BANGLADESH

THE IMPACT OF WAGE DIGITIZATION: NEIGHBORHOOD SPILLOVER EFFECTS FROM PAYING GARMENT FACTORY WORKERS WITH MOBILE MONEY

Fieldwork conducted May-July 2017 and October-November 2018

May 2019
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EXECUTIVE SUMMARY
OVERVIEW & METHODS

Does digitizing wage payments spur greater adoption of mobile financial services and the development of digital ecosystems? Yes, via person-to-person transfers of wages received via mobile money.

- In early 2017, Business for Social Responsibility (BSR) partnered with mobile money providers and ready-made garment (RMG) factories in Bangladesh to convert wage payments from cash to mobile money, and provide financial literacy training to workers.
- Before the start of BSR’s intervention, the Financial Inclusion Insights (FII) program implemented a baseline survey of household residents and small-business merchants in the neighborhoods surrounding four factories targeted for wage digitization.
- BSR successfully worked with factory management to digitize two factories, Sepal and Stylecraft. Two other factories, Elite and Rabab, were not digitized.
- An endline survey was completed in all four neighborhoods in October-November 2018.
- The study measured the impact of wage digitization on the uptake of mobile money by neighborhood residents and merchants. The difference-in-differences method was used to measure change between the digitized and non-digitized neighborhoods between baseline and endline surveys. The study used the following survey design:
  - The neighborhoods in the vicinity of the four factories were mapped to identify residential areas and shopping districts.
  - A sample of residents was randomly selected from households within a 500-meter radius of each factory. The target sample size was N=2,000 residents, 500 from each factory area. The achieved sample was 2,000 baseline interviews, and 2,050 endline interviews.
  - A sample of 100 merchants in each neighborhood from each area were randomly selected for interviews at the baseline and endline. The achieved sample was 400 baseline interviews and 438 endline interviews with merchants.
  - The survey measured change over time at the neighborhood level using a repeated cross-section design in which different respondents were randomly selected for interviews at the baseline and endline.
- The study provides detailed information on the population of each factory neighborhood, including RMG workers whose wages were digitized, RMG workers whose wages were not digitized, non-RMG workers, shopkeepers, and other small-business merchants.
- The data revealed the characteristics of mobile financial ecosystems in the factory neighborhoods, including the awareness, uptake, use cases, and activity patterns of mobile money users. Key measurements also included knowledge, attitudes, and user readiness in terms of financial capability, economic empowerment, and understanding of different digital payment platforms.

Source: InterMedia Bangladesh Garment Worker Study, Household/Merchant Baseline (N=2,000/N=400), May-July 2017; Household/Merchant Endline (N=2,050/N=438), October-November 2018.
KEY FINDINGS

- The probability of being an active user (past 90 days) of an individually-registered mobile money account increased by 12 percentage points because of wage digitization. Difference-in-differences regression analysis was used to evaluate the impact of wage digitization by comparing the change in the neighborhoods surrounding the factories that digitized (the treatment group), to the change in the neighborhoods surrounding the factories that did not digitize (the control group).

- The proportion of residents of digitized neighborhoods who received wages via mobile money in the previous 90 days increased from 2% to 12% from baseline to endline. Recipients reported high satisfaction with receiving wages via mobile money.

- The relatively small group of direct beneficiaries of wage digitization generated significant spillover effects on men and women in the neighborhood who did not work in the garment factories. Total active mobile money users increased from 15% to 34% of residents of digitized neighborhoods, compared to an increase from 13% to 21% in the non-digitized neighborhoods.

- Person-to-person (P2P) payments was the channel for the spillover effects.

- Merchants did not report greater acceptance of mobile money payments after wage digitization, and survey respondents in digitized neighborhoods grew less comfortable with using mobile money for merchant payments. Merchants were not part of the BSR program. Greater incentives are necessary to promote acceptance of mobile money by merchants.

Source: InterMedia Bangladesh Garment Worker Study, Household/Merchant Baseline (N=2,000/N=400), May-July 2017; Household/Merchant Endline (N=2,050/N=438), October-November 2018.
NEIGHBORHOOD CHARACTERISTICS
Very few RMG workers reported receiving wages via mobile money, but they were more frequently found in digitized neighborhoods than non-digitized neighborhoods; the neighborhoods were equivalent on other key baseline characteristics.

Whether the respondent, or a member of their household, received a wage via mobile money (MM) was included in the difference-in-differences regression model to control for baseline differences.
CHANGE IN DIGITAL WAGES AND WORKERS

At the endline, only 6% of household respondents in digitized neighborhoods reported currently receiving wages via mobile money

- Very few mobile money (MM) wage recipients were found in non-digitized neighborhoods, but the change from baseline to endline was nevertheless statistically significant.
- The endline sample in the non-digitized neighborhoods captured fewer RMG workers than at the baseline. Whether the respondent was a RMG worker was included in the impact model to control for this change.

Source: InterMedia Bangladesh Garment Worker Study, household component: Baseline (N=2,000), May-July 2017; Endline (N=2,050), October-November 2018.
IMPACT OF WAGE DIGITIZATION
GREATER MM ADOPTION IN DIGITIZED NEIGHBORHOODS

From baseline to endline, users of registered mobile money accounts increased more in digitized neighborhoods than in non-digitized neighborhoods

- Registered users more than doubled in digitized neighborhoods and nearly all of them used their accounts actively (in the 90 days before the survey). There was a smaller increase in the non-digitized neighborhoods.
- Advanced mobile money users grew 3X in digitized neighborhoods, driven by wage digitization.

* Fewer than 50 observations

Source: InterMedia Bangladesh Garment Worker Study, household component: Baseline (N=2,000), May-July 2017; Endline (N=2,050), October-November 2018.
IMPACT OF WAGE DIGITIZATION

An individual in a digitized neighborhood had a 34% probability of being an active mobile money user, versus only 22% if wage digitization had not taken place.

Impact of wage digitization on active mobile-money user prevalence
(Shown: Predicted probabilities from difference-in-differences logistic regression, n=4,014)

12% Treatment effect

Source: InterMedia Bangladesh Garment Worker Study, household component: Baseline (N=2,000), May-July 2017; Endline (N=2,050), October-November 2018.
IMPACTS ON BOTH RMG WORKERS AND NON-WORKERS

Wage digitization caused active users to increase among both RMG workers and non-RMG workers; the effect was larger for RMG workers.

Source: InterMedia Bangladesh Garment Worker Study, household component: Baseline (N=2,000), May-July 2017; Endline (N=2,050), October-November 2018.
SPILLOVER EFFECTS FROM WAGE DIGITIZATION

Beyond just digital wage recipients, active mobile money users increased across all groups in digitized neighborhoods, more so than in non-digitized neighborhoods.

From baseline to endline, the greatest increase in active users was among male RMG workers, followed by female RMG workers in digitized neighborhoods. Active users increased by 11 percentage points among female non-RMG workers in digitized neighborhoods, compared to only 2 percentage points in non-digitized neighborhoods.

Source: InterMedia Bangladesh Garment Worker Study, household component: Baseline (N=2,000), May-July 2017; Endline (N=2,050), October-November 2018.
P2P TRANSFERS DROVE THE NEIGHBORHOOD EFFECT

Waged digitization had the greatest impact on increasing transfers

P2P transfers were the most frequently reported activity by active users of mobile money accounts in digitized neighborhoods among both RMG workers and non-RMG workers. Transfers were more common than cashing in and out of mobile money accounts, suggesting that active users increasingly stored value on their mobile money accounts and/or transferred money out of the neighborhood.

Source: InterMedia Bangladesh Garment Worker Study, household component: Baseline (N=2,000), May-July 2017; Endline (N=2,050), October-November 2018.
**DIGITIZATION PROMOTED CONVERSION TO REGISTERED USE**

More unregistered users adopted mobile money accounts in digitized neighborhoods than in non-digitized neighborhoods

From baseline to endline, more residents of digitized neighborhoods converted from unregistered to registered use of mobile money than did residents of non-digitized neighborhoods.

*The conversion rate is the difference between the proportion of registered users among all those who accessed mobile money at the endline minus the baseline.

**Source:** InterMedia Bangladesh Garment Worker Study, household component: Baseline (N=2,000), May-July 2017; Endline (N=2,050), October-November 2018.
SMALL INCREASE IN BANK USERS

Digitizing RMG wages via mobile money did not have a significant impact on uptake of bank accounts

The proportion of registered bank users increased more in digitized than in non-digitized neighborhoods, but the impact was not statistically significant. This finding suggests that holding a bank account in addition to a mobile money account is not necessary to meet the financial needs of neighborhood residents.

Digitized neighborhoods: Bank users
(Shown: Percentage of household respondents, baseline n=996, endline n=1,028)

<table>
<thead>
<tr>
<th></th>
<th>Registered bank users</th>
<th>Active bank users</th>
<th>Advanced bank users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>17</td>
<td>14</td>
<td>8</td>
</tr>
<tr>
<td>Endline</td>
<td>22</td>
<td>17</td>
<td>15</td>
</tr>
</tbody>
</table>

Non-digitized neighborhoods: Bank users
(Shown: Percentage of household respondents, baseline n=1,004, endline n=1,022)

<table>
<thead>
<tr>
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<th>Registered bank users</th>
<th>Active bank users</th>
<th>Advanced bank users</th>
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</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>15</td>
<td>13</td>
<td>10</td>
</tr>
<tr>
<td>Endline</td>
<td>19</td>
<td>14</td>
<td>11</td>
</tr>
</tbody>
</table>

Source: InterMedia Bangladesh Garment Worker Study, household component: Baseline (N=2,000), May-July 2017; Endline (N=2,050), October-November 2018.
PERCEPTIONS OF MOBILE MONEY
IMPACT ON MOBILE MONEY USERS’ PERCEPTIONS

Levels of comfort and confidence using mobile money increased more in digitized neighborhoods than in non-digitized neighborhoods

The exception was comfort with using mobile money for merchant payments, which was negatively impacted by wage digitization. This finding is reflected in the survey of merchants that showed no increase in the willingness to accept mobile money instead of cash.

Source: InterMedia Bangladesh Garment Worker Study, household component: Baseline (N=2,000), May-July 2017; Endline (N=2,050), October-November 2018.
ATTITUDES OF RMG WORKERS PAID VIA MOBILE MONEY

Compared to RMG workers who received wages in cash, those who received wages via mobile money tended to have strong preferences for mobile money, and against cash

RMG workers who received wages via mobile money were also more likely to prefer to receive wages via a bank or other non-mobile money account, and they were more likely to report their wages were paid reliably than those who still received wages via cash. Relative to cash wage recipients, digitized RMG workers were also more likely to consider their method of wage payment to be secure, offering easy access to their funds, and convenient (at the 90% level of statistical confidence).

Source: InterMedia Bangladesh Garment Worker Study, household component: Endline (N=2,050), October-November 2018.
FINANCIAL INCLUSION AND ECONOMIC EMPOWERMENT

The endline findings suggest that digitization spurred adoption of mobile money by relatively less empowered women.

After a large group of women in digitized neighborhoods gained accounts and began receiving wages via mobile money, the data showed negative correlations with women’s economic empowerment, measured by an index of influence, voice, autonomy and control indicators of financial decision-making power. After controlling for neighborhood and receiving wages via mobile money, being a RMG worker and a more advanced user of mobile money were positively correlated with empowerment for women. These findings suggest that, absent digitization, relatively more empowered women tend to adopt mobile money.

Endline: Effects of key variables on economic empowerment at endline, by gender

(Shown: Statistically significant (95%) OLS regression coefficients from one multivariate model for men (n=1,034), and one for women (n=1,009))

Source: InterMedia Bangladesh Garment Worker Study, household component: Endline (N=2,050), October-November 2018.
MERCHANT ADOPTION OF MOBILE MONEY PAYMENTS
MERCHANTS STILL DO NOT ACCEPT MOBILE MONEY PAYMENTS

Cash is still king; wage digitization had no impact on merchant acceptance of mobile money payments

The proportion of merchants who reported they have not considered accepting payment via mobile money increased from the baseline to the endline in both digitized and non-digitized neighborhoods. This finding suggests that user growth among neighborhood residents is not sufficient to motivate merchants to accept mobile money payments; greater incentives are necessary.

Digitized neighborhoods: Merchant consideration of DFS adoption
(Shown: Percentage of merchants who only accept cash)

<table>
<thead>
<tr>
<th>Have not considered accepting</th>
<th>Considered &amp; decided not to accept</th>
<th>Considered &amp; decided to start accepting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline (n=199)</td>
<td>83</td>
<td>16</td>
</tr>
<tr>
<td>Endline (n=213)</td>
<td>94</td>
<td>6</td>
</tr>
</tbody>
</table>

Non-digitized neighborhoods: Merchant consideration of DFS adoption
(Shown: Percentage of merchants who only accept cash)

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<th>Considered &amp; decided to start accepting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline (n=197)</td>
<td>70</td>
<td>29</td>
</tr>
<tr>
<td>Endline (n=220)</td>
<td>91</td>
<td>7</td>
</tr>
</tbody>
</table>

Source: InterMedia Bangladesh Garment Worker Study, merchant component: Baseline (N=400), May-July 2017; Endline (N=438), October-November 2018.
PUTTING THE USER FRONT AND CENTER

The Financial Inclusion Insights (FII) program responds to the need identified by multiple stakeholders for timely demand-side data and practical insights into digital financial services (DFS), including mobile money, and the potential for their expanded use among the poor.

The FII team conducts quantitative and qualitative research in Bangladesh, India, Indonesia, Kenya, Nigeria, Pakistan, Tanzania and Uganda to:

- Track access to and demand for financial services generally, and the uptake and use of DFS specifically;
- Measure adoption and use of DFS among key target groups (women, poor, rural, unbanked);
- Identify drivers and barriers to further adoption of DFS;
- Evaluate the agent experience and the performance of mobile money agents; and
- Produce actionable, forward-looking insights to support product and service development and delivery, based on rigorous data.

The FII program is managed by InterMedia. Visit the FII Resource Center to learn more: www.finclusion.org.
KEY DEFINITIONS

Access to a bank – Counts individuals who have ever used a bank, or who have a bank account registered in their name or a joint account in their and someone else’s name.

Access to mobile money or an NBFI – Counts individuals who have ever used a mobile money service or a full-service NBFI.

Active registered user – An individual who has an account registered in their name with a full-service financial institution and has used it in the last 90 days.

Advanced user – An active registered user who has ever used their account for any of the following: saving, borrowing, insurance, investment, paying bills, receiving wages or government benefits. Buying airtime top-ups is considered an advanced use of a bank account or NBFI account but not a mobile money account.

Basic use – Activities include cash-in (deposits) or cash-out (withdrawals), money transfers to another individual, or account maintenance. Buying airtime using mobile money is considered a basic use case.

Confidence interval (95%) – The range of values within which the observed value of a statistic will be found in 95 out of 100 repeat measurements.

Customer journey – A series of progressive stages through which individuals become more active users of more sophisticated financial services.

Digital financial inclusion – Counts individuals who have an account in their name with a full-service financial institution that offers digital services (e.g., online account access, debit/ATM card, credit card, electronic cash transfers).

Digital financial services (DFS) – Financial services provided through an electronic platform (e.g., mobile phones, debit or credit electronic cards, internet).

Digital stored-value account – A mobile money account or a full-service bank or NBFI account that offers digital services.

Mobile money (MM) – A service that allows a mobile phone to be used for storing and transferring money, and potentially accessing other financial services.

Registered user – Counts individuals who have a financial account registered in their name or registered jointly in their and someone else’s name.

Unregistered/over-the-counter (OTC) user – An individual who has used a financial service through someone else’s account, including a mobile money agent’s account or the account of a family member or a neighbor.
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