bank accounts using mobile-based financial services also tended to use them for remitting money. Finally, it was observed that household savings had increased among those migrant households who had been a part of this study and had used mobile-based financial services to remit money.

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1. Introduction to the Study

1.1 Background

According to the 2011 Census report, rural India accounted for 68 per cent of the country's population (Government of India, 2011). It further reported that between 2001 and 2011 census, the rural population declined and urbanisation increased. In the same period of time, India recorded a continuous high rate of economic growth. Urban India outstripped rural India in contributing to the national GDP (Business Standard, 2014). Rural India has been characterised by agrarian distress, lack of employment and farmer deaths (Abbas & Varma, 2014). Consequently, there emerged a rural-urban divide, which can be attributed as one of the many reasons behind domestic/internal migration in India (Abbas & Varma, 2014). However, due to the recent global pandemic caused by the virus SARS-CoV-2, India experienced a reversal of its internal migration trend. In response to the pandemic the country was locked down, which meant all economic activities, except essential services, stopped for nearly sixty days leading to a mass exodus of migrants from the urban centres to rural India. The impact of the pandemic and the lockdown on low-income migrant workers and their households is yet to be evaluated.

Low-income migrant households exhibit certain characteristics that differentiate them from low-income non-migrant households in India. Members of migrant households experience mobility and change in location in order to work, unlike members of non-migrant household(Srivastava, 2011). Migration, as a process, is painstaking and insecure. Workers take loans at source (place of residence) from informal sources in order to migrate and to sustain cash flow to their families, as they search for jobs (Kulkarni, 2012). The bulk of them find employment in the informal and unorganised sector as casual or regular wage workers (Chakrabarty, 2013). The temporary and informal nature of their work restricts their access to financial products like insurance and pension. Furthermore, they often lack documents (residential and photo identification) at the destination (place of work), which limits their engagement with formal financial institutions and service providers. Migrant workers require a "suite of simple and customised financial products", which serve their needs and reduce vulnerabilities like erratic income and cash-flow for them and their households (Reserve Bank of India, 2017). To this end, this study focuses on savings instruments and channels of remittances (CoR) accessed and used by migrant workers.

Hitherto, migrant workers predominantly use non-institutional channels for remittances and informal savings instruments (Tumbe, 2011)(Chakrabarty, 2013). Advancements in information and communication technology have allowed financial s ervice providers to deliver financial services through mobile phones. India has witnessed a rapid increase in mobile phone penetration. It is estimated that by the end of 2020, India would achieve 90 per cent mobile phone penetration (Sharma, 2017). According to the telecom subscription data published by the Telecom Regulatory Authority of India, there were 1,160.59 million active mobile users (GSM, CDMA and LTE) in India in 2020 (Telecom Regulatory Authority of India, 2020). Furthermore, a report by the Internet and Mobile Association of India claimed that mobile phones were the most popular device used to access the internet by Indians (PTI, 2020).

However, the focus of this study is to evaluate whether mobile phones can be used as a channel of remittances and as a platform for the provision of financial products for migrant workers? Furthermore, the study examines whether the workers use mobile-based financial services (MBFS)? Have MBFS improved their ability to access financial services? Have MBFS impacted migrant household savings and remittances? What, if any, barriers do they face while adopting MBFS? To answer some of these research questions, the author undertook a study with migrant workers working as tailors, machine operators, helpers, and line supervisors in the garment manufacturing industry in Dundahera and Manesar in the Delhi-Gurugram industrial corridor.

The study is divided into four sections. Section 1 introduces and provides background to the core concepts of this study. Additionally, it includes the literature review, which provides the theoretical framework for the study. The literature review is followed by research objectives, questions, and methodology. Section 2 presents the analysis of the findings in three sub-sections. Followed by section 3 which discusses wider insights and offers suggestions for future research. Finally, section 4 constitutes the concluding remarks.

1.1.1 Mobile-Based Financial Services

India has experienced a tremendous increase in mobile phone penetration in recent years. As mentioned in the previous section, it is estimated to reach 90 per cent by the end of 2020 (Sharma, 2017). Additionally, India has 502.2 million people with internet-enabled mobile phones in 2020 (News 18, 2020). The rise in mobile phone users can be attributed to many factors like liberalisation and privatisation of the telecom industry and conducive government policies (Burman, 2018). Today, mobile phones allow users to make phone calls, send messages, access the internet and financial services, among other things. The advancements in information and communication technology have affected many aspects of finance and banking even channels of providing financial services to the erstwhile excluded sections of society.

Mobile-based financial services (MBFS) means access to few or all financial services and products like a savings account, transactions facility, payments option, credit, insurance, among others via mobile phones. A user, with an existing bank account, can access and use her bank account through a mobile application or through SMS. Banks like SBI, ICICI, HDFC, and Axis have their own mobile applications that offer their users most of the banking services like transferring funds, paying bills, and even applying for loans (Boston Consulting Group; Google, 2016). However, this service is exclusively provided to existing bank account holders.

In addition, mobile money and mobile wallets allow non-bank entities like telecom, technology (Google, Ola, PayTM), and financial technology firms to provide electronic money accounts that are available and accessible through mobile phones (Boston Consulting Group; Google, 2016). Users can store the value into these accounts by exchanging cash with the retail agents, or by linking this account to their traditional bank account. Mobile money allows users to make payments and remit money (CGAP, 2008), whereas mobile wallets enable users to store money in electronic wallets. Airtel money from Airtel, Idea money from Idea, mRUPEE by TATA, and Jio Money by Reliance (Boston Consulting Group; Google, 2016) are some of the telecom companies led mobile money solutions in India. Paytm, Mobikwik, Citrus pay, Google pay, Phone pay, and Freecharge are some of the mobile wallets and mobile payments platforms (MPP) (Boston Consulting Group; Google, 2016).

1.1.2 Household Savings

Household savings means that part of household income that is not consumed by the members of a given household. Savings make low-income households less vulnerable to potential physical and/or financial emergencies. Savings also help these households to increase their wealth. However, there are many barriers to wealth creation for low-income households.

In low-income households, income is often saved in the form that it is received in, i.e. cash (D'Souza, 2019). It is convenient to hold on to cash because it is easily accessible, readily available, universally accepted, and cheaper to use. Whereas, opening, maintaining, and accessing a bank account are costly, time-consuming, and cumbersome tasks (D'Souza, 2019). Low-income households tend to save in traditional instruments like land, buildings, and gold instead of financial instruments like bank deposits (Banerjee & Duflo, 2011) (Goedecke, Guérin, D 'Espallier, & Venkatasubramanian, 2018). In the case of low-income migrant households, a sustained flow of remittances is critical for ensuring savings in either traditional or financial instruments. Remittances are, in most cases, the primary source of income for migrant households. Hence, low-cost, safe, reliable, and swift channels of remittances are essential for migrant households to effectively utilise remittances to save and to create assets. For the purpose of this study, the author chose Dundahera, as it one of the most popular destinations for migrant workers.

1.1.3 Background of Dundahera

It is a census town that lies at the border of Delhi and Haryana. The population of the town is approximately 11,000. Udyog Vihar is an industrial area that helped in the early development of the town. It is surrounded by manufacturing plants of apparel, automotive, and tech industry. The apparel industry hires the maximum number of workers in Udyog Vihar, who are mostly migrants from Bihar, Uttar Pradesh or Jharkhand (Society for Labour and Development, 2018). According to a

report by the Society for Labour and Development, Dundahera is one of the top destinations for migrant workers (Society for Labour and Development, 2018). Dundahera has developed into an urban village, as it houses the migrant workers and the factories where they work.

Therefore, Dundahera was selected for this study, as it is in the heart of an industrialised area (Gurugram), the workers are from other states, and smartphone penetration is high.

1.2   Literature Review

This chapter reviews the available literature on MBFS through different perspectives. Through this chapter, the author tries to build the theoretical framework within which this research was conducted.

1.2.1   The Banking System & Last Mile Service Delivery

After independence in 1947, India inherited weak banks and a complex financial structure (Chandrasekhar & Ghosh, 2018). The financial market was dominated by privately owned banks, which operated with a small capital base. Millions of people did not have access to formal financial services. The Imperial Bank (State Bank of India) was taken over by the Indian government in 1955 as the first step towards transforming the role of the banks from commercial banks to agents of economic growth and development (Chandrasekhar & Ghosh, 2018). This transformation was completed in 1969, as the Indian government nationalised a significant part of the banking sector. It was envisioned that nationalisation of major banks would result in:

- increased penetration of banking services;

- better mobilisation of financial savings in formal institutions through bank deposits;

- increased access to credit for underserved sectors of the economy, and

- better control of national savings and its allocation into sectors deemed necessary for development (Chandrasekhar & Ghosh, 2018).

Between 1969 and 1990, 30,000 bank branches were opened in the states and districts, which previously had no formal financial institutions (Burgess & Pande, 2005). The purpose was to reduce poverty in rural India by providing low-cost credit and savings opportunities. The Central Bank's 1:4 policy entailed granting licenses to banks to open branches in banked areas only if they opened four branches in unbanked areas. This policy was successful in increasing the number of bank branches in less financially developed areas (Burgess & Pande, 2005). The 1:4 policy, combined with priority sector lending stipulations led to significant fall in rural poverty as well. Yet, in terms of financial inclusion, the overall picture remained uneven (Ghosh & Ranade, 2020).

The balance of payment crisis of 1991, necessitated the country to liberalise many sectors of the economy. The Narasimham Committee (1991 and 1998) reports emphasised the importance of efficiency and competition in the banking sector (Ghosh & Ranade, 2020). The reports accorded greater autonomy to public sector banks to resolve bad loans and called for foreign capital to enter the domestic market (Chandrasekhar & Ghosh, 2018)(Ghosh & Ranade, 2020). Financial inclusion came to the fore again only in 2005, when former Reserve Bank of India Governor Y.V. Reddy mentioned it in the RBIs annual policy statement. It was formally defined in the C. Rangarajan Committee on Financial Inclusion in 2008, as "the process of ensuring access to financial services and timely and adequate credit where needed to vulnerable groups such as weaker sections and low-income groups at affordable cost" (Reserve Bank of India, 2008). Bank accounts were necessary for the delivery of formal financial services to low-income groups. The RBIs Committee on Comprehensive Financial Services for Small Businesses and Low-income Households recommended that by January 2016, each resident of India, above the age of eighteen, would have a fully functional electronic bank account. Subsequently, through the Pradhan Mantri Jan Dhan Yojana (PMJDY) scheme of Government of India, banks opened nearly 25 crore new bank accounts (Agarwal, et al., 2017). Millions of unbanked adults were provided with 'no-frills' bank accounts (Agarwal, et al., 2017). No doubt bank accounts are the critical first step towards financial inclusion. However, it is imperative focus on "broader access and usage of suitable financial services" in order to truly realise the objective of financial inclusion (Stanely, 2020). Usage of suitable financial services means that consumers have access to "larger suite of financial products that are matched to the financial situation, investment objective, level of risk tolerance, financial need and experience of the individual" (Stanely, 2020).

Other initiatives included Banking Correspondents (BCs), as banks tried to increase last-mile connectivity and deliver financial services to the unbanked. However, the rapid uptake in access to bank accounts due to PMJDY did not lead to a similar rapid uptake in usage of bank accounts (D'Souza, 2019) (Cook & Raman, 2019). In addition, the unsatisfactory performance of BCs necessitated the need for branchless banking and a technological solution.

1.2.2 Branchless Banking

Branchless banking is the umbrella term that constitutes various types of digital banking services. It is of two types – additive and transformative (CGAP, 2008). Branchless banking is additive when mobile phones and/or point of sale machines (POS) either add to the choices or increase convenience for the already existing customers of the banks. It is transformative when it extends financial services to those users who until then did not have access to these services (CGAP, 2008).

Technology plays a vital role in transforming additive branchless banking into transformative branchless banking. It is able to bring down the costs of reaching the unbanked adults; it also substantially reduces the cost of sharing financial information between the user, retailers, banks, and any other third party (CGAP, 2008). Financial service providers use mobile phones, POS machines, and/or a combination of both to provide branchless banking service to the erstwhile unserved sections of society (CGAP, 2008).

There are two models of branchless banking (a) bank-led; and (b) non-bank-led (CGAP, 2008). In bank-led branchless banking, users have a direct contractual relationship with a licensed and regulated bank. The banks offer a full bouquet of their services – transaction account, savings account, and loans, among others – to the users. In the non-bank-led model, users have no direct contractual relationship with the banks. They exchange cash at retail outlets for electronic store value. The money is deposited in a virtual account that is maintained by non-banking entities. Users can direct the entities to transfer funds or make payments to other users or businesses who are also a part of the system. Mobile money and mobile payments platforms fall under non-bank led branchless banking. They offer digital payments and electronic wallets instead of a whole suite of financial products.

1.2.3   Mobile-Based Digital Payments

An efficient and effective payments system helps to reduce the cost of exchanging goods and services and is imperative for the smooth functioning of financial, capital and money markets (Cook & Raman, 2019). In India, the push towards digital payments has been spearheaded by the RBI and the National Payments Corporation of India (NPCI). The latter was established as a not for profit company in 2009, promoted by the RBI and owned by a consortium of public sector and private banks (Cook & Raman, 2019). Its aim was to transform India's retail payments system. To that end, it rolled out many products like India's domestic Automated Clearing House (ACH) solution, the RuPay card, the Immediate Payment Services (IMPS) and the Unified Payments Interface (UPI) (Cook & Raman, 2019).

The most important modes of payment in Indian digital payments ecosystem based on volume and value of transactions include:

- *National Electronic Fund Transfer (NEFT):* it is a countrywide electronic payments system maintained by the RBI. It allows for inter-bank transfer of funds by individuals, firms and corporates (Motiani, 2019). NEFT is primarily used for large ticket transactions. The average transaction through NEFT is Rs. 1,00,000, whereas the average transaction size of all other modes of digital payments is less than Rs. 10,000 (Pani, 2018).

- *Credit Cards:* allow users to borrow funds from financial institutions to pay for goods and services. The money is to be repaid at a later date with interest (Bloomenthal, 2019).

- *Debit Cards:* are essentially payments cards. They allow users to access their own funds from their bank accounts (Fontinelle, 2020).

- *Immediate Payment System (IMPS):* IMPS is a real-time electronic payments platform developed and owned by the NPCI. It also allows for inter-bank transfer of funds by individuals (Code For Banks, n.d.).

- *Mobile Wallets:* These are electronic wallets available on mobile phones. They can be stored or loaded with funds via credit cards, debit cards, UPI, or net banking. The money stored in the wallet can then be used to make payments at merchants listed with the mobile wallet service provider (Kenton, 2019).

- *Unified Payments Interface (UPI):* UPI is a payments system offered by NPCI (Cook & Raman, 2019). It can be accessed through internet-enabled mobile phones and/or through USSD in feature phones. It is used to make direct payments from the user's bank account to the merchant's through their mobile numbers. There is no need for bank account number, IFSC code, or any other detail before making payments through UPI (Code For Banks, n.d.). UPI transactions have been growing, and they recorded 1.3 billion transactions worth Rs. 2.16 trillion in January 2020 (Upadhyay, 2020). They almost matched the value of transactions through IMPS in January 2020. In the past two years, UPI has recorded the highest growth rate of 883 per cent among all modes of digital payments (Upadhyay, 2020). The advantages of UPI include direct linkage to the bank account, only require a mobile number to initiate the transaction, it is simple to use, and it is cheaper for small ticket size transactions (Mishra, 2018). Many financial service providers have utilised the UPI platform to offer payments solutions. Google Pay, Phone Pe, and Paytm are the top three mobile payments applications used in India (Upadhyay, 2020).

All the modes of payments mentioned above are online or internet-based payments solutions. Internet-enabled mobile phone penetration is not as high as feature phone penetration in India. Low-income households face barriers like low financial literacy and low income for adopting smartphones (Cook & Raman, 2019). The M-Pesa initiative in Kenya utilised the Unstructured Supplementary Service Data (USSD) technology to expand the provision of financial services to its people (Cook & Raman, 2019). The NPCI launched the single USSD channel for India in 2014. It was an open system of rails for feature phone owners to access the NPCI infrastructure (Cook & Raman, 2019). Feature phone users could simply punch in the code (*99#) using any mobile network and initiate a session with NPCI (Cook & Raman, 2019). However, the tussle between mobile network operators and banks over revenue sharing led to the loss in momentum for promoting the service.

In the larger scheme of things, payments solutions have often spurred the efforts towards financial inclusion because they are mostly the first financial services that financially excluded people adopt (Ghosh & Ranade, 2020). To that end, Indian policymakers also pinned their hopes on expanding financial inclusion through payment services. The Nachiket Mor Committee on Comprehensive Financial Services for Small Businesses and Low-Income Households introduced the concept of 'payments banks' as part of the vertically differentiated banking system design (Ghosh & Ranade, 2020). The purpose of payments banks was to ensure a restricted domain of operations, simple structure, harness technological innovations to further financial inclusion (Ghosh & Ranade, 2020). Structurally, payments banks

were allowed to accept demand deposits (up to Rs. 1,00,000), issue debit cards (not credit cards), and any other prepaid payments instruments (PPIs) and their business model was based on high volume and low-value transactions (Ghosh & Ranade, 2020). It is also important to mention PPIs at this point, as they have been successful in promoting digital payments and cashless economy (Business Today, 2019). Recently, the RBI has allowed for a new PPI to increase small-ticket digital payments for the purpose of purchasing goods and services (Manikandan, 2019). In addition, the RBI has also allowed payments banks to apply for conversion into Small Finance Banks (SFBs) only after five years of operation (Express News Service, 2019). SFBs accept small deposits and lend to small businesses, farmers, and micro and small industries. Initiatives like payments banks, SFBs and PPIs have a common objective, which is to enhance financial inclusion (Gopakumar, 2019).

1.2.4   Migrant Household Savings Culture and Financial Inclusion

India, like many developing countries, faces the issue of low-income households saving less in formal financial institutions (Patnaik & Pandey, 2019). They tend to save in physical assets like land (Goedecke, Guérin, D'Espallier, & Venkatasubramanian, 2018), houses (Banerjee & Duflo, 2011) and gold (Goedecke, Guérin, D'Espallier, & Venkatasubramanian, 2018), in ROSCAs (chit-funds) (Banerjee & Duflo, 2011), and through informal lending (Goedecke, Guérin, D'Espallier, & Venkatasubramanian, 2018).

Migrant households, as mentioned in the beginning of the study, have different financial needs compared to non-migrant households. Migrant households experience the risks associated with mobility and change in location (Srivastava, 2011). The nature of work combined with skills, education level, and resource endowments play a significant role in deciding the socio-economic conditions of a migrant household (Srivastava, 2011). Seasonal and semi-permanent or long-term circular migrants suffer from varieties of vulnerabilities due to their migrant status. The risk and vulnerabilities that migrant workers face include:

- few active years in the labour force, shorter work-life and early retirement;

- disorders and diseases caused due to working in hazardous industries;

- common risks accidents, death, health shocks, and agricultural shocks (Kulkarni, 2012);

- migrant workers enter the labour market at less favourable terms compared to non-migrant workers because they usually take a loan at the source to migrate and thereby are debt-locked, they are dependent on a contractor to find them jobs, and they face greater isolation (Srivastava, 2011).

Migrant households are dependent on the income of the earning member of the household. Such households tend to suffer from a range of socio-economic problems stemming from the conditions of migrant workers. For example:

- members of migrant households tend to lack requisite documentations like (identity and residence proof) (Srivastava, 2011);

- this limits their ability to comply with 'Know Your Customer' requirements needed by banks and to establish claims and entitlements (Khandelwal, Sharma, & Varma, 2011) (Kulkarni, 2012);

- exclusion from formal banking services pushes them to use non-institutional and insecure channels for remittances (Kulkarni, 2012);

- additionally, they face difficulties securing basic services like affordable housing, education for their children, healthcare, and food security (Srivastava, 2011);

- migrant households also tend to be subjected to caste-based discrimination at the destination (place of work) (Kulkarni, 2012);

- finally, they are unable to form strong social networks with other households (Srivastava, 2011).

Migrant households face tough conditions as the risks and vulnerabilities are combined with issues mentioned above. There are formal measures to protect the interests of migrant workers and their households like the Minimum Wages Act (1948), the Inter-State Migrant Workmen Act (1979), and the Construction Workers Act (1996) (Khandelwal, Sharma, & Varma, 2011). However, experience has shown that these laws tend to assist migrant workers employed in the formal and organised sector of the economy (Kulkarni, 2012). The unorganised sector employs 90 per cent of the Indian labour force, indicating the limitations of the formal measures to protect the interests of migrant workers and their households (Abbas & Varma, 2014). Migrant workers, hence, often rely on informal and non-institutional ways to save and to remit money (Chakrabarty, 2013). Workers remit money either through friends and family or through local money transfer shops (LMTS). In addition, workers tend to 'save-down' due to cash volatility and seasonal nature of their jobs (Kulkarni, 2012). Migrant workers often take loans against future wages in order to migrate, and this is referred to as 'saving-down', as it reduces future savings of the workers' households. Informal and non-institutional measures are often unsafe, expensive, unreliable, and exploitative.

Exclusion from formal financial services results in migrant workers being unable to access insurance and pension products. They tend to rely on informal sources of credit and pay exorbitant interest rates just like financially excluded non-migrant households. In addition, the benefits from schemes and acts like the Unorganised Worker's Social Security Act (2008), *Swavalamban* pension scheme, and *Swabhimaan* financial inclusion initiative are also yet to be formally realised (Kulkarni, 2012). It is within this context that the following research questions were framed, to under stand the impact of mobile-based financial services on migrant workers' access to and usage of finance.

1.3   Research Objectives

The objective of this study is to examine whether migrant workers are accessing and using MBFS. If yes, then whether MBFS have any impact on migrant households' savings and remittances. In addition, the study observes the financial choices of migrant workers. Finally, the study aims to examine whether mobile phones and MBFS have any impact on women migrant workers' ability to control their finances.

1.4   Research Questions

- How have mobile-based financial services, if at all, changed the financial choices of migrant workers in Dundahera?

  - o How have mobile-based financial services changed the financial choices of the families of migrant workers?

  - o Whether mobile-based financial services affect migrant household's monthly savings or not?

  - o Whether migrant workers use mobile-based financial services to remit money or not?

  - o Whether migrant workers use mobile-based financial services to make payments or not?

- What are the main barriers to the adoption and usage of mobile-based financial services for the migrant workers?

- What kind of savings instruments the workers and their families used or use before and after mobile-based financial services?

1.5   Research Methodology

1.5.1   Research Design

The author used a combination of qualitative and quantitative research methods. The data was collected from two apparel manufacturing units in Dundahera town in Gurugram, Haryana. A questionnaire was used to collect data on MBFS and its effect on household savings culture and financial inclusion. The questionnaire captured responses based on access to MBFS, usage of MBFS, and savings habits of the migrant workers. To this end, the questionnaire captured objective and descriptive responses of the workers. The questionnaire is attached in the appendix of the study.

1.5.2   Respondents & Manufacturing Units

Migrant workers working as tailors, machine operators, helpers, and line supervisors in the apparel manufacturing industry in Dundahera and Manesar in the Delhi-Gurugram industrial corridor were chosen for the study. The author was granted access to two apparel manufacturing companies, Richa and Company and Prachi Apparels after requesting the management of both companies. The entire workforce in both companies was composed of migrant workers. Hence, the respondents were selected through convenient sampling method.

The migrant workers responding to the survey were from states including Jharkhand, Bihar, and Uttar Pradesh. The survey aims to respond to specific research questions that arise in relation to digital financial inclusion and access to savings channels for lower income migrant workers' households in India.

1.5.3   Methods of Analysis

The questionnaire captured objective and descriptive data. In order to analyse objective data, the responses were tabulated in Microsoft Excel and then codified numerically. The data was then imported into STATA, and descriptive statistics were generated using STATA. In order to analyse descriptive data, patterns, themes, and trends were identified and analysed using Microsoft Excel.

The author also conducted unstructured interviews with three respondents who had adopted MBFS completely, had not adopted MBFS, and were victims of online fraud, respectively. The responses were recorded within the questionnaire. The data was analysed by searching for patterns and themes that were relevant for the study. The information was used in the analysis section.

1.5.4   Limitations

There are certain limitations to the methodology and, subsequently, to the results of the study. Such as:

- The sample size is small and limited to workers employed in the apparel manufacturing industry.

- The results of the study ought not to be extrapolated to develop causations or statistically significant correlations. The study does not use statistical tests to evaluate the significance of the results.

- The insights have been developed using descriptive statistics from the responses of the workers and observations of the author on each worker, as they were surveyed.

- Both the manufacturing units the author surveyed had an almost equal number of men and women workers. Yet, the author was unable to encourage more women to participate in the survey. The absence of woman enumerator discouraged women workers from participating.

2.   Analysing the Findings from Survey

This section is divided into three sub-sections, each examining with one of the three re-search questions. The first sub-section provides empirical evidence (descriptive statistics) obtained from the questionnaire and processed in STATA supported by qualitative observations of the author in response to whether MBFS has changed the financial choices of migrant workers and their family members. The second sub-section constitutes a list of barriers and the reasons for the barriers to the adoption of MBFS for the workers. In the third sub-section, the author looks at various savings options available to the migrants and the systemic issues migrant workers face in accessing and using formal financial services.

2.1   Impact of Mobile-Based Financial Services on Migrant

One of the pleasant findings of the study was high access to bank accounts and mobile phones among the workers. The results showed that **95.7 per cent** of the workers (67) owned mobile phones, and **70 per cent** of them (49) had internet-enabled mobile phones. Additionally, **97 per cent** of the workers (68) had a bank account.

In order to establish a change in the financial choices of the migrant workers, the author focused on channels of payments, remittances, and options for savings. It was observed, during the pilot survey, that migrant workers used cash for making payments, local agents, hawala couriers, Bank Branch, and Friends and Family for remitting money, and saved by sending money to their families.

The objective of this sub-section is to check whether workers had switched to MBFS for payments and remittances. Subsequently, to examine whether the MBFS had any impact on the workers' household savings and remittances.

2.1.1   Wage Payment to Workers

We begin the analysis by examining how the workers were paid. Out of the 70 workers surveyed, 51 workers received their salaries in their bank accounts, and 19 received it as cash. When asked if they preferred to be paid in cash or in their bank accounts, 53 of them reported that they preferred to be paid in their bank accounts, 14 claimed they preferred cash payments, and 3 did not mind either. The following are the four reasons, in no order of preference, that were highlighted by the workers for preferring payment in bank accounts.

- *Safety:* one of the greatest concerns for migrant workers is to find a secure place to keep their money, as mentioned in section 1.4. The temporary nature of their work and residence entails constant moving, which increases the risk of losing money and theft. Atul Kumar (name changed), one of the respondents, recounted that earlier the local thieves were aware of the day when workers were paid. Hence, workers became easy targets. Mohammad (name changed) recalled an incident wherein, thieves were aware of the time when most of the workers left Dundahera for their villages with their savings in cash. Unfortunately, he was once drugged on his way back in the train, and the thieves absconded with his savings. There

were many such incidents that highlighted the insecurity of holding cash. Hence, workers felt a higher degree of security with their salaries safely deposited in their bank accounts.

- *Convenience:* after their payday, most workers had to skip work for at least one day or sometimes two. They stood in long queues outside their bank branch or an ATM to deposit their salaries into their bank accounts. This meant that they had to forego a day's wage in order to deposit money. The opportunity cost of missing a day's work and wage was too high for many. Hence, they felt it was convenient to be paid in their bank account as it saved a lot of time and money for the workers.

- *Increase in Savings:* workers felt that they were able to save more ever since they started getting paid in their bank accounts. They felt it helped them reduce over and unnecessary expenditure. They also felt that cash was very liquid, and they had troubles holding on to it because of unexpected expenditures, which came up all the time.

- *Can be Operated by Mobile Phone and Debit Card:* workers also felt that they and their families at source could operate their bank accounts easily using debit cards. They could withdraw as much cash as required. Their families could also withdraw as much cash they needed from the ATMs at the source. With the increase in mobile penetration and MBFS like mobile payments platforms (Google Pay, Paytm, and Phone Pe), more workers are finding it easy to operate their bank accounts through mobile phones.

However, the 14 workers, who preferred cash, argued that their two major expenses – rent and ration – were more conveniently paid for with cash. Landlords were more willing to accept cash instead of a bank transfer, and for daily transactions, cash was more useful, as it was accepted by all. Local ration shops or vegetable shops did not have Point of Sale Machines or mobile payments options. 6 workers' bank accounts were opened at the source, which meant they could not access their bank accounts at the destination. 5 of them did not have debit cards, hence, they could not access ATMs.

2.1.2   Operating Bank Account

The next step was to check how the workers operated their bank accounts. Table 1.19 (see appendix) explains the relationship between payment in the bank account or cash with the medium through which workers operated their bank account. It shows that 28 of the 51 workers, who received their payments in their bank accounts, operated their bank accounts through mobile phones. 12 did so through a bank branch or ATM, 5 through friends and family and 6 through LMTS. LMTS were of two types; one used Aadhaar card number of the migrant workers to remit money; the other was an informal channel – hawala/tappawala couriers. The former also dispensed cash and provided basic services like checking bank account balance and recent transactions for a commission. The hawala couriers were an illegal channel of transferring money and required no documentation. It was observed that 10 of the 19 workers, paid in cash, operated their bank account through LMTS. This suggested that payment transferred into the workers' bank account or paid in cash had a significant impact on how workers operated their accounts.

2.1.3 Payments and Remittances

The next step was to examine the essential financial transactions for migrant workers. Remittances and payments through mobile phones were chosen for the same, as the indicators of usage of mobile-based financial activities by the workers. It was observed that 54 of the total workers claimed that they regularly remitted money to their families. In addition, 6 claimed that they only "Sometimes" sent money back home.

In terms of payments, only 28 among the total workers reported to make payments through mobile phones and 40 reported to use cash for making payments. Cash was the major mode of payments for regular transactions and payments among the workers because it was accepted by everyone and readily available.

In case of remittances, institutional channels of remittance available to migrants workers included post offices and banks. However, their use was limited because post offices were and are one of the most expensive channels of remitting money (Tumbe, 2011), mostly available to migrant workers employed in the formal sector (Tumbe, 2011), banks require identification documents (photo and residential) (Srivastava, 2011), and have stringent 'Know Your Customer' (KYC) norms (Srivastava, 2011). Such barriers forced migrant workers to opt for non-institutional channels like friends and family or hawala/tappawala couriers (Agarwal, Champatiray, & Oza, 2011). These channels were unreliable, expensive, risky, and slow. In order to evaluate whether MBFS like mobile payments platforms have been adopted by the workers for remittances. Table 2.1 shows the relationship between the way respondents (the ones who either remit "Always" or "Sometimes") operate their bank accounts and the channels of remittances used by them. The X-axis constitutes the different modes with which the respondents operated or managed their bank accounts. The Y-axis shows the various channels and combination of channels used by the workers to remit money.

Table 2.1 shows that 60 people remit money regularly and sometimes. It shows that there is a visible relationship between the mode of operating bank account and the channel of remittances chosen by the workers. All 27 workers who operate their bank accounts using mobile phones also remit money using mobile payments platforms singularly or in combination with other channels. Out of the 13 workers who use Bank Branch or ATMs to operate their bank accounts 6 use LMTS to remit money. Whereas 15 people use LMTS to operate their bank accounts, and 13 of them opt for LMTS to remit money.

Thus, we can observe that MBFS and LMTS operate **as opposite institutions**. If a worker uses one of the two for operating their bank accounts, he/she is likely to use it for remitting money as well. Whereas, if the workers operate their bank account through Bank Branch or through ATM, remitting money through LMTS remains an option. Long queues, misplaced debit cards, and losing a day of work deter workers from frequently using bank branches. It can be also be inferred that with increased penetration of MBFS and LMTS, the number of workers using bank branch for operating their bank accounts and for remitting money may decline even further. Eventually, MBFS may grow by substituting LMTS.

The respondents were asked which channel of remittances they preferred and why. It was observed that 32 out of the 60 workers preferred using mobile payments platforms.

TABLE 2.1: Cross-Section of Channels of Remittances and Operating Bank Account

Channels of Remittances	Operating Bank Account				Total
	Mobile Phone	Bank Branch/ATM	Friends & Family	Local Money Transfer Shops	
Bank Branch	0	3	1	0	4
Mobile Payments Platform	20	0	1	0	21
Local Money Transfer Shops	0	6	1	13	20
Friends & Family	0	1	0	2	3
Bank Branch & Mobile Payments Platforms	3	0	0	0	3
Bank Branch & Local Money Transfer Shops	0	2	0	0	2
Mobile Payments Platform & Local Money Transfer Shops	0	1	1	0	2
Mobile Payments Platform Friends & Family	1	0	1	0	2
Mobile Payments Platforms, Local Money Transfer Shops & Friends & Family	1	0	0	0	1
Mobile Payments Platform & Mobile Banking Applications	1	0	0	0	1
Mobile Payments Platforms, Bank Branch & Local Money Transfer Shops	1	0	0	0	1
Total	27	13	5	15	60

Whereas, 23 of the same 60 workers preferred to use LMTS for remitting money. The following reasons were stated by the 32 workers for preferring mobile payments platforms:

- *Convenience:* they felt it made their lives much easier, as they could remit from anywhere and, unlike banks, it was available all the time. One of the respondents, Salman (name changed), was very happy ever since he switched to mobile payments platforms to make payments and to remit money. He claimed that his bank branch was 20 km. away from his house at the destination. Mobile payments platforms enabled him to save many trips to the bank in order to remit money. In addition, he felt that he could transfer money to whoever's bank account from the comforts of his home.

- *Fast:* workers felt that the transactions through mobile payments platforms were instantaneous. It involved a minimum number of steps, and the funds were transferred in real-time. Instant SMS confirmation for transfer of funds also helped build trust in the channel. Vijay (name changed) reported that he and his peers were

aware of the problems like 'server-down', delayed and/or failed transactions. These problems did, at times, delay transactions but they had faith in the channel because the money was either returned to their bank account or was transferred to the beneficiaries account.

- *Cheap:* the LMTS charged a commission in the range of 1 per cent to 5 per cent per transaction. Mobile payments platforms significantly reduced the cost of remitting money to their family members.

- *Safety:* workers felt that sending remittances through Google Pay and Phone Pe was more secure because funds were transferred from one bank account to another without any middlemen and/or human intervention. It reduced the possibility of any fraud or loss of money during the transaction.

- *Rewards:* workers were also enticed by cash backs and rewards offered by Google Pay, Phone Pe, and Paytm. They felt by doing more transactions through the platform they increased the probability of getting cashback. Iqbal (name changed) reported that he felt by conducting all his transactions through mobile payments platforms increased his chances of earning rewards and cash backs. He felt the cash backs added to his savings.

They were then asked to rank the first four in order of their preferences to check which benefit of mobile payments platform they valued more. The results are shown in Figure 2.1.
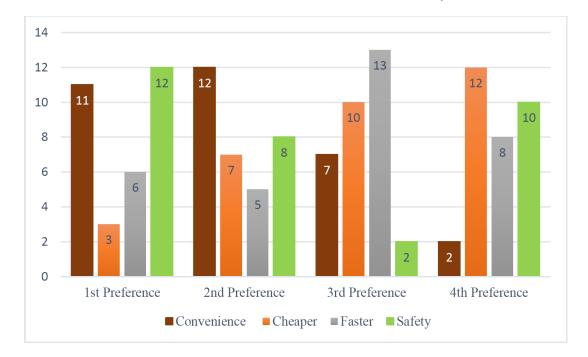
FIGURE 2.1: Ranked Preferences for the Benefits of Mobile Payments Platforms

It was observed that maximum people ranked "Safety" as the number one reason to prefer MBFS. "Convenience" was ranked second followed by "Faster" and "Cheaper". This showed that workers preferred MBFS because the services were more safe and secure

than other forms of financial services. It also suggested that low-income migrant workers were risk-averse.

On the other hand, the number of workers who preferred LMTS for remittances was very close to the number of workers who preferred mobile payments platform. The workers reported the following reasons behind their preference.

- *Wage Payment in Cash:* workers who were paid in cash tended to prefer LMTS for all their financial needs. The study showed 13 out of the 15 such workers used LMTS, as they allowed them to avoid the lines at the bank. There were many shops in and around the area where they worked. They visited these shops in order to remit a sizeable chunk of their salary to their families and paid a small commission for it. They kept enough cash for their monthly expenditure (rent and ration), which was minimal as they spent 12-15 hours a day at work.

- *Issues with Debit Card & Bank Account:* many workers' bank accounts were inaccessible because they were opened at the source (their village). Many workers had either not registered their mobile numbers with their bank accounts, or had misplaced their debit cards, or had changed their mobile numbers, or weren't issued a debit card. In all the cases, they could not access and use their bank accounts. In which case, the LMTS served their needs only with Aadhaar card or at times merely with their bank account number. The workers did not mind paying for it.

- *Lack of Trust:* given their drawbacks, the LMTS were effective. The money that was remitted reached the worker's family members. Workers were apprehensive to switch from an already effective channel to a new untested channel. The idea of a person remitting their hard earned money felt more secure to many workers than a mobile phone. They felt more comfortable holding a person accountable in case of any failed or delayed transaction than a mobile phone. Dhirendra (name changed) reported that he used LMTS for big-ticket transactions like remitting money to his family. He claimed that he was comfortable using mobile payments platforms for small-ticket transactions but did not trust the channel for transferring large sum of money. Dhirendra's trust was subject to the size of the sum he wanted to transfer.

- *Lack of Awareness and Smartphones:* a significant number of workers weren't aware of the benefits of mobile payments platforms and lacked the knowledge to use the platforms. They felt that they did not have the wherewithal of setting up the application and then transferring funds. Additionally, many felt that they needed smartphones to remit money via mobile phones. They were not aware of the USSD channel of sending money through feature phones. Anil (name changed) claimed that he found the technology too complex and did not trust himself to be able to learn how to use MBFS. Aradhana (name changed) reported that she felt she was too old for new technology. She felt it was for young kids to use these services and she was happy with her old and trusted channels like LMTS.

It can be safely inferred that payment in cash significantly inhibited the adoption of MBFS by the workers. In order for them to use MBFS, they had to deposit their salaries in their bank accounts. This was one or two-day exercise and led to a loss of wage.

Therefore, the workers found the LMTS to be a convenient and effective solution to their problem, and they did not mind paying a small commission for it.

2.1.4   Effect on Savings

After examining bank account usage patterns and the reasons behind it, managing funds through mobile phones for remittances and payments, the next step was to examine whether the workers felt MBFS had affected their financial lives or not. To this end, it was necessary to examine whether MBFS like mobile payments platforms had impacted workers' average monthly savings, their savings options, and their expenditures.

It was observed that 58 workers earned between Rs. 10,000–Rs.15,000 and 51 of them worked at firm X (name c hanged). The rest 19 workers worked at firm Y (name changed). The results showed that 8 out of the 19 surveyed from firm Y earned between R s. 15,000–Rs. 20,000 and 4 earned between Rs. 20,000–Rs. 25,000.

Workers at both manufacturing units had to work overtime (8 hours + 4 or 5 hours) to earn enough money for themselves and for sending some back home. Their two major expenses, as mentioned in section 2.1.1, included rent and ration. Both the expenses varied depending on whether the worker had migrated with his family or alone and whether their spouse also worked or not. In order to know how much the workers were able to save every month, the author first questioned whether they saved or not.

It was observed that 50 respondents claimed that they "Always" saved a part of their income, 7 respondents reported that they "Often" and "Sometimes" managed to save respectively. There were 2 respondents who claimed that they were "Never" able to save a part of their income.

The next question posed to the respondents attempted to check in what form did the workers save their income. The results showed 43 workers to have reported that they saved in their "Bank Accounts". Whereas, 12 reported that they "Send Savings Home" i.e. they remit their savings to their family at the source. The two major saving options used by the workers were bank accounts and remittances.

Sizeable number of the workers, as shown in section 2.1.1, were operating their bank accounts and remitting money through MBFS. Some even used them to make payments. Some of the benefits enumerated by the workers included convenience, low cost of transactions, and rewards for using mobile payments platforms. To examine if these benefits translated into an increase in savings, the workers were asked if MBFS affected their savings.

Table 2.2 shows that out of the 33 eligible respondents, 17 "Strongly Agreed" and 11 "Agreed" that MBFS had positively affected their monthly savings. They claimed one of the major causes of the visible increase in savings was the reduction in overspending and unnecessary expenditure. The analysis showed that 18 workers reported that MBFS had reduced their overspending "By Moderate Extent" and 9 claimed "By Great Extent". There were also 7 workers who felt that MBFS had affected t heir o verspending " By No Extent".

To conclude, the change in the lives of the workers due to MBFS was established as:

TABLE 2.2: Distribution of Respondents based on Whether MBFS Affect Their Savings

MBFS Affecting Savings	*Frequency*
Strongly Agree	17
Agree	11
Neutral	5
Disagree	0
Strongly Disagree	0
Don't Use MBFS	37
Total	70

- It was observed that 28 of the 60 respondents used mobile phones and MBFS to operate their bank accounts and remit money.

- Next, 27 of these 28 workers used mobile payments platforms to send money to their families. In addition, 32 of the 60 workers claimed that they preferred to remit through mobile payments platforms because it was safe, convenient, cheap, fast and rewarding as compared to other channels.

- In terms of the impact of MBFS on savings, 17 of the eligible 32 workers "Strongly Agreed" and 11 "Agreed" that MBFSs had positively impacted their monthly savings. It was also observed that 18 workers felt that MBFS had helped them reduce over and unnecessary expenditure and had added to their savings "By Moderate Extent" and 9 felt that MBFSs did so "By Great Extent".

Hence, the respondents, who used MBFSs to operate their bank accounts, send remittances, make payments, and manage their expenditure and savings, had experienced a significant positive change in their lives. It was also observed that cash was still the dominant instrument for payments, but workers were willing to substitute LMTS for MBFS to remit money. Additionally, according to the eligible workers MBFSs also proved to positively affect the lives of their families, as 15 workers felt that their families benefited from MBFSs by a "Great Extent", 7 claimed by "Moderate Extent", and 6 workers per cent reported by "Very Great Extent". Only 4 workers' families did not benefit at all from MBFS.

2.2 Barriers to Using Mobile-Based Financial Services

The previous question dealt primarily with examining the access and usage trends of MBFS among the workers. It was observed that there was high access to bank accounts and mobile phones (greater than 90 per cent in both cases). However, a similar increase in the usage of bank accounts through mobile phones was missing. 39 out of 70 workers did not use mobile phones to operate their bank accounts. 23 out of 51 respondents who were paid in their bank accounts did not use mobile phones to operate their bank account. Similarly, 17 out of 19 workers paid in cash, who had bank accounts, did not use mobile phones to operate their bank accounts. In addition, 40 workers did not use mobile payments platforms to make payments. Out of the 60 workers, who remitted money regularly and sometimes, 29 did not use mobile payments platforms for remitting money. Almost 50 per cent of the respondents were ineligible to answer whether MBFS had impacted their savings because they did not use MBFS.

One of the objectives of this study was to find the barriers to usage of MBFS for migrant workers. To this end, the objective questions in the questionnaire were limited in their extent to capture the reasons behind the lack of usage of MBFS among them. Descriptive questions combined with the author's observations on each respondent provided data points which were used to formulate the following barriers.

2.2.1 Gender Norms Limit Women's Usage of Mobile-Based Financial Services

Mahima (name changed), one of the women respondents, was a college graduate from Uttar Pradesh. She was married and used to work with her husband as a tailor in the same manufacturing unit. She was academically more qualified than her husband. She owned a non-internet enabled mobile phone. Unlike her husband, she was not only aware of the benefits of using a smartphone and MBFS, but she also understood finances. She was aware of the fact that the commission she had to pay for remitting money at the local money transfer shop could easily be saved by remitting money through mobile payments platforms. She knew how to use a smartphone and different mobile payments platforms. Her husband controlled her finances, and she had no say in the way he managed it. Her gender played a significant role in denying her the opportunity to use MBFS and increase her household savings. Hence, it was important to examine whether there was a pattern.

There were 22 women workers who participated in the survey for this study. The number of women workers at both manufacturing units was almost equal to the number of men workers. Yet, women were more apprehensive to talk to the author. The presence of a woman (author's sister) during the final data collection phase helped more women to participate in the survey. Some of the key findings and results from the survey differ if gender is used as a frame of analysis. It was indicating that gender norms that predominantly govern the lives of women in India might also act as a barrier for adoption of MBFS by women (Barboni, et al., 2018). For example, all the women surveyed were married and lived with either their husbands or with their husband and children. Most women's husbands worked at the same or neighbouring manufacturing unit. Marriage was one of the leading causes for women migration, and the results of this study are consistent with results from other studies (Abbas & Varma, 2014).

The results showed that there were 36 men workers in the 18–28 years age bracket but drastically dropped to 9 men workers in the 29–39 years age bracket. This was also consistent with conclusions from literature stating that the migrant workers had a short work-life span (Kulkarni, 2012). However, there were 10 women workers in the 18–28 years age bracket and 9 in the 29–39 years age bracket. This may suggest that with increasing age women migrant workers tend not to drop out of work as drastically as men do. It was also observed that 36 men had completed secondary level education, and 12 women also had completed the same. There were 2 women who had completed a "college diploma/degree" level of education. The maximum number of men and women workers were employed as "Tailor". Most of the men and women workers belonged to the same age bracket, had similar education qualification, and worked the same job. Yet, on average women tailors were paid Rs. 500 – Rs. 1,000 less than men tailors. The gender norms in the Indian society, constructs of marriage, and the responsibilities of marriage (Banerjee & Raju, 2009) had visible impact on income levels, access to internet-enabled mobile phones among women, how they operated their bank accounts, how they made payments, channels of remittances, and average monthly savings.

TABLE 2.3: Cross Section of Gender of Respondents & Internet Enabled Mobile Phone

Gender of the Respondent	*Internet Enabled Mobile Phone*		*Total*
	Yes	No	
Men	37	11	48
Women	12	10	22
Total	49	21	70

Out of the 70 respondents only **3 respondents** did not own a mobile phone and **all of them were women**. All men owned a mobile phone and Table 2.3 shows that only **22 per cent** of the men (11) did not have an internet-enabled mobile phone. In addition, out of the 19 women workers who owned a mobile phone, **36 per cent** of the women (7) did not own an internet-enabled mobile phone. **This means that a higher percentage of women workers had feature phones than men.** Similarly, let's look at how men and women workers operated their bank accounts.

TABLE 2.4: Cross Section of Gender of Respondents & Operating Bank Account

Gender of the Respondent	*Operating Bank Account*				*Total*
	Mobile Phone	Bank Branch	Friends & Family	Local Money Transfer Shops	
Men	25	9	0	14	48
Women	6	7	7	2	22
Total	31	16	7	16	70

We observe that 7 women workers operated their bank accounts through "Friends & Family", whereas none of the men used "Friends & Family" as a channel to operate their bank accounts. **This is indicative of the manner in which women's agency to operate their bank account was limited.**

In most cases, "Friends & Family" constituted women's husbands or sons. Similarly, **32 per cent** of the women (7) workers visited the "Bank Branch" if they had to operate their bank accounts and only **18 per cent** of the men (9) visited the bank branch to do the same. In addition, **52 per cent** of the men (25) workers used mobile phones to operate their bank accounts, and only **27 per cent** of the women (6) workers used mobile phones to do the same. **These figures show that friends and family (husbands) and bank branch were the two most popular modes of operating bank accounts for women.** The study also revealed interesting findings on whether women made payments through mobile phones.

TABLE 2.5: Cross Section of Gender of Respondents & Payments Through Mobile Phones

Gender of the Respondent	*Payments Through Mobile Phone*			*Total*
	Yes	No	Sometimes	
Men	25	23	0	48
Women	3	17	2	22
Total	28	40	2	70

Table 2.5 shows 17 women workers did not make payments through their mobile phones. In addition, 16 of the 17 used cash for their daily transactions and payments purposes. Few of the major reasons for this were as follows:

- Their husbands or other men of the household controlled and managed their incomes by operating their bank accounts using whichever mode they saw fit. The men also controlled the access to funds by giving them cash for their daily transactions. In addition, the husband's and wife's incomes were not distinct. They were considered as their household's income.

- Many women workers believed that it was the job of the man (husband or son) to manage household finances. They were happy using cash for their daily needs. Gender roles, established by patriarchal norms, were largely prevalent and weren't affected by women's participation in the workforce. In addition, women also believed that they were technologically and financially unaware to use MBFS for making payments.

- Some women workers were aware of the benefits of MBFS for making payments but did not use MBFS as technological choice.

There were 5 women who used MBFS to make payments, remit money, and buy commodities. Devi and Khushi (name changed) had taken charge of their finances and financial well-being. Devi had been working for years now and had realised the benefits of MBFS. She was acutely aware of the safety and security offered by mobile payments platforms while transferring money and the monetary benefits it entailed. In addition, she claimed that she could buy different commodities and transfer funds from within their house. Devi also encouraged other women to adopt MBFS.

Khushi managed her finances through her mobile phone. According to her it had liberated her from carrying her handbag to work and to other places. She also felt that her savings had increased and she was planning to purchase gold, thereby increasing her assets. The other 3 were aware of MBFS but used them only with the permission of their husbands.

In case of remittances, 16 out of 22 women remitted money regularly and "Sometimes". It was observed that 8 of them used mobile payments platforms combined with either bank branch or LMTS. There were instances of women workers reporting "Yes" to remitting money and doing so using mobile payments platforms, but they did not do it themselves. Their husbands remitted money from their bank accounts using the channel he deemed fit. Women workers hardly had any say in these financial decisions of the household.

To conclude, gender norms restricted and, in some cases, denied women workers to use MBFS. Education qualification, age, income, and employment showed marginal effect on women's access to and usage of MBFS. Some women like Devi and Khushi owned internet-enabled mobile phones and operated their bank accounts through them. They also made payments and remitted money through mobile payments platform and claimed that the MBFS had positively affected their household savings.

2.2.2   Lack of Trust and Confidence Can Inhibit Use of Mobile-Based Financial Services

The task of substituting cash for payments and LMTS of remittances for MBFS was never going to be easy. It was difficult to conclusively as certain workers' preferences for cash or MBFS because they gave mixed responses. Some valued MBFS for payments because it allowed them to avoid carrying their wallets, handbags, cards, cash and coins. Others preferred cash because they felt incase they misplaced their wallets the loss would be limited to the small amount of cash they usually carry. Additionally, acceptance of mobile payments was limited to a few merchants, whereas cash was universally accepted. LMTS were effective at remitting money, and some required no documents for the transaction. Hence, workers did not mind paying a commission for the service. Finally, and most importantly, both cash and LMTS had built trust and confidence among the workers over time. The LMTS were run by people who lived around the area where the workers lived as well. Workers were able to form and develop human relations with the people who ran the LMTS. These interpersonal relations enabled workers to hold individuals at the LMTS accountable in case of any failed transactions.

MBFS can be viewed as a disruption to the current system. Its benefits over cash encouraged 28 workers to adopt mobile payments platforms to make payments. Similarly, 31 workers remit money using the same. They found the following services offered by mobile payments platforms to be the most useful (in order of preference); remitting money, checking account balance, mobile recharges, booking train tickets, checking recent transactions, shopping online, and paying bills. However, 22 of the eligible workers (32) thought that network problem or server down was the major impediments to adopt MBFS. In addition, 16 them felt delay in receiving successful or failed transaction SMS combined with the di iculty in accessing customer care services negatively affected their willingness to use and trust MBFS. Instances of a failed transaction, pending transaction, and server down undo the benefits of the MBFS like safety and convenience.

Similarly, instances of money being deducted from the workers' account but not reflecting in the merchant's or the peer's account were one of the most anxious situations for workers. It often led to a failed transaction and the money was returned in the worker's bank account instantly, but sometimes it took days. Workers had to be aware of this contingency and not worry during such instances, which were commonplace. Cases of 'server down' limit the MBFS' benefit of swift transactions. In case of emergencies, it can prove to be a cause of great harm to the workers. Additionally, given how failure of transactions and instances of 'server down' are causes of great concern for workers, NPCI publishes no data on how many UPI based transactions are failing. Journalistic reports have suggested that the volume of transactions through UPI has increased, which may have caused the issue of capacity of the systems. Hence, trust and confidence will only build in MBFS as cases of failed transactions and server down are significantly reduced combined with a more proactive grievance redressal mechanism at the mobile payments app, NPCI, and bank level.

Another aspect that affected the trust and confidence of the workers in MBFS was their lack of knowledge, awareness on how to use MBFS, and how to protect themselves against cyber-crime. Workers often complained that they owned internet-enabled mobile phones but did not know how to set up a mobile payments platform like Google Pay or PhonePe on their devices. They also claimed that they had heard stories of people losing money because they mistakenly shared their details with a fraudster. Ram (name changed) narrated an incident wherein he received a call from a person pretending to be from Central Bank of India (respondent's bank) and informed him that his bank account had been frozen. The respondent shared his account details and One Time Password (OTP) with the caller and lost his entire savings. He was unable to get meaningful help from the authorities – bank and police. Similarly, Meena's (name changed) debit card was stolen, and before she could contact her bank, the thief withdrew Rs.40,000 from her account. She filed a First Information Report at the nearest police station. The police had not been able to apprehend the culprit and instead regularly pressurised her to withdraw her complaint. She was adamant that she wouldn't withdraw her complaint until the police apprehended the culprit. She felt that was the only way she could force the police o icers to invest in her case. The social networks among the workers acted as carriers of information as well. Such cases discouraged workers to switch from cash and LMTS. They also highlighted inadequate and ineffective customer protection measures, inadequate institutional response, and lack of technical and financial literacy, which significantly deters worker's trust and confidence in MBFS.

To conclude, there were many barriers to adoption of MBFS for migrant workers. As mentioned above, 22 workers reported that the network problem was the most popular barrier for the adoption of MBFS. They felt that 'server down', a common issue in Google Pay, dramatically reduced the willingness and confidence of the workers to switch from cash for payments and from LMTS and banks for remittances. The second most popular challenge was a delay or lack in/of transaction confirmation SMS. As mentioned above, it created uncertainty and anxiety among workers, especially when they remitted large amounts. Finally, di iculty accessing customer service in case of any incident was also a concern workers felt needed to be looked in order to increase faith in MBFS.

2.3 Impact on Savings for Migrant Households From Use of Mobile-Based Financial Services

This section examines the relationship between remittances and savings for the surveyed migrant workers. To this end, the author supports the findings from the survey with data from secondary literature.

Until two years ago, workers were paid in cash and had to stand in long queues all day long to deposit money in their bank account, if they had one. Otherwise, they used friends and family, agents, and/or hawala/tappawala couriers to remit money (Agarwal, Champatiray, & Oza, 2011). If they did not have bank accounts, their savings options were limited to the conventional options available to non-migrant low-income households. One of the respondents named Jeetu (name changed) narrated how he and his family saved. Jeetu and three of his brothers remitted money to their parents in their village. His father pooled in all the money and created a household kitty. Jeetu's father would take care of Jeetu's mother and Jeetu's brother's wives from the kitty. Whatever amount saved was used to invest in small pieces of land. One of Jeetu's brother recently moved back and bought an auto-rickshaw, which he rented out. Similar to Jeetu, many workers would keep a certain amount of money with themselves for their regular expenditure and remit the remaining money to their families. An important takeaway from Jeetu's story is that regular remittances are essential to the worker's household's expenditure and savings. Hence, it is important examine whether these workers' households are able to use remittances to enhance their savings?

The migrants workers surveyed by the author did not face the problem of cash flow volatility as acutely as many internal migrant workers do in India. Under normal circumstances, they could remit a certain amount of money regularly. Remittances have helped in wealth creation and in betterment in the standard of living among external migrants (workers who migrate to other countries) (Tumbe, 2011). Although a similar trend has not been observed with internal migrants. Internal migrants face a suite of risks and vulnerabilities like short work-life span, early retirement, and developing diseases and health conditions (Kulkarni, 2012). These risks when combined with logistical and institutional issues like inability to produce documents (residence and photo identifications), inability to meet stringent bank 'KYC' norms, and exclusion from major social security schemes push workers to use remittances for sustenance (Kulkarni, 2012). A similar trend was observed among the workers surveyed by the author for this study. Workers complained of having to work overtime in order to make enough money to send home for their household's expenditure. They did not have the luxury to keep the money for emergencies. Their residential documents were from the source. They were unorganised and could not generate any new documents for claiming labour entitlements. They could not reap the benefits of government social security schemes.

The workers and their households completely relied on the income of the workers. It was observed that 32 out of 70 workers reported that their families could not save from the money they remitted. They did not have the supporting services like institutional support (credit and insurance), and social security benefits like affordable housing, free education for their children and healthcare to utilise their remittances viably. To this end, an organisation, based out of Udaipur Rajasthan, works towards providing institutional support to migrant workers. Rajasthan Shram Sarthi Association, a non-profit company, established by Ajeevika Bureau in 2007, is the first institution that works towards providing basic financial services to migrant workers in order to reduce the risks faced by them. RSSA's model adopted to the unique needs of the migrant workers by providing targeted financial services to them. It provided micro-loans at source and at the destination, informal savings options, insurance options, investment options (specifically designed for migrants), and financial literacy programmes (Kulkarni, 2012). The Ajeevika bureau supported the RSSA by providing social support services forming worker's collectives, providing legal aid and counselling, skills training, and creating identification documents (Kulkarni, 2012). It was also able to provide workers with identification cards based on available documents with the workers. In some cases, it was observed that certain bank branches in Rajasthan started accepting those identification cards for fulfilling KYC requirements (Khandelwal, Sharma, & Varma, 2011). The workers of this study would have benefitted from an organisation similar to RSSA and Ajeevika Bureau.

It was interesting to note that financial inclusion policies like PMJDY focused on merely providing bank accounts. Bank accounts are the first step in the process of providing a range of financial services. This study showed that many workers had access to bank accounts but did not use them. It also showed that workers had access to MBFS, but again not enough were using them. MBFS providers focused on providing payment and remittance services through mobile payments platforms (Google Pay, Phone Pe, Paytm) to enhance usage. However, merely remittances and payments cannot enhance socio-economic conditions and allow migrant workers to utilise the benefits of financial inclusion. They ought to be supported with other targeted financial services like savings, credit and insurance that reduce migrant worker's vulnerability to risks and shocks. The survey shows that 42 out of 43 workers who are paid in their bank accounts saved in bank accounts, whereas 11 out of 19 workers paid in cash "Send Savings Home". Even value-wise, 25 workers averagely save more than Rs 7,000 every month and save it in their bank accounts. Hence, the surveyed workers were utilising their bank accounts to save.

This represents an opportunity for policymakers and MBFS providers to utilise mobile phones to provide newer savings products to the workers. Products which enable workers to save instantly through their mobile phones akin to making payments and remitting money. Financial service providers can be incentivised to provide targeted financial services like RSSA and also find innovative solutions to provide social support services like the Ajeevika Bureau. A digital platform that combines both services is an idea worth exploring.

3.   Discussion

The study enabled the author to identify trends in access and usage of MBFS among migrant workers. It showed the gap between access and usage of MBFS. The author also observed barriers to the adoption of MBFS for the workers. Finally, the study also shed light on the unique financial needs of migrant workers and how mobile phones can act as a channel for providing customised, flexible, and targeted financial services to the workers. A careful diagnosis of the financial problems and conditions of the migrant workers ought to lead to a set of insights worth discussing.

3.1   Remittances and Savings

The domestic remittances market was worth around Rs 90,000 crores. It ought to be given importance akin to international remittances. There are many studies that have shown the positive impact of international remittances has had on the socio-economic conditions of the families of the workers (Tumbe, 2011). One of the many reasons for viable utilisation of international remittances by external migrant households is the formal channels of remittances. The two most popular channels used by external migrants to remit money to their households in India are wire transfer and bank drafts (Tumbe, 2011). Whereas, as shown in the previous section, the two most popular channels used by the internal migrant workers prior to introduction of MBFS were Friends and Family, local agents, and hawala/tapparwala couriers. These informal channels of remittances are unreliable, insecure, expensive, and slow. They limit the ability of internal migrant households, who are dependent on the sustained flow of remittances as their primary source of income, to save and to create assets. As shown in section 2.1, rise in access to bank accounts, mobile phones, and mobile internet among internal migrant workers has led to them using MBFS to carry out their financial transactions, especially remitting money. MBFS allow migrant workers to remit only the required amount, whenever necessary, and as many times as they want. These services free workers from the hassles of standing in long queues at the banks and sacrificing a day's wage. Workers found, as shown in Figure 2.1, MBFS to be safer, more convenient, faster, and cheaper channel than other for remitting money. However, section 2.2 highlighted gender norms and lack of trust and confidence, as the barriers to adoption of MBFS. In order to increase the penetration of MBFS as the preferred channel of remittance for internal migrants financial service providers, policymaker, and researchers should aim to develop measures to overcome these barriers.

In addition to the provisioning of formal channels of remittance, migrant households need to be supported by a combination of social security schemes and targeted, customised and flexible suite of financial products to enhance their socio-economic conditions. The RBI's committee on Household Finance had recommended that low-income households should be provided with basic set of financial products like "no-frills accounts, simple term life insurance, automatically triggered catastrophe insurance, a basic NPS account for pensions, and access to institutionally-provided unsecured debt" (Reserve Bank of India, 2017). The RSSA also offers a similar suite of financial products customised for migrants like micro-loans at source and at destination, informal savings options, insurance options, investment options (specifically designed for migrants), and financial literacy

programmes (Kulkarni, 2012). However, in both case, the credit and insurance products outnumber savings products. During the study, the author observed that workers were very particular about their ability to manage their finances, especially savings.

There was a feeling that savings showed financial prudence. As mentioned in section 2.1.4, 50 workers reported that they "Always" managed to save a part of their income and 30 of them saved in bank accounts. It is worth exploring in future research studies whether micro-saving products can be made available on mobile payments platforms? As more workers adopt mobile payments platforms, more products that align with the needs of the migrant workers can be offered to them through the platform. Micro-savings products that remind the workers within days of getting paid to save a part of their income can be looked into. Similarly, products that are linked to rewards system or a cashback system in addition to fixed interest earned o n savings can also benefit the workers just like the rewards system worked for mobile payments platforms (Reserve Bank of India, 2017).

3.2   Wage Payment in Bank Account

As shown in section 2.1.1, salaries of majority (51) of the workers were deposited directly into their bank accounts by their employer. This had a significant impact on how workers operated their bank accounts. 40 of them used formal channels like MBFS and bank branch instead of family and friends and LMTS. Whereas, 10 out of the 19, who were paid in cash, used LMTS to operate their bank accounts. In addition, 53 workers preferred their salaries to be deposited in their bank accounts. However, 14 workers preferred their salaries as cash. As mentioned in section 2.1.1 payment in bank account had a significant impact on the usage of MBFS.

One of the primary reasons why workers did not prefer to be paid in their bank accounts was that their home bank branches were at the source. These accounts were opened en-masse under PMJDY. The process of KYC was also completed at the source. Workers were issued debit cards and had their phone numbers linked with the account. Some workers were not issued debit cards, did not have their phone numbers linked, lost their debit card, and/or lost their phones or changed their mobile numbers. These workers could not access MBFS even when they wanted to because the process of changing the home branch of their bank accounts was cumbersome and tedious. To overcome this issue, the RSSA ensures that migrant workers have bank accounts at source and at the destination. Semi-permanent migrant workers belong to at least two locations or have at least two addresses an identity card or document that links more than one addresses to a worker would allow them to comply with KYC requirements. Recently, the RBI allowed financial institutions to conduct their KYC process over video, as another step in its push towards reducing transactional costs for the least well-off by making the entire KYC process electronic and paperless. There are many benefits of eKYC, but it assumes a certain level of digital access among low-income households. For example, the video KYC would not benefit workers who do not h ave access to mobile phones and/or a computer with camera and internet. It has also been observed that there is a mismatch between the way innovators and regulators perceive technological innovations for easing the KYC process, and there is an urgent need to bridge it for the benefit of all.

3.3 Women Using Mobile-Based Financial Services

Gender norms are difficult to change in a short period of time, as they are linked to culture and traditions. Studies have shown that economic incentives like providing free mobile phones or subsidised data charges for women lead to more harm than good (Barboni, et al., 2018). Some of the older women among the women surveyed used MBFS and also controlled their finances. They exercised full decisional autonomy on how to manage their finances. They also encouraged other women to opt for MBFS and to control their finances. Many women also expressed a willingness to learn how to operate and use MBFS. The author feels the normative incentives like raising awareness, creating women worker's collectives, and strengthening social networks among women may help in increasing the adoption of MBFS.

4.   Conclusion

Through the study, the author was exposed to and made aware of fascinating insights in the way migrant workers managed their lives and finances. It showed that access to bank accounts and mobile phones was not an issue with the workers. The problem laid in the gap between access to and usage of MBFS. To this end, the study showed that when migrant workers were paid in their bank accounts, they tended to operate their accounts, remit money, and make payments through MBFS. In addition, the study showed that MBFS helped workers to reduce overspending and unnecessary expenditure. MBFS also enabled migrant workers to remit money as and when their families required. Reduction in overspending combined with the monetary value of the benefits (safety, convenience, fast, and cheap) enabled migrant workers and their households to save more than before and save in their bank accounts. Increased savings in formal financial institutions can be construed as a step towards deepening of financial inclusion. These workers can now be offered a suite of targeted and customised financial products like micro-savings, credit, insurance, and pensions through mobile phones. Such products would allow migrant workers to reduce the impact of the risks and vulnerabilities they often face while migrating and/or at the destination. These targeted financial products would also allow the workers and their households to utilise the remittances for asset and wealth creation.

The study also showed that not every migrant worker had adopted MBFS. Close to 50 per cent of the respondents were yet to switch from traditional instruments of payments, channels of remittances, and savings options (cash, LMTS, and remitting savings home). It was observed that existing patriarchal norms in Indian society restricted women worker's access and usage of MBFS. Women workers were, in many cases, denied decisional autonomy over their finances and economic agency. Normative measures like raising awareness, creating women worker's collectives, and strengthening social networks among women would help in increasing the adoption of MBFS.

The other major barrier that discouraged migrant workers from adopting MBFS was lack of trust and confidence in the technology. Workers were concerned about the absence of human contact while conducting a financial transaction, like payments and remittances, through MBFS. According to them, the entire process seemed insecure. Instances of 'server down', delay in receiving confirmation text, failed transaction, unavailability of customer care, and online frauds heightened worker's insecurity for MBFS. This is a vital takeaway from the study; policymakers and financial service providers ought to enhance the trust and confidence of low-income migrant workers to adopt MBFS for their financial needs. Policymakers can ensure customer protection measures and grievance redressal mechanisms are effectively advertised and are made accessible to low-income migrant workers and households. In addition, policymakers also should look to deliver social security programmes like affordable housing, free healthcare, and education for migrant households. A special identity card that allows two domiciles can help migrant households to establish claims, entitlements, and ensure inclusion in social security programmes. Financial service providers can ensure seamless transfer of funds without network and other technical issues. Google Pay was the most popular mobile payments platforms among the respondents. It was also available in Hindi, which enhanced its accessibility among the workers. Similar measures like availability of the payments platforms in vernacular language, encouraging USSD based transactions for feature phone users, and raising

awareness regarding the guidelines to follow in case of the failed transaction could instil faith in MBFS of low-income migrant households.

Appendix 1: Empirical Findings from Survey

Profile of the Respondents

This section presents the profiles of the respondents based on various socio-economic parameters like age, gender, level of education, place of residence, and job titles.

TABLE 1.1: Distribution of Respondents by Age

Age of the Respondent	Frequency
Between 18–28	46
Between 29–39	18
Between 40–50	5
Above 50	1
Total	70

Out of the seventy workers surveyed, 46 surveyed were within the 18–28 years age group. Followed by 18 workers in the 29–39 years age bracket. 5 in the 40-50 years age group and one respondent was above the age of 50.

TABLE 1.2: Distribution of Respondents by Gender

Gender of the Respondent	Frequency
Male	48
Female	22
Total	70

There was equal number of men and women workers. However, 48 men and only 22 women respondents participated in the survey.

TABLE 1.3: Distribution of Respondents by Education Qualification

Level of Education of the Respondents	Frequency
Primary	13
Secondary	48
College Diploma/Degree	5
No Education	4
Total	70

Majority of the workers (48) had completed secondary (up till grade 10th) level of education qualification. 13 of them only completed primary school education. There were 5 respondents with Bachelor's in Arts or Bachelor's in Commerce.

TABLE 1.4: Distribution of Respondents by Place of Residence

Place of Residence	Frequency
Uttar Pradesh	28
Bihar	32
Jharkhand	5
West Bengal	3
Chhattisgarh	1
Haryana	1
Total	70

The highest number of respondents (32) were from Bihar, and 28 workers belonged to Uttar Pradesh Jharkhand was home to 5 of the seventy respondents.

TABLE 1.5: Distribution of Respondents by Job Title

Job Title	Frequency
Tailor	52
Operator	8
Supervisor	2
Helper	3
Loader	2
Production Reporting	2
Peon	1
Total	70

A maximum number of respondents (52) were employed as tailors. 8 were employed as machine operators. There were 2 respondents who were employed as production reporters, who were in charge of one of the lines of production.

Economic Characteristics of the Respondents

The following section constitutes responses related to the economic characteristics of the workers. Questions include responses on income distribution, frequency of monthly savings, average monthly savings, and savings options available to the respondents.

Table 1.6 distributes the workers based on their income brackets.

TABLE 1.6: Income Distribution of Respondents

Income (in Rs.)	Frequency
10,000-15,000	58
15,000-20,000	8
20,000-25,000	4
Total	70

There were 58 workers who earned a monthly income between Rs 10,000 – Rs. 15,000. 8 of them earned between Rs. 15,000 – Rs. 20,000 and 4 earned between Rs. 20,000 – Rs. 25,000.

Table 1.7 shows the frequency of monthly savings as reported by the workers.

TABLE 1.7: Monthly Savings

Savings	Frequency
Never	2
Rarely	4
Sometimes	7
Often	7
Always	50
Total	70

When asked about the frequency of their monthly savings pattern, 50 workers claimed that they "Always" managed to save a part of their income. 7 respondents claimed that they saved "Often" and "Sometimes" respectively. There were 2 respondents who also claimed that they "Never" managed to save a part of their income.

Following the frequency of savings, Table 1.8 shows the distribution of respondents based on their average monthly savings.

TABLE 1.8: Average Monthly Savings

Avg Savings (in Rs.)	*Frequency*
No Savings	4
Less than 1,000	6
1,000–3,000	14
3,000–5,000	14
5,000–7,000	6
More than 7,000	26
Total	70

The respondents were asked for their average monthly savings, and 26 claimed to save in excess of Rs. 7,000 a month. 14 workers saved between Rs, 1,000–3,000 and Rs. 3,000–5,000 respectively. Subsequently, Table 1.9 captures the different savings options used by the workers.

TABLE 1.9: Savings Options

Savings Options	*Frequency*
No Savings	3
Bank Account	43
Cash	5
Send Savings Home (SSH)	12
Bank Account & Cash	4
Cash & SSH	3
Total	70

When inquired about their savings options, 43 workers reported that they save in their bank accounts. 12 reported that they "Send Savings Home" i.e. they remit their savings to their family at the source. Only 5 of the workers saved in cash. Finally, Table 1.10 shows the amount of savings in the bank account of the workers.

TABLE 1.10: Monthly Savings in Bank Account

Savings in Bank A/c (in Rs.)	Frequency
No Savings	4
Less than 1,000	6
1,000–3,000	16
3,000–5,000	13
5,000–7,000	5
More than 7,000	26
Total	70

Workers were asked how much do they save in their bank account, 26 workers saved more than Rs 7,000 in their bank accounts. 16 of them saved between the range of Rs. 1,000–3,000 and 13 saved between Rs 3,000–5,000.

Trends in Access to Mobile Phones and Bank Accounts

This section looks at whether the respondents had access to mobile phones, internet-enabled mobile phones, bank accounts, distance from bank branches at source (their villages) and at destination (Dundahera and Manesar).

TABLE 1.11: Availability of Mobile Phone

Mobile Phone	Frequency
Yes	67
No	3
Total	70

Out of the 70 respondents, 67 owned either a feature or a smart mobile phone. Only 3 of the respondents did not own a mobile phone. All three of them were women.

TABLE 1.12: Availability of Internet Enabled Mobile Phone

Internet Enabled Mobile Phone	Frequency
Yes	49
No	21
Total	70

A significant number of workers (49) owned an internet-enabled mobile phone. However, 21 of them owned a non-internet enabled mobile phone..

TABLE 1.13: Availability of Bank Account

Bank Account	Frequency
Yes	68
No	2
Total	70

There was high access to bank accounts as well. 68 out of the 70 workers surveyed possessed a bank account with a public sector or private bank. However, 2 of the respondents did not possess a bank account.

TABLE 1.14: Distance from Bank at Destination

Distance (in Km)	Frequency
Less than 1	9
2–3	33
3–5	6
More than 5	9
Don't visit bank branch	13
Total	70

One of the parameters of evaluating access to banking services is the distance from a bank branch for households. 33 workers claimed there was a bank branch or an ATM or a local money transfer shop within 1km – 3km from where they worked. Most of the workers visited an ATM to withdraw cash and reported the distance to the nearest ATM. They had given a debit card to their families at source (domicile), which they used to withdraw cash. A local money transfer shop is of two types; one uses Aadhaar card number of the migrant workers to remit money; the other is informal channels like hawala/tappawala couriers. The former also dispense cash and provide basic services like checking bank account balance and recent transactions for a commission. The hawala couriers are an illegal channel of transferring money and require no documentation. 13 workers reported they "Don't Visit Bank Branch" because their bank accounts were opened at source and their home branch was at the source.

TABLE 1.15: Distance from Bank at Source

Distance (in Km)	Frequency
Less than 1	8
1–3	25
3–5	8
More than 5	25
Don't visit bank branch	4
Total	70

For 25 workers, a bank branch or an ATM was more than 5km away from their homes at the source. Another 25 workers claimed that either an ATM or a bank branch was within 1km–3km from their homes in their village.

Trends in Usage of Mobile-Based Financial Services

Migrant workers require a secure place to save their money and a convenient, inexpensive and swift channel to remit money to their families (Chakrabarty, 2013). It was observed that workers used cash to make payments and LMTS to remit money. The author used remittances and payments as indicators to examine whether migrant workers used MBFS. To this end, the questionnaire included questions, which captured responses on whether the workers received their salaries in bank accounts or as cash. Second, did they remit money and/or make payments through mobile payments platforms, how did they operate their bank accounts, how did they remit money, and finally w hich m obile payments platforms did they use.

Table 1.16 shows the distribution of respondents based on whether they received their income in their bank accounts or as cash.

TABLE 1.16: Distribution of Respondents Based on Income Received in Bank Account or Cash

Bank A/c or Cash	Frequency
Bank A/c	51
Cash	19
Total	70

Out of 70 workers, 51 received their income/salary in their bank accounts. The rest of the respondents (19) received it as cash. Table 1.17 shows whether the workers remit money to their families in order to check if they do so through mobile phones.

TABLE 1.17: Distribution of Respondents Based on Whether they Remit Money

Remittances	Frequency
Yes	54
No	10
Sometimes	6
Total	70

A high number of workers (54) reported "Yes" to remitting money. Whereas, 10 reported "No", and 96 claimed that they did so "Sometimes".

The author also inquired whether they used mobile payments platforms to make payments.

TABLE 1.18: Distribution of Respondents Based Payments Through MPP

Payments	Frequency
Yes	40
No	28
Sometimes	2
Total	70

In terms of payments through mobile phones, 40 workers reported "No", and 28 responded "Yes". 29 out of the 40 respondents, who did not make mobile-based payments remitted the money. 25 out of 28 respondents who used mobile payments platforms to make payments also remitted the money. Table 1.19 shows how the workers operated their bank accounts.

TABLE 1.19: Respondents Operating their Bank Accounts

Payment in Bank or Cash	Operating Bank Account				Total
	Mobile Phone	Bank Branch	Friends and Family	Local Money Transfer Shops	
Bank Account	28	12	5	6	51
Cash	3	4	2	10	19
Total	31	16	7	16	70

Out of the workers who received their incomes in bank account 28 used MBFS. Only 3 respondents who received their salaries in cash operated their bank account through MBFS. LMTS was the choice of 10 out of 19 respondents who received their incomes in cash. The questionnaire did not ask the respondents to distinguish between two types of LMTS, as mentioned in section 2.2. Workers with bank accounts and who used LMTS to operate their bank accounts used the Aadhaar based payment service provider shops. Only 6 of the respondents who received their salaries in their bank account used LMTS to operate their bank account and funds.

Next, to check those respondents who used MBFS to operate their bank accounts did so to remit. Table 1.20 was arranged by comparing the responses to questions on how the respondents operated their bank account and which channel of remittances did they use.

TABLE 1.20: Cross-Section of Respondents Operated their Bank Accounts & CoR

Operating Bank Ac	Channels of Remittances											Total
	BB BB	MPP MPP	LMTS LMTS	FF FF	BB & MPP	BB & LMTS	MPP & LMTS	MPP, LMTS & FF	MPP & MBA	BB, MPP & LMTS	NA NA	
MBFS	0	23	1	0	3	0	1	1	1	1	0	31
Bank Branch	5	0	6	1	0	2	1	0	0	0	1	16
Friends & Family	2	1	1	1	0	0	1	1	0	0	0	7
LMTS	0	0	14	2	0	0	0	0	0	0	0	16
Total	7	24	22	4	3	2	2	2	1	1	1	70

Note: MBFS: Mobile-Based Financial Services; BB: Bank Branch; MPP: Mobile Payments Platform; LMTS: Local money transfer shops; FF: Friends and Family; MBA: Mobile Banking Applications

Out of the 31 respondents who operated their bank accounts using mobile phones, 23 used only mobile payments platforms to remit money. It was observed that workers used more than one channel of remittances, as 8 respondents used mobile payments platforms combined with bank branch and/or LMTS to remit money. Workers would decide which channel to use depending on the amount to be remitted and the urgency to remit. Additionally, it was observed that women workers used LMTS to remit, whereas their husbands used mobile payments platforms. Table 1.21 looks to check which mobile-based platform 31 respondents used to remit money.

TABLE 1.21: Cross Section of Channel of Remittance and Mobile Payments Platforms

Channel of Remittances	Mobile Payments Platforms							Total
	Google Pay	Phone Phone	Paytm Paytm	Gpay & Phone Pe	Gpay, PP & Paytm	BHIM	NA	
MPP	14	3	1	2	1	1	1	23
LMTS	0	0	0	0	0	0	1	1
BB & MPP	3	0	0	0	0	0	0	3
MPP & LMTS	1	0	0	0	0	0	0	1
MPP, LMTS, & FF	0	0	0	0	0	0	1	1
MPP & MBA	0	0	0	0	1	0	0	1
MPP, LMTS & BB	0	1	0	0	0	0	0	1
Total	18	4	1	2	2	1	3	31

Note: CoR: Channels of Remittances; BB: Bank Branch; MPP: Mobile Payments Platform; LMTS: Local money transfer shops; FF: Friends and Family; MBA: Mobile Banking Applications

14 out of the 31 respondents only used Google Pay to remit. 18 out of the 31 used Google Pay in combination with Phone Pe and Paytm. NA stands for respondents who did not use any of the specified mobile payments platforms.

Appendix 2:   Questionnaire

Section − A

Name				
Gender				
Age	18-28	29-39	40-50	Above 50
Level of Education	No Education			
	Primary Education			
	Secondary Education			
	College diploma/degree			
Place of Residence				
Job Title				

Section − B

1. Do you have a mobile phone?

   o Yes

   o No

2. Do you have an internet enabled mobile phone?

   o Yes

   o No

3. Do you have a bank account?

   o Yes

   o No

4. How far is the bank branch from where you live?

   o Less than 1 km

   o 1-3 km

   o 3-5 km

   o More than 5 km

5. Do you operate and manage your bank account through

   o Mobile banking/Mobile Payments Platforms

o By visiting the bank branch

o Through somebody else – family or friends

6. Do you use any mobile payments platforms? If yes, then which one?

o Paytm

o Google Pay

o Phone Pe

o Bhim App

o Any other (specify)

7. What is your salary per month? *(In Rupees)*

o 10,000 – 15,000

o 15,001 – 20,000

o 20,001 – 25,000

o More than 25,000

8. Do you have another source of income other than your current job?

o Yes

o No

9. Do you receive your salary in your back account or in cash?

o Bank Account

o Cash

10. Do you prefer to receive your salary in your bank account or in cash and why?

o Bank Account

o Cash

11. Do you send a part of your salary back home?

   o Yes

   o No

12. Do you use your mobile banking to transfer funds or make payments?

   o Yes

   o No

13. If yes, how do you transfer the money?

   o Through mobile banking

   o Through bank branch

   o Through mobile money

   o Through mobile payment platforms

   o Through other local money transfer shops (money transfer shops)

   o Through friends and family

14. Which mode of sending money back home do you prefer and why?

   o Mobile Banking

   o Bank Branch

   o Mobile Money

   o Mobile Payment Platforms

   o Local money transfer shops

   o Friends and Family

15. How often do you save a part of your income?

   o Never

   o Rarely

   o Sometimes

o Often

o Always

16. Where do you save your money? *Can tick more than one option*

   o In Bank Account

   o In Cash

   o In Mobile Wallet

   o In Mobile Money

   o Don't save

17. Averagely, how much money are you able to save monthly? *(In Rupees)*

   o Less 1,000

   o 1,000 – 3,000

   o 3,001 – 5,000

   o 5,001 – 7,000

   o More than 7,000

18. How much of your average monthly savings do you save in your bank account, mobile wallet or mobile money? *(In Rupees)*

   o Less 1,000

   o 1,000 – 3,000

   o 3,001 – 5,000

   o 5,001 – 7,000

   o More than 7,000

19. Which of the following made you prefer mobile banking the most? *Rank in order of preference*

   o Safety

   o Convenient

   o Cheaper

   o Faster

20. How strongly do you agree or disagree that mobile banking has increased your average monthly savings as compared to traditional banking?

   o Strongly Agree

o Agree

o Neutral

o Disagree

o Strongly Disagree

21. How much does saving in your bank account or mobile phone help you avoid over-spending?

o By a great extent

o By a moderate extent

o By a slight extent

o By no extent

22. Which of the following services provided by mobile banking or mobile payments platforms do you find useful? *Can tick more than one option*

o Check account balance

o Check recent transactions

o Check credit card limit

o Send remittances

o Check status of cheque

o Change PIN

o Ordering cheque book

o Paying bills

o Apply for loans

o Payment of credit card dues

o Mobile recharge

o Manage loan

o E-commerce

o Booking train tickets

23. What are the main challenges or barriers that you face while using mobile banking?

o Security concern

o Network problem

o Complicated mobile phones

    o Complicated apps

    o Cost per transaction

    o Difficulty in accessing customer care service

    o Delay or not receiving transaction confirmation message

    o Any other

Section – C

1. How far is the ATM/Bank Branch from your house in your village?

    o Less than a km

    o 1-3 km

    o 3-5 km

    o More than 5 km

2. What is the most common mode of transaction in your village?

    o Cash

    o Mobile payments

3. Are your family members able to save any part of the money you send back home?

    o Yes

    o No

4. What is the extent of the benefit you feel your family members have experienced from mobile banking?

    o Very great extent

    o Great extent

    o Moderate extent

    o Little extent

    o No extent at all

5. Have you faced any specific difficulty while using mobile banking that hasn't been mentioned in this questionnaire?

6. Have you ever been conned or defrauded while using mobile banking or digital banking?

7. Do you feel mobile banking or mobile payments have benefitted you in any other way(s) that haven't been mentioned in this questionnaire?

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